ISSUE NOTIFICATION

The projected patent number and issue date are specified above.

Determination of Patent Term Adjustment under 35 U.S.C. 154 (b)
(application filed on or after May 29, 2000)

The Patent Term Adjustment is 1733 day(s). Any patent to issue from the above-identified application will include an indication of the adjustment on the front page.

If a Continued Prosecution Application (CPA) was filed in the above-identified application, the filing date that determines Patent Term Adjustment is the filing date of the most recent CPA.

Applicant will be able to obtain more detailed information by accessing the Patent Application Information Retrieval (PAIR) WEB site (http://pair.uspto.gov).

Any questions regarding the Patent Term Extension or Adjustment determination should be directed to the Office of Patent Legal Administration at (571)-272-7702. Questions relating to issue and publication fee payments should be directed to the Application Assistance Unit (AAU) of the Office of Data Management (ODM) at (571)-272-4200.

APPLICANT(s) (Please see PAIR WEB site http://pair.uspto.gov for additional applicants):

Wonjang Baek, Gyeonggi-do, KOREA, REPUBLIC OF;
John Kim, Seoul, KOREA, REPUBLIC OF;
Seong Baek Lee, Seoul, KOREA, REPUBLIC OF;

The United States represents the largest, most dynamic marketplace in the world and is an unparalleled location for business investment, innovation, and commercialization of new technologies. The USA offers tremendous resources and advantages for those who invest and manufacture goods here. Through SelectUSA, our nation works to encourage and facilitate business investment. To learn more about why the USA is the best country in the world to develop technology, manufacture products, and grow your business, visit SelectUSA.gov.
PART B - FEE(S) TRANSMITTAL

Complete and send this form, together with applicable fee(s), to: Mail
Mail Stop ISSUE FEE
Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450
or Fax
(571)-273-8850

INSTRUCTIONS: This form should be used for transmitting the ISSUE FEE and PUBLICATION FEE (if required). Blocks 1 through 5 should be completed where appropriate. All further correspondence including the Patent, advance orders and notification of maintenance fees will be mailed to the current correspondence address as indicated unless corrected below or directed otherwise in Block 1, by (a) specifying a new correspondence address; and/or (b) indicating a separate "FEE ADDRESS" for maintenance fee notifications.

CURRENT CORRESPONDENCE ADDRESS (Note: Use Block 1 for any change of address)

49455 7590 02/24/2016
STEIN IP, LLC
1400 EYE STREET, NW
SUITE 300
WASHINGTON, DC 20005

Note: A certificate of mailing can only be used for domestic mailings of the Fee(s) Transmittal. This certificate cannot be used for any other accompanying papers. Each additional paper, such as an assignment or formal drawing, must have its own certificate of mailing or transmission.

Certificate of Mailing or Transmission
I hereby certify that this Fee(s) Transmittal is being deposited with the United States Postal Service with sufficient postage for first class mail in an envelope addressed to the Mail Stop ISSUE FEE address above, or being facsimile transmitted to the USPTO (571) 273-8850, on the date indicated below.

Date
05/24/2016

APPLICATION NO. FILING DATE FIRST NAMED INVENTOR ATTORNEY DOCKET NO. CONFIRMATION NO.
12449,565 08/13/2009 Woonjae Baek 0356.1010 8285

TITLE OF INVENTION: DATA APPLICATION PROVIDING SERVER, BROADCASTING SERVER AND RECEIVER FOR DYNAMICALLY PROCESSING DATA APPLICATION AND DIGITAL BROADCASTING SYSTEM INCLUDING THE SAME

APPLN. TYPE ENTITY STATUS ISSUE FEE DUE PUBLICATION FEE DUE PREV. PAID ISSUE FEE TOTAL FEE(S) DUE DATE DUE
nonprovisional LARGE $0 $0 $9,060 05/24/2016

EXAMINER ART UNIT CLASS-SUBCLASS
TAYLOR, JOSHUA D 2426 725-110900

1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.363).
   - Change of correspondence address (or Change of Correspondence Address form PTO/SB/122) attached.
   - "Fee Address" indication (or "Fee Address" indication form PTO/SB/47, Rev 03-02 or more recent) attached. Use of a Customer Number is required.

2. For printing on the patent front page, list
   (1) The names of up to 3 registered patent attorneys or agents OR, alternatively,
   (2) The name of a single firm (having as a member a registered attorney or agent) and the names of up to
       2 registered patent attorneys or agents. If no name is listed, no name will be printed.

3. ASSIGNEE NAME AND RESIDENCE DATA TO BE PRINTED ON THE PATENT (print or type)
   PLEASE NOTE: Unless an assignee is identified below, no assignee data will appear on the patent. If an assignee is identified below, the document has been filed for registration as set forth in 37 CFR 3.11. Completion of this form is NOT a substitute for filing an assignment.
   (A) NAME OF ASSIGNEE
   SK PLANET CO., LTD.
   (B) RESIDENCE: (CITY AND STATE OR COUNTRY)
   SEOUL, REPUBLIC OF KOREA

Please check the appropriate assignee category or categories (will not be printed on the patent):
   - Individual
   - Corporation or other private group entity
   - Government

4a. The following fee(s) are submitted:
   - Issue Fee
   - Publication Fee (No small entity discount permitted)
   - Advance Order - # of Copies

4b. Payment of Fee(s): (Please first reapply any previously paid issue fee shown above)
   - A check is enclosed.
   - Payment by credit card. Form PTO-208 is attached.
   - The director is hereby authorized to charge the required fee(s), any deficiency, or credits any overpayment, to Deposit Account Number 56035333 (enclose an extra copy of this form).

5. Change in Entity Status (from status indicated above)
   - Applicant certifying micro entity status. See 37 CFR 1.29
   - Applicant asserting small entity status. See 37 CFR 1.27
   - Applicant changing to regular undiscounted fee status.

NOTE: Abstain a valid certification of Micro Entity Status (see forms PTO/SB/15A and 15B), issue fee payment in the micro entity amount will not be accepted at the risk of application abandonment.
NOT: If the application was previously under micro entity status, checking this box will be taken to be a notification of loss of entitlement to micro entity status.
NOT: Checking this box will be taken to be a notification of loss of entitlement to small or micro entity status, as applicable.

NOTE: This form must be signed in accordance with 37 CFR 1.31 and 1.33. See 37 CFR 1.4 for signature requirements and certifications.

Authorized Signature

Typed or printed name

Date
March 18, 2016
Registration No.
64,130
# Electronic Patent Application Fee Transmittal

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<td>Filing Date:</td>
<td>13-Aug-2009</td>
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<tr>
<td>Title of Invention:</td>
<td>DATA APPLICATION PROVIDING SERVER, BROADCASTING SERVER AND RECEIVER FOR DYNAMICALLY PROCESSING DATA APPLICATION AND DIGITAL BROADCASTING SYSTEM INCLUDING THE SAME</td>
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<tr>
<td>First Named Inventor/Applicant Name:</td>
<td>Wonjang Baek</td>
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<tr>
<td>Filer:</td>
<td>Michael D. Stein/Johannah Maya</td>
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<td>Attorney Docket Number:</td>
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## Filing Fees for U.S. National Stage under 35 USC 371

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Total in USD ($) 960
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<td><strong>International Application Number:</strong></td>
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<td><strong>Confirmation Number:</strong> 8285</td>
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<td><strong>Title of Invention:</strong> DATA APPLICATION PROVIDING SERVER, BROADCASTING SERVER AND RECEIVER FOR DYNAMICALLY PROCESSING DATA APPLICATION AND DIGITAL BROADCASTING SYSTEM INCLUDING THE SAME</td>
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</tr>
<tr>
<td><strong>Customer Number:</strong> 49455</td>
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<tr>
<td><strong>Filer:</strong> Michael D. Stein/Johannah Maya</td>
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**Payment information:**

- **Submitted with Payment:** yes
- **Payment Type:** Credit Card
- **Payment was successfully received in RAM:** $960
- **RAM confirmation Number:** 3877

The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows:
This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

**New Applications Under 35 U.S.C. 111**
If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

**National Stage of an International Application under 35 U.S.C. 371**
If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/OE/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

**New International Application Filed with the USPTO as a Receiving Office**
If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.
NOTICE OF ALLOWANCE AND FEE(S) DUE

EXAMINER
TAYLOR, JOSHUA D

ART UNIT: 2426
PAPER NUMBER:

DATE MAILED: 02/24/2016

APPLICATION NO.: 12/449,565
FILING DATE: 08/13/2009
FIRST NAMED INVENTOR: Wonjang Baek
ATTORNEY DOCKET NO: 0366.1010
CONFIRMATION NO: 8285

TITLE OF INVENTION: DATA APPLICATION PROVIDING SERVER, BROADCASTING SERVER AND RECEIVER FOR DYNAMICAL
PROCESSING DATA APPLICATION AND DIGITAL BROADCASTING SYSTEM INCLUDING THE SAME

<table>
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THE APPLICATION IDENTIFIED ABOVE HAS BEEN EXAMINED AND IS ALLOWED FOR ISSUANCE AS A PATENT.
PROSECUTION ON THE MERITS IS CLOSED. THIS NOTICE OF ALLOWANCE IS NOT A GRANT OF PATENT RIGHTS.
THIS APPLICATION IS SUBJECT TO WITHDRAWAL FROM ISSUE AT THE INITIATIVE OF THE OFFICE OR UPON
PETITION BY THE APPLICANT. SEE 37 CFR 1.313 AND MPEP 1308.

THE ISSUE FEE AND PUBLICATION FEE (IF REQUIRED) MUST BE PAID WITHIN THREE MONTHS FROM THE
MAILING DATE OF THIS NOTICE OR THIS APPLICATION SHALL BE REGARDED AS ABANDONED. THIS
STATUTORY PERIOD CANNOT BE EXTENDED. SEE 35 U.S.C. 151. THE ISSUE FEE DUE INDICATED ABOVE DOES
NOT REFLECT A CREDIT FOR ANY PREVIOUSLY PAID ISSUE FEE IN THIS APPLICATION. IF AN ISSUE FEE HAS
PREVIOUSLY BEEN PAID IN THIS APPLICATION (AS SHOWN ABOVE), THE RETURN OF PART B OF THIS FORM
WILL BE CONSIDERED A REQUEST TO REAPPLY THE PREVIOUSLY PAID ISSUE FEE TOWARD THE ISSUE FEE NOW
DUE.

HOW TO REPLY TO THIS NOTICE:

I. Review the ENTITY STATUS shown above. If the ENTITY STATUS is shown as SMALL or MICRO, verify whether entitlement to that
entity status still applies.

If the ENTITY STATUS is the same as shown above, pay the TOTAL FEE(S) DUE shown above.

If the ENTITY STATUS is changed from that shown above, on PART B - FEE(S) TRANSMITTAL, complete section number 5 titled
"Change in Entity Status (from status indicated above)".

For purposes of this notice, small entity fees are 1/2 the amount of undiscounted fees, and micro entity fees are 1/2 the amount of small entity fees.

II. PART B - FEE(S) TRANSMITTAL, or its equivalent, must be completed and returned to the United States Patent and Trademark Office
(USPTO) with your ISSUE FEE and PUBLICATION FEE (if required). If you are charging the fee(s) to your deposit account, section "4b"
of Part B - Fee(s) Transmittal should be completed and an extra copy of the form should be submitted. If an equivalent of Part B is filed, a
request to reapply a previously paid issue fee must be clearly made, and delays in processing may occur due to the difficulty in recognizing
the paper as an equivalent of Part B.

III. All communications regarding this application must give the application number. Please direct all communications prior to issuance to
Mail Stop ISSUE FEE unless advised to the contrary.

IMPORTANT REMINDER: Utility patents issuing on applications filed on or after Dec. 12, 1980 may require payment of
maintenance fees. It is patentee's responsibility to ensure timely payment of maintenance fees when due.
PART B - FEE(S) TRANSMITTAL

Complete and send this form, together with applicable fee(s), to: Mail
Mail Stop ISSUE FEE
Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450
or Fax
(571)-273-8855

INSTRUCTIONS: This form should be used for transmitting the ISSUE FEE and PUBLICATION FEE (if required). Blocks 1 through 5 should be completed where appropriate. All further correspondence including the Patent, advance orders and notification of maintenance fees will be mailed to the current correspondence address as indicated unless corrected below or directed otherwise in Block 1, by (a) specifying a new correspondence address; and/or (b) indicating a separate "FEE ADDRESS" for maintenance fee notifications.

CURRENT CORRESPONDENCE ADDRESS (Note: Use Block 1 for any change of address)

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SUITE 300
WASHINGTON, DC 20005

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| (Depositor's name) |
| (Signature) |
| (Date) |

APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
--- | --- | --- | --- | --- |
12/449,565 | 08/13/2009 | Wonjang Baek | 0366.1010 | 8285 |

TITLE OF INVENTION: DATA APPLICATION PROVIDING SERVER, BROADCASTING SERVER AND RECEIVER FOR DYNAMICALLY PROCESSING DATA APPLICATION AND DIGITAL BROADCASTING SYSTEM INCLUDING THE SAME

| APPLN. TYPE | ENTITY STATUS | ISSUE FEE DUE | PUBLICATION FEE DUE | PREV. PAID ISSUE FEE | TOTAL FEE(S) DUE | DATE DUE |
--- | --- | --- | --- | --- | --- | --- |
nonprovisional | SMALL | $480 | $0 | $0 | $480 | 05/24/2016 |

| EXAMINER | ART UNIT | CLASS-SUBCLASS |
--- | --- | --- |
TAYLOR, JOSHUA D | 2426 | 725-110000 |

1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.563).
- ☑ Change of correspondence address (or Change of Correspondence Address form PTO/SB/122) attached.
- ☑ "Fee Address" indication (or "Fee Address" Indication form PTO/SB/47; Rev 03-02 or more recent) attached. Use of a Customer Number is required.

2. For printing on the patent front page, list
   - (1) The names of up to 3 registered patent attorneys or agents OR, alternatively,
     - (2) The name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed, no name will be printed.

3. ASSIGNEE NAME AND RESIDENCE DATA TO BE PRINTED ON THE PATENT (print or type)
   - PLEASE NOTE: Unless an assignee is identified below, no assignee data will appear on the patent. If an assignee is identified below, the document has been filed for recordation as set forth in 37 CFR 3.11. Completion of this form is NOT a substitute for filing an assignment.
   - (A) NAME OF ASSIGNEE
   - (B) RESIDENCE: (CITY and STATE OR COUNTRY)

Please check the appropriate assignee category or categories (will not be printed on the patent):
- ☑ Individual
- ☑ Corporation or other private group entity
- ☑ Government

4a. The following fee(s) are submitted:
- ☑ Issue Fee
- ☑ Publication Fee (No small entity discount permitted)
- ☑ Advance Order - # of Copies

4b. Payment of Fee(s): (Please first reapply any previously paid issue fee shown above)
   - A check is enclosed.
   - Payment by credit card. Form PTO-2038 is attached.
   - The director is hereby authorized to charge the required fee(s), any deficiency, or credits any overpayment, to Deposit Account Number (enclose an extra copy of this form).

5. Change in Entity Status (from status indicated above)
- ☑ Applicant certifying micro entity status. See 37 CFR 1.29
- ☑ Applicant asserting small entity status. See 37 CFR 1.27
- ☑ Applicant changing to regular undiscounted fee status.

NOTE: Absent a valid certification of Micro Entity Status (see forms PTO/SB/15A and 15B), issue fee payment in the micro entity amount will not be accepted at the risk of application abandonment.

NOTE: If the application was previously under micro entity status, checking this box will be taken to be a notification of loss of entitlement to small or micro entity status, as applicable.

NOTE: This form must be signed in accordance with 37 CFR 1.31 and 1.33. See 37 CFR 1.4 for signature requirements and certifications.

Authorized Signature ___________________________ Date ____________

Typed or printed name ___________________________ Registration No. ___________________________
Determination of Patent Term Adjustment under 35 U.S.C. 154 (b)

(Applications filed on or after May 29, 2000)

The Office has discontinued providing a Patent Term Adjustment (PTA) calculation with the Notice of Allowance. Section 1(h)(2) of the AIA Technical Corrections Act amended 35 U.S.C. 154(b)(3)(B)(i) to eliminate the requirement that the Office provide a patent term adjustment determination with the notice of allowance. See Revisions to Patent Term Adjustment, 78 Fed. Reg. 19416, 19417 (Apr. 1, 2013). Therefore, the Office is no longer providing an initial patent term adjustment determination with the notice of allowance. The Office will continue to provide a patent term adjustment determination with the Issue Notification Letter that is mailed to applicant approximately three weeks prior to the issue date of the patent, and will include the patent term adjustment on the patent. Any request for reconsideration of the patent term adjustment determination (or reinstatement of patent term adjustment) should follow the process outlined in 37 CFR 1.705.

Any questions regarding the Patent Term Extension or Adjustment determination should be directed to the Office of Patent Legal Administration at (571)-272-7702. Questions relating to issue and publication fee payments should be directed to the Customer Service Center of the Office of Patent Publication at 1-(888)-786-0101 or (571)-272-4200.
The Paperwork Reduction Act (PRA) of 1995 requires Federal agencies to obtain Office of Management and Budget approval before requesting most types of information from the public. When OMB approves an agency request to collect information from the public, OMB (i) provides a valid OMB Control Number and expiration date for the agency to display on the instrument that will be used to collect the information and (ii) requires the agency to inform the public about the OMB Control Number’s legal significance in accordance with 5 CFR 1320.5(b).

The information collected by PTOL-85 Part B is required by 37 CFR 1.311. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, Virginia 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450. Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

Privacy Act Statement

The Privacy Act of 1974 (P.L. 93-579) requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C. 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether disclosure of these records is required by the Freedom of Information Act.

2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.

3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.

4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).

5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.

6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).

7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.

8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspection or an issued patent.

9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.
Notice of Allowability

Application No. 12/449,565
Applicant(s) BAEK ET AL.
Examiner Josh Taylor
Art Unit 2426
AIA (First Inventor to File) Status No

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS. This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to a Patent Board Decision filed November 25, 2015.
   - A declaration(s)/affidavit(s) under 37 CFR 1.130(b) was/were filed on______

2. ☐ An election was made by the applicant in response to a restriction requirement set forth during the interview on _____: the restriction requirement and election have been incorporated into this action.

3. ☒ The allowed claim(s) is/are 1-16. As a result of the allowed claim(s), you may be eligible to benefit from the Patent Prosecution Highway program at a participating intellectual property office for the corresponding application. For more information, please see http://www.uspto.gov/patents/init_events/pph/index.jsp or send an inquiry to PPHfeedback@uspto.gov.

4. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
   - Certified copies:
     a) ☒ All   b) ☐ Some   c) ☐ None of the:
     1. ☒ Certified copies of the priority documents have been received.
     2. ☐ Certified copies of the priority documents have been received in Application No. _____.
     3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).
   * Certified copies not received: ______.

Applicant has THREE MONTHS FROM THE “MAILING DATE” of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

5. ☐ CORRECTED DRAWINGS (as “replacement sheets”) must be submitted.
   - including changes required by the attached Examiner’s Amendment / Comment or in the Office action of Paper No./Mail Date ______.

Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).

6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner’s comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☐ Notice of References Cited (PTO-892) 5. ☐ Examiner’s Amendment/Comment
2. ☐ Information Disclosure Statements (PTO/SB/08), Paper No./Mail Date ______ 6. ☒ Examiner’s Statement of Reasons for Allowance
3. ☐ Examiner’s Comment Regarding Requirement for Deposit of Biological Material 7. ☐ Other ______.
4. ☐ Interview Summary (PTO-413), Paper No./Mail Date ______

/Josh Taylor/
Primary Examiner, Art Unit 2426
The present application is being examined under the pre-AIA first to invent provisions.

**Allowable Subject Matter**

1. The following is an examiner’s statement of reasons for allowance: Examiner is allowing these claims based on the Patent Board Decision of November 25, 2015.

   Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled “Comments on Statement of Reasons for Allowance.”

**Conclusion**

2. Claims 1-16 are allowed.

3. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Josh Taylor whose telephone number is (571)270-3755. The examiner can normally be reached on 8am-5pm, M-F, EST.

   If attempts to reach the examiner by telephone are unsuccessful, the examiner’s supervisor, Nasser M. Goodarzi can be reached on (571) 272-4195. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.
Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Josh Taylor/
Primary Examiner, Art Unit 2426
February 2, 2016
### Application/Control No.
12449565

### Applicant(s)/Patent Under Reexamination
BAEK ET AL.

### Examiner
JOSHUA TAYLOR

### Art Unit
2426

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/JOSHUA TAYLOR/
Primary Examiner Art Unit 2426
### Issue Classification

**Application/Control No.**

12449565

**Applicant(s)/Patent Under Reexamination**

BAEK ET AL.

**Examiner**

JOSHUA TAYLOR

**Art Unit**

2426

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(Primary Examiner) /JOSHUA TAYLOR/
Primary Examiner Art Unit 2426

(Primary Examiner)

**Total Claims Allowed:**

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(Primary Examiner) (Date)

/JOSHUA TAYLOR/
Primary Examiner Art Unit 2426

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(Primary Examiner) 2/2/2016

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Approved/Disapproved by:

Felicia D. Roberts
12/449,563
TERMINAL DISCLAIMER TO OBTAIN A PROVISIONAL DOUBLE PATENTING REJECTION OVER A PENDING "REFERENCE" APPLICATION

In re Application of: Wonyang BAEK et al.

Application No.: 12/449,565

Filed: August 13, 2009

For: DATA APPLICATION PROVIDING SERVER, BROADCASTING SERVER AND RECEIVER FOR DYNAMICALLY PROCESSING DATA APPLICATION AND DIGITAL BROADCASTING SYSTEM INCLUDING THE SAME

The applicant, SK PLANET CO., LTD., owner of 100 percent interest in the instant application hereby disclaims, except as provided below, the terminal part of the statutory term of any patent granted on the instant application which would extend beyond the expiration date of the full statutory term of any patent granted on pending reference Application Number 12/449,563 filed August 13, 2009, as the term of any patent granted on said reference application may be shortened by any terminal disclaimer filed prior to the grant of any patent on the pending reference application. The applicant hereby agrees that any patent so granted on the instant application shall be enforceable only for and during such period that it and any patent granted on the reference application are commonly owned. This agreement runs with any patent granted on the instant application and is binding upon the grantee, its successors or assigns.

In making the above disclaimer, the applicant does not disclaim the terminal part of any patent granted on the instant application which extend to the expiration date of the full statutory term of any patent granted on said reference application, "as the term of any patent granted on said reference application may be shortened by any terminal disclaimer filed prior to the grant of any patent on the pending reference application," in the event that: any such patent granted on the pending reference application expires for failure to pay a maintenance fee, is held unenforceable, is found invalid by a court of competent jurisdiction, is statutorily disclaimed in whole or terminally disclaimed under 37 CFR 1.321, has all claims canceled by a reexamination certificate, is reissued, or is in any manner terminated prior to the expiration of its full statutory term as shortened by any terminal disclaimer filed prior to its grant.

Check either box 1 or 2 below, if appropriate.

1. The undersigned is the applicant. If the applicant is an assignee, the undersigned is authorized to act on behalf of the assignee.

   I hereby acknowledge that any willful false statements made are punishable under 18 U.S.C. 1001 by fine or imprisonment of not more than five (5) years, or both.

2. The undersigned is an attorney or agent of record. Reg. No. 84,130

/schung/
Signature

January 12, 2016
Date

Sungyeop Chung
Typed or printed name

agent
Title

202-216-9505
Telephone Number

☑ Terminal disclaimer fee under 37 CFR 1.20(d) is included.

WARNING: Information on this form may become public. Credit card information should not be included on this form. Provide credit card information and authorization on PTO-2038.

This collection of information is required by 37 CFR 1.321. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.
Privacy Act Statement

The Privacy Act of 1974 (P.L. 93-579) requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C. 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether disclosure of these records is required by the Freedom of Information Act.

2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.

3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.

4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).

5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.

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7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency’s responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.

8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspection or an issued patent.

9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.
**Electronic Patent Application Fee Transmittal**

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**Filing Fees for U.S. National Stage under 35 USC 371**

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**New Applications Under 35 U.S.C. 111**
If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

**National Stage of an International Application under 35 U.S.C. 371**
If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

**New International Application Filed with the USPTO as a Receiving Office**
If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.
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STEIN IP, LLC  
1400 EYE STREET, NW  
SUITE 300  
WASHINGTON, DC 20005

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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte FANG-CHEN CHENG and LEI SONG

Appeal 2013-009715
Application 12/449,565
Technology Center 2400


HAAPALA, Administrative Patent Judge.

DECISION ON APPEAL

This is a decision on appeal under 35 U.S.C. § 134(a) from a final rejection of claims 1–16. We have jurisdiction under 35 U.S.C. § 6(b). We affirm-in-part.
EXEMPLARY CLAIM

Claim 1 is exemplary of the subject matter on appeal:

A digital broadcasting system for dynamically processing a data application, the system comprising:

a data application providing server for dynamically dividing the data application into minimum execution data and additional data, transmitting the minimum execution data to a broadcasting server, and transmitting the additional data to a receiver;

the broadcasting server for receiving the minimum execution data from the data application providing server and relaying the minimum execution data to the receiver and carrying out a digital broadcast; and

the receiver for receiving the minimum execution data from the broadcasting server, analyzing the minimum execution data, transmitting a transmission request for the additional data to the data application providing server, the transmission request being generated based on the analysis of the minimum execution data, and providing the data application including the additional data provided by the data application providing server according to the transmission request and the minimum execution data relayed by the broadcasting server.

REJECTIONS ON APPEAL

Claims 1–8, 11–14, and 16 stand provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1–5, 8–10, 12, and 14 of application 12/449,563. Final Act. 3–6.


ISSUE

Appellants’ contentions present us with the following issues:

A) Did the Examiner err in finding the combined teachings of Lee and Logan teach or suggest “a data application providing server for . . . transmitting the minimum execution data to a broadcasting server,” as recited in independent claim 1?

B) Did the Examiner err in finding the combined teachings of Lee and Logan teach or suggest “combining the minimum execution data and the additional data to generate the data application” as recited in independent claim 13?

ANALYSIS

We have reviewed the Examiner’s rejections in consideration of Appellants’ contentions. Appellants do not provide any argument regarding the double patenting rejection. With regard to the 35 U.S.C. § 103(a) rejections, Appellants have persuaded us the Examiner has failed to establish that claims 1–16 are unpatentable over the cited prior art.

*Double Patenting Rejection*

Appellants present no arguments contesting the obviousness-type double patenting rejection of claims 1–8, 11–14, and 16. Accordingly, we summarily sustain this rejection. *See Hyatt v. Dudas*, 551 F.3d 1307, 1314
Appeal 2013-009715
Application 12/449,565

(Fed. Cir. 2008) ("When the appellant fails to contest a ground of rejection to the Board, . . . the Board may treat any argument with respect to that ground of rejection as waived.").

**Issue A: 35 U.S.C. § 103(a) Rejections Claims 1–12**

Claim 1 recites “a data application providing server for . . . transmitting the minimum execution data to a broadcasting server” (hereinafter the “transmitting” limitation). The Examiner finds Lee teaches a data application providing server (broadcasting station server 300) and a broadcasting server (transmission device 100). Final Act. 7. The Examiner finds Lee inherently teaches the “transmitting” limitation because “100 transmits address information that corresponds to the location of information stored in 300, there must obviously have been some communication between 100 and 300 in order for 100 to send proper address information to 200.” Ans. 6. The Examiner states “a 103 rejection has a ‘lower bar’ to clear that [sic] the burden of inherency required in a 35 U.S.C. 102 rejection.” *Id.*

Appellants argue the Examiner fails to establish inherency of the “transmitting” limitation because the application address information is not necessarily transmitted from the broadcasting station server 300 (data application providing server) to the transmission device 100 (broadcasting server). App. Br. 13. Appellants present several alternative possibilities for the transmission device 100 to receive the application address information from sources other than the broadcasting station server 300. App. Br. 12–13; Reply Br. 9–10. Thus, Appellants argue the transmission of the “application address information” from the broadcasting station server 300 to the transmission device 100 “is purely speculative, or at best, merely one possibility out of many.” App. Br. 13.
We agree with Appellants that the Examiner has not established the “transmitting” limitation is inherently present in the teachings of Lee. The Examiner incorrectly states the burden of inherency has a “lower bar” in a 35 U.S.C. § 103(a) rejection. In fact, “the use of inherency, a doctrine originally rooted in anticipation, must be carefully circumscribed in the context of obviousness.” *PAR Pharmaceutical, Inc. v. TWI Pharmaceuticals, Inc.*, 773 F.3d 1186, 1195. The mere fact that a certain thing may result from a given set of circumstances is not sufficient. *Id.*

Appellants persuade us that the Examiner has not established the combination of Lee and Logan teaches or suggests the “transmitting” limitation. The Examiner did not find the additional applied references of record teach this limitation. Accordingly, we do not sustain the 35 U.S.C. § 103(a) rejections of: (1) independent claim 1; (2) independent claim 4, which recites “storing a minimum execution data received from a data application providing server” and for which the Examiner relies on the same findings discussed with reference to the “transmitting” limitation of claim 1; (3) independent claim 7, which recites limitations substantially similar to the “transmitting” limitation; and (4) their dependent claims 2–3, 4–6, and 8–12.

**Issue B: 35 U.S.C. § 103(a) Rejections Claims 13–16**

The Examiner finds Lee teaches “combining the minimum execution data and the additional data to generate the data application” (hereinafter the “combining” limitation) recited in claim 13. Final Act. 15. In particular, the Examiner finds the address information (minimum execution data) is used to gain access to the application and that because both the address information and the application (additional data) must be used “one can see them as being ‘combined’ in order to obtain the application.” *Ans.* 13–14.
Appellants argue the Examiner’s claim interpretation is unreasonably broad and that Lee does not teach the application address data and the application are combined to generate a data application. App. Br. 16; Reply Br. 13. We agree that the broadest reasonable interpretation of “combining” minimum execution data and additional data does not encompass using address information to gain access to an application. Therefore, Appellants persuade us the Examiner has not established the combination of Lee and Logan teaches or suggests the “combining” limitation and we accordingly do not sustain the 35 U.S.C. § 103(a) rejections of claim 13 and its dependent claims 14–16.

DECISION

We affirm the Examiner’s decision to provisionally reject claims 1–8, 11–14, and 16 on the ground of nonstatutory obviousness-type double patenting.

We reverse the Examiner’s decision to reject claims 1–16 under 35 U.S.C. § 103(a).

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a). See 37 C.F.R. § 41.50(f).

AFFIRMED-IN-PART

ELD
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Patent Trial and Appeal Board Docketing Notice

Application 12/449,565 was received from the Technology Center at the Board on August 05, 2013 and has been assigned Appeal No: 2013-009715.

In all future communications regarding this appeal, please include both the application number and the appeal number.

The mailing address for the Board is:

PATENT TRIAL and APPEAL BOARD
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ALEXANDRIA, VIRGINIA 22313-1450

Telephone inquiries can be made by calling 571-272-9797 and referencing the appeal number listed above.

By order of the Patent Trial and Appeal Board.

CLE
IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re the Application of:

Wonjang BAEK et al.  
Application No. 12/449,565  
Confirmation No. 8285  
Group Art Unit: 2426

Filed: August 13, 2009  
Examiner: Joshua D. TAYLOR

For: DATA APPLICATION PROVIDING SERVER, BROADCASTING SERVER AND RECEIVER FOR DYNAMICALLY PROCESSING DATA APPLICATION AND DIGITAL BROADCASTING SYSTEM INCLUDING THE SAME

REPLY BRIEF UNDER 37 CFR 41.41

Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

Sir:

This Reply Brief is in response to the Examiner’s Answer mailed on June 5, 2013, the due date for the Reply Brief being August 5, 2013. This response addresses only those points raised in the Examiner’s Answer that Applicants believe would benefit from further explanation or argument. This Reply Brief is intended to supplement rather than replace the original arguments presented in Applicants’ Appeal Brief filed on March 19, 2013. Any claims or issues not specifically addressed below rely upon these original arguments.
I. Real Party in Interest

The real party in interest of the application remains as identified in the Appeal Brief filed on March 19, 2013, pursuant to 37 CFR 41.37(c)(1)(i).
II. **Related Appeals, Interferences, and Trials**

Although the real party in interest may have other appeals, interferences, and trials, none of the other pending appeals, interferences, and trials is believed to directly affect or be directly affected by, or have any bearing upon the decision of the Patent Trial and Appeal Board in this appeal.
III. **Status of Claims**

The status of the claims of the application remains as identified in the Appeal Brief filed on March 19, 2013.
IV. **Status of Amendments**

As noted in the Appeal Brief filed on March 19, 2013, there are currently no outstanding issues regarding the status of amendments.
V. **Summary of Claimed Subject Matter**

The summary of the claimed subject matter remains as identified in the Appeal Brief filed on March 19, 2013, pursuant to 37 CFR 41.37(c)(1)(iii).
VI. **Grounds of Rejection to be Reviewed**

The grounds of rejection remain as identified in the Appeal Brief filed on March 19, 2013.
VII. Argument

The following arguments supplement, rather than replace, the original arguments presented in Appellants' Appeal Brief filed on March 19, 2013. Any claims or issues not specifically addressed below rely upon these original arguments.

1. With respect to the Examiner's arguments on pages 7-8 of the Examiner's Answer, concerning claim 1:

Appellant suggests that "one of ordinary skill in the art would easily understand that the application address information can simply be generated by the transmission device (100) itself." Examiner disagrees that this is a viable alternative. A randomly generated address may not correspond to any actual, useful information in a server, and is the technological equivalent of throwing darts with a blindfold on, and hoping to hit the bull's eye, without knowing where the dart board is hung, or even which room it is in. The point is, one cannot simply generate location information relating to requested information stored at a server; said information must be given by the server.

Appellant further suggests "that one of ordinary skill in the art would easily understand that the application address information can simply be ... transmitted from a third device other than the broadcasting station server (300)." Again, even were there some third device, which is not mentioned in the disclosure of Lee, said third device would still need to receive the address information from the server 300, as per the rational presented above, and thus the address information would still be transmitted from 300 to 100, albeit with an intermediary third device. Thus, Examiner maintains that the address information would obviously have to be transmitted from server 300 to transmission device 100.

Finally, the fact that Lee does not explicitly show the address information being sent from 300 to 100 contributed to Examiner's decision to change the rejection from a 102 type rejection to a 103 type rejection, as one of ordinary skill in the art at the time of the invention
would have found it obvious that such a communication must occur, even though Lee does not explicitly state as much.

Appellants' Response

First, the Examiner asserted that "[a] randomly generated address may not correspond to any actual, useful information in a server, and is the technological equivalent of throwing darts with a blindfold on, and hoping to hit the bull's eye, without knowing where the dart board is hung, or even which room it is in. The point is, one cannot simply generate location information relating to requested information stored at a server, said information must be given by the server." See the Examiner's Answer, page 7, lines 3-10. Appellants disagree with this assertion.

By way of example and without limitation, in Lee, the transmission device (100) could send instructions to the broadcasting station server (300) to locate applications at specific addresses in the server (300), which are specified by the transmission device (100), and could generate the application address information on the specific addresses and send the same to the receiving device (200). In this case, the application address information corresponds to the specific addresses in the broadcasting station server (300). Accordingly, contrary to the Examiner's assertion above, the application address information is not necessarily, or obviously, transmitted from the broadcasting station server (300) to the transmission device (100).

As an alternative, for example, the broadcasting station server (300) could locate applications in the server (300) and send raw address data to the transmission device (100), and the transmission device (100), in turn, could modify the raw address data to generate the application address information to the receiving device (200). Clearly, in this case, the application address information is not received by the transmission device (100) and relayed to the receiving device (200).

Secondly, the Examiner asserted that "[a]gain, even were there some third device, which is not mentioned in the disclosure of Lee, said third device would still need to receive the address information from the server 300, as per the rational presented above, and thus the address information would still be transmitted from 300 to 100, albeit with an intermediary third device." See the Examiner's Answer, page 7, lines 13-16. Appellants disagree with this assertion.

By way of example and without limitation, in Lee, a third device could send instructions to the broadcasting station server (300) to locate applications at specific addresses in the server (300), which are specified by the third device, and could generate the application address
information on the specific addresses and send the same to the receiving device (200). Accordingly, the application address information is not necessarily, or obviously, transmitted from the broadcasting station server (300) to the transmission device (100), whether directly or indirectly.

Finally, as conceded by the Examiner, Lee fails to show the address information being sent from the broadcasting station server (300) to the transmission device (100), and the above examples presented by Appellants are quite possible, which are not forbidden by or inconsistent with the teachings of Lee. Accordingly, it is submitted that such missing claim feature is not necessarily present in, or is obvious over, the teachings of Lee.

2. **With respect to the Examiner's arguments on page 10 of the Examiner's Answer, concerning claim 1:**

   Thus, it can be seen that what Appellant actually means by "dynamically dividing" an application is to separate the "main" data of the application from the address information which identifies where the "main" data is stored. As such, it is the position of Examiner that, as it would have been obvious to one of ordinary skill in the art at the time of the invention from the disclosure of Lee that devices 300 and 100 would have to communicate in some manner in order for device 100 to be able to broadcast an address that corresponded to a viable address containing information at server 300 (the rational of which is defended above), this means that at some point the address would have to be "divided" from the content contained at said address. As Appellant does not assert any type of new or novel process in the specification to differentiate the concept of dynamically dividing a memory location from the content at said memory from what is known in the art by one of ordinary skill at the time of the invention, namely that information concerning a memory location and the information stored at said location are intrinsically linked, such that the entity which stores said information must share the location of said information with an entity desiring to access said information, then Examiner maintains that the concept of "dynamically dividing" is obviated by the combined teaching of Lee and Logan.
Appellants’ Response

The Examiner asserted that "[a]s such, it is the position of Examiner that, as it would have been obvious to one of ordinary skill in the art at the time of the invention from the disclosure of Lee that devices 300 and 100 would have to communicate in some manner in order for device 100 to be able to broadcast an address that corresponded to a viable address containing information at server 300 (the rational[e] of which is defended above), this means that at some point the address would have to be ‘divided’ from the content contained at said address.” See the Examiner’s Answer, page 10, lines 5-10. Appellants disagree with this assertion.

Appellants’ examples as presented above can also be applied here. In any of the examples above, the broadcasting station server (300) does not divide the application address information from a data application, and does not transmit the application address information to the transmission device (100). Accordingly, the application address information is not necessarily, or obviously, divided from a data application by the broadcasting station server (300) or transmitted from the server (300) to the transmission device (100).

3. With respect to the Examiner’s arguments on pages 13-14 of the Examiner’s Answer, concerning claim 13:

Examiner disagrees with Appellant’s conclusion that “[a]ccording to the Examiner’s interpretation above, any two data would be regarded as being "combined" if they are received by a single device.” Examiner’s position is not that being received by a single device is what causes data to be seen as being combined, but rather being used in combination to attain a desired result. That is, the address information of Lee is used to gain access to the application; therefore, in order to achieve the result of obtaining the application, both the address information and the application must be used, and therefore one can see them as being “combined” in order to obtain the application. Again, something similar to this is what is described in Appellant’s specification.
It terms of Examiner's earlier request, reiterated above by Appellant, in which Examiner asks Appellant to "present a thorough explanation of how the 'combining' of Applicant is different than the 'combining' of Lee," Examiner does not see anything above that differentiates the two. All Applicant states is that "[a]ccording to the claimed subject matter, the data application provider combines "the minimum execution data and the additional data to generate the data application" and executes and provides "the generated the data application."" Examiner maintains that this is what Lee does.

Appellant goes on to say that "in Lee, the application address data and the application are not combined to generate, execute, and provide a data application. In Lee, the application address data are used solely for requesting and receiving the application, but could not possibly be combined with the application to execute a data application." Examiner does not understand what Appellant means by saying that the address data "could not possibly be combined with the application to execute a data application," as this is what Appellant's own specification describes; minimum execution data (which is merely address data) is "combined" with the application; but all this means is that the minimum execution data is used to request the application, just like in the teaching of Lee.

**Appellants' Response**

Under a broadest reasonable interpretation, words of the claim must be given their plain meaning, unless such meaning is inconsistent with the specification. The plain meaning of a term means the ordinary and customary meaning given to the term by those of ordinary skill in the art at the time of the invention. The ordinary and customary meaning of a term may be evidenced by a variety of sources, including the words of the claims themselves, the specification, drawings, and prior art. The words of the claim must be given their plain meaning unless the plain meaning is inconsistent with the specification. *In re Zletz*, 893 F.2d 319, 321, 13 USPQ2d 1320, 1322 (Fed. Cir. 1989).
Claim 13 clearly recites "a data application provider for combining the minimum execution data and the additional data to generate the data application, and executing and providing the generated the data application" (emphasis added). This claim language itself has a clear and ordinary meaning. The Examiner asserted that it can be interpreted as combining if "being used in combination to attain a desired result." According to the Examiner's interpretation, the requested application, which is transmitted from the broadcasting station server (300) to the receiving device (200), is analogous to the "additional data" as recited in claim 13. Thus, the desired result must be "to generate the data application, and executing and providing the generated the data application" in order to teach such claim features. However, as clearly understood, in Lee, the requested application is downloaded from the broadcasting station server (300) using the application address information. In other words, once the requested application has been obtained at the receiving device (200), the corresponding application address information was already used by the receiving device (200). Then, what is the desired result if one uses the already-downloaded requested application and the already-used application address information in combination at the receiving device (200), as implied by the Examiner? Appellants found nothing.

Accordingly, it is clear that the alleged combination of the downloaded requested application and the application address information is not to "generate the data application" because it was already generated using the application address information. Therefore, even under broadest reasonable interpretation of claim 13, such claim features are not taught or suggested by Lee.

Therefore, the rejection should be reversed.
VIII. **Conclusion**

In view of the law and facts stated herein, the Appellants respectfully submit that the Examiner has failed to cite a reference sufficient to maintain the rejection of the pending claims and has failed to rebut the Applicants' arguments in the Appeal Brief filed March 19, 2013 and in previous responses.

For all the foregoing reasons, the Appellants respectfully submit that the cited prior art does not teach or suggest the presently claimed invention. The claims are patentable over the prior art of record and the Examiner's findings of unpatentability regarding claims 1-16 should be reversed.

The Commissioner is hereby authorized to charge any additional fees required in connection with the filing of the Appeal Brief to our Deposit Account No. 503333.

Respectfully submitted,

STEIN IP, LLC

Date: **August 2, 2013**

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Suite 300
Washington, D.C. 20005
Telephone: (202) 216-9505
Facsimile: (202) 216-9510

By: [Signature]
Sungyeop Chung
Registration No. 64,130
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This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111
If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371
If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office
If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.
FEE TRANSMITTAL

Complete if known

Application Number: 12/449,565
Filing Date: August 13, 2009
First Named Inventor: Joonghyuk Baeck
Examiner Name: Joshua D. Taylor
Art Unit: 2426
Practitioner Docket No.: 0366.1010

TOTAL AMOUNT OF PAYMENT: $2,000.00

METHOD OF PAYMENT (check all that apply)

☐ Check ☐ Credit Card ☐ Money Order ☐ None ☐ Other (please identify):

Deposit Account Number: 503333
Deposit Account Name: Michael D. Stein
For the above-identified deposit account, the Director is hereby authorized to (check all that apply):

☐ Charge fee(s) indicated below
☐ Charge fee(s) indicated below, except for the filing fee
☐ Charge any additional fee(s) or underpayment of fee(s) ☐ Credit any overpayment of fee(s)
under 37 CFR 1.16 and 1.17

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FEE CALCULATION

1. BASIC FILING, SEARCH, AND EXAMINATION FEES (U = undiscounted fee; S = small entity fee; M = micro entity fee)

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* The $140 small entity status filing fee for a utility application is further reduced to $70 for a small entity status applicant who files the application via EFS-Web.

2. EXCESS CLAIM FEES

Fee Description Undiscounted Fee ($) Small Entity Fee ($) Micro Entity Fee ($) Fees Paid ($)
Each claim over 20 (including Reissues) 80 40 20
Each independent claim over 3 (including Reissues) 420 210 105
Multiple dependent claims 780 390 195

Total Claims -20 or HP = Extra Claims Fee ($) Fee Paid ($) Multiple Dependent Claims Fee ($) Fee Paid ($)

HP = highest number of total claims paid for, if greater than 20.
Indep. Claims = Extra Claims Fee ($) Fee Paid ($)

HP = highest number of independent claims paid for, if greater than 3.

3. APPLICATION SIZE FEE

If the specification and drawings exceed 100 sheets of paper (excluding electronically filed sequence or computer listings under 37 CFR 1.52(e)), the application size fee due is $400 ($200 for small entity) ($100 for micro entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(e).

Total Sheets Extra Sheets Number of each additional 50 or fraction thereof Fee ($) Fee Paid ($)

-100 = Extra Sheets / 50 = (round up to a whole number) x Fee ($) Fee Paid ($)

4. OTHER FEE(S)

Non-English specification, $130 fee (no small or micro entity discount)
Non-electronic filing fee under 37 CFR 1.16(f) for a utility application, $400 fee ($200 small or micro entity)
Other (e.g., late filing surcharge): Appeal Forwarding Fee $8,000.00

SUBMITTED BY

Signature /Sungyeop Chung/ Registration No. 64,130
Name (Print/Type) Sungyeop Chung Telephone 202-216-9505, Ext. 1100
Date August 2, 2013

This collection of information is required by 37 CFR 1.136. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 30 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.
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The Privacy Act of 1974 (P.L. 93-579) requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C. 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether disclosure of these records is required by the Freedom of Information Act.
2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.
3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).
5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.
6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency’s responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2906 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspection or an issued patent.
9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.
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The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

docketing@steinip.com
Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner for Patents

Please see the enclosed notice relating to the examiner’s answer recently mailed in this application.
Appeal Forwarding Fee Requirement

USPTO records show that an examiner’s answer was recently mailed.

If the examiner’s answer is in response to an appeal brief filed on or after March 19, 2013 and the appeal brief fee required by former 37 CFR 41.20(b)(2) was not filed before March 19, 2013, the appeal forwarding fee set forth in 37 CFR 41.20(b)(4) is required to avoid dismissal of the appeal. The appeal forwarding fee is required within the later of two months from the date of either the examiner’s answer, or a decision refusing to grant a petition under 37 CFR 1.181 to designate a new ground of rejection in an examiner’s answer. See 37 CFR 41.45.

If the examiner’s answer is in response to an appeal brief filed before March 19, 2013 or the appeal brief fee required by former 37 CFR 41.20(b)(2) was filed before March 19, 2013, an appeal forwarding fee is not required.
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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

docketing@steinip.com
BEFORE THE BOARD OF PATENT APPEALS 
AND INTERFERENCES

Application Number: 12449565
Filing Date: August 13, 2009
Appellant(s): Baek et al.

Sung-Yeop Chung
For Appellant

EXAMINER’S ANSWER

This is in response to the appeal brief filed March 19, 2013.
(1) Grounds of Rejection to be Reviewed on Appeal

Every ground of rejection set forth in the Office action dated October 10, 2012 from which the appeal is taken is being maintained by the examiner except for the grounds of rejection (if any) listed under the subheading “WITHDRAWN REJECTIONS.” New grounds of rejection (if any) are provided under the subheading “NEW GROUNDS OF REJECTION.”

(2) Response to Argument

Appellant's arguments have been fully considered but they are not persuasive.

Concerning Appellant’s arguments on pages 10-11 concerning claim 1:

A. The alleged combination of the cited prior art fails to disclose all of the features recited in claim 1:

To establish an obviousness rejection under 35 U.S.C. § 103(a), four factual inquiries must be examined. The four factual inquiries include (a) determining the scope and contents of the prior art; (b) ascertaining the differences between the prior art and the claims in issue; (c) resolving the level of ordinary skill in the pertinent art; and (d) evaluating evidence of secondary consideration. Graham v. John Deere, 383 U.S. 1, 17-18 (1966). In view of these four factors, the analysis supporting a rejection under 35 U.S.C. 103(a) should be made explicit, and should "identify a reason that would have prompted a person of ordinary skill in the relevant field to combine the [prior art] elements" in the manner claimed. KSR Int'l. Co. v. Telefex, Inc., 550 U.S. 398 (2007). Furthermore, even if the prior art may be combined, there must be a reasonable expectation of success, and the reference or references, when combined, must disclose or suggest all of the claim limitations. See in re Vaeck, 947 E2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991).

Assuming arguendo Lee and Logan can be combined and a reasonable expectation of success exists, the combined references still do not disclose these features of claim 1, inter alia:

a data application providing server for dynamically dividing the data application into minimum execution data and additional data, transmitting the minimum execution data to a broadcasting server, and transmitting the additional data to a receiver;

the broadcasting server for receiving the minimum execution data from the data application providing server and relaying the minimum execution data to the receiver and carrying out a digital broadcast (emphasis added)

In the Final Office Action mailed October 10, 2012, the Examiner admitted that Lee fails to disclose these claim features. See the Final Office Action, page 8, lines 12-18.

The Examiner, however, contended that such deficiencies of Lee can be cured by Logan, stating that Logan discloses that "metadata can be routed from a metadata supplier 180, via the internet, to a headend location 120, where it is then broadcast to users (Fig. 1, elements 180 and 120, paras. [0026] and [0035]-[0037]), which teaches that metadata may be routed from one
server to another before being delivered to a client." See the Final Office Action, page 8, lines 18-22.

In the Response filed December 6, 2012, Appellants pointed out that the Final Office Action "still does not articulate how the secondary reference, Logan et al., teaches the features 'dynamically dividing ...' as recited in claim 1." In the Advisory Action mailed January 2, 2013, the Examiner effectively conceded this deficiency of Logan, but turning back to the primary reference, Lee, asserting that "although Lee does not explicitly disclose dynamically dividing, the fact that such a division is obviously implied in Lee ..." (emphasis added). See the Advisory Action, page 3, fourth-third lines from bottom.

Accordingly, by the Examiner's own admission, neither Lee nor Logan discloses at least "a data application providing server for dynamically dividing the data application into minimum execution data and additional data, transmitting the minimum execution data to a broadcasting server..." as recited in claim 1 (emphasis added). Thus, even if the teachings of Lee and Logan are combinable, this combination of the cited prior art still fails to disclose such claim features of claim 1.

The Examiner's remaining assertion above, i.e., the missing claim features are "obviously implied in Lee," will be traversed below.

Examiner’s response:

Examiner generally agrees with Appellant’s above statements concerning the factual inquiries which must be examined, and the analysis which must be made. However, Examiner maintains that the rejection given for this Application is proper, and will accordingly present a defense of the rejection below, in response to Appellant's more specific arguments.

However, in response to Appellant’s above comments concerning the concept of “dynamically dividing,” Examiner would like to further the discussion to beyond the last few communications and look at the entire history of prosecution in the case. On page 6 of the first action taken by Examiner in this case, a Non-Final Rejection mailed on November 14, 2011, Examiner rejected claim 1 under 35 U.S.C. 102(b) as being anticipated by Lee. Examiner at that time took the position that Lee disclosed “a data application providing server for dynamically dividing and providing a minimum execution data and an additional data included in the data application,” citing figure 1, element 300, and page 3, paragraph 4, and stating that “[t]he
broadcasting station server separates the address information (minimum execution data) from the
application data;” i.e. separating is analogous to dividing.

However, after reviewing Appellant’s reply to said Non-Final Rejection, Examiner
acceded that Lee did not meet the bar for inherency, in terms of disclosing the concept of
dynamically dividing minimum execution data and additional data. Thus, Examiner reexamined
the concept of “dynamically dividing” as disclosed in Appellant’s specification, and found that
the process Applicant was describing was similar to the process which must obviously take place
in Lee in order for the system to function properly. Examiner will delve further into this
similarity below. However, the point is that upon further review, Examiner agreed with
Appellant that Lee did not anticipate claim 1, and thus changed the rejection to a 35 U.S.C.
103(a) rejection, presented in the Non-Final Rejection mailed on May 15, 2012.

Now, the language in this 103 rejection may have been slightly inartful, but Examiner
maintains that the rejection is proper. Examiner did state, as Appellant notes, that Lee does not
explicitly disclose the concept of “dynamically dividing,” but Examiner at the time perhaps did
not do a good enough job of explaining that while Lee did not explicitly disclose such a concept,
Lee did imply that such a dividing would have to take place, such that one of ordinary skill in the
art at the time of the invention would have been able to obviously arrive at Appellant’s invention
as claimed when looking at Lee in view of Logan. Thus, having laid out the general evolution of
the interpretation and rejection of claim 1, Examiner will now answer Appellant's more specific
arguments.
Concerning Appellant’s arguments on pages 11-13 concerning claim 1:

B. The Examiner fails to take the burden of proof for Inherency of the missing claim features:

In the Final Office Action, page 8, lines 8-12, the Examiner contended that "[f]urther, although not stated explicitly by Lee, it is obvious that devices 300 and 100 would have to communicate in some manner in order for device 100 to be able to broadcast an address that corresponded to a viable address containing information at server 300, meaning that at some point the address would have to be 'divided' from the content contained at said address" (emphasis added). In other words, referring to Fig. 1 of Lee, the Examiner essentially asserts that at some point the application address information must be transmitted from the broadcasting station server (300) to the transmission device (100). This is a rejection based on the theory of inherency, which means that the missing features of claim 1, supra, is inherently present in Lee.

"To establish inherency, the extrinsic evidence, 'must make clear that the missing descriptive matter is necessarily present in the thing described in the reference, and that it would be so recognized by persons of ordinary skill in the art.' In re Robertson, 169 F.3d 743, 745, 49 USPQ2d, 1949, 1950-51 (Fed. Cir. 1999) (citations omitted). "In relying upon the theory of inherency, the Examiner must provide a basis in fact and/or technical reasoning to reasonably support the determination that the allegedly inherent characteristic necessarily flows from the teachings of the applied prior art." Ex parte Levy, 17 UiSPQ2d 1461, 1464 (Bd. Pat. App. & Inter. 1990) (emphasis in original). "The fact that a certain result or characteristic may occur or be present in the prior art is not sufficient to establish the inherency of that result or characteristic." MPEP § 2112.1V (citing to In re Rijckaert, 9 F.3d 1531, 1534, (Fed. Cir. 1993)) (emphasis added).

In the Final Office Action, while the Examiner essentially asserts that at some point the application address information must be transmitted from the broadcasting station server (300) to the transmission device (100), Appellants respectfully submit that this is one that may occur, but does not necessarily occur in Lee. Contrary to the Examiner's assertion, the application address information does not necessarily be transmitted from the broadcasting station server (300) to the transmission device (100). For example, one of ordinary skill in the art would easily understand that the application address information can simply be generated by the transmission device (100) itself, or it is transmitted from a third device other than the broadcasting station server (300). Again, "[t]he fact that a certain result or characteristic may occur or be present in the prior art is not sufficient to establish the inherency of that result or characteristic." MPEP § 2112.1V (citing to In re Rijckaert, 9 F.3d 1531, 1534, (Fed. Cir. 1993)) (emphasis added).

Furthermore, in Fig. 1 of Lee, the transmission of the application address information (allegedly corresponding to the "minimum execution data" of claim 1) and the variable data from the transmission device (100) to the receiving device (200) is clearly shown, but between the broadcasting station server (300) and the transmission device is only the transmission of the variable data. If the transmission of the application address information from the broadcasting station server (300) to the transmission device (100) were necessary, not only the variable data but also the application address information would be shown as being transmitted between the two devices (300, 100), just like both the variable data and the application address information are shown as being transmitted from the transmission device (100) to the receiving device (200).
Thus, Appellants respectfully submit that the alleged transmission of the "application address information" from the broadcasting station server (300) to the transmission device (100) is purely speculative, or at best, merely one possibility out of many. Neither could establish inherency as asserted by the Examiner. As noted above, "[t]o establish inherency, the extrinsic evidence, 'must make clear that the missing descriptive matter is necessarily present in the thing described in the reference, and that it would be so recognized by persons of ordinary skill in the art." In re Robertson, 169 F.3d 743, 745, 49 USPQ2d, 1949, 1950-51 (Fed. Cir. 1999) (citations omitted).

Examiner’s response:

First, as this rejection is a 35 U.S.C. 103(a) rejection, the combined references must obviate the claimed invention; that is, a 103 rejection has a “lower bar” to clear that the burden of inherency required in a 35 U.S.C. 102 rejection.

Further, Examiner disagrees with Appellant’s assertion that “the application address information does not necessarily [have to] be transmitted from the broadcasting station server (300) to the transmission device (100).” Essentially, the factual disclosure of Lee, which Examiner believes is agreed upon by Appellant, is as follows:

1. Transmission device 100 sends address information to receiving device 200.
2. Receiving device 200 uses said address information to request data from server 300.
3. Server 300 uses said address information to look up and send the requested information to receiving device 200.

Thus, as 100 transmits address information that corresponds to the location of information stored in 300, there must obviously have been some communication between 100 and 300 in order for 100 to send proper address information to 200. As such, Examiner has taken the position that it would have been obvious to one of ordinary skill in the art at the time of the invention that 300 would have to share the address information with 100 in order for 100 to know the correct
address information, and thus 300 would obviously have had to transmit said address information to 100.

Appellant suggests that “one of ordinary skill in the art would easily understand that the application address information can simply be generated by the transmission device (100) itself.” Examiner disagrees that this is a viable alternative. A randomly generated address may not correspond to any actual, useful information in a server, and is the technological equivalent of throwing darts with a blindfold on, and hoping to hit the bull’s eye, without knowing where the dart board is hung, or even which room it is in. The point is, one cannot simply generate location information relating to requested information stored at a server; said information must be given by the server.

Appellant further suggests “that one of ordinary skill in the art would easily understand that the application address information can simply be … transmitted from a third device other than the broadcasting station server (300).” Again, even were there some third device, which is not mentioned in the disclosure of Lee, said third device would still need to receive the address information from the server 300, as per the rational presented above, and thus the address information would still be transmitted from 300 to 100, albeit with an intermediary third device. Thus, Examiner maintains that the address information would obviously have to be transmitted from server 300 to transmission device 100.

Finally, the fact that Lee does not explicitly show the address information being sent from 300 to 100 contributed to Examiner’s decision to change the rejection from a 102 type rejection to a 103 type rejection, as one of ordinary skill in the art at the time of the invention
would have found it obvious that such a communication must occur, even though Lee does not explicitly state as much.

Concerning Appellant’s arguments on pages 13-14 concerning claim 1:

Moreover, in Lee, the application address information is extracted from the broadcast data by the receiving device 200, which are received from the transmission device 100. See Lee, page 3, paragraph 4 (corresponding to the machine-generated English translation, page 3, paragraph 7). In other words, the application address information of Lee is not extracted by the broadcasting station server 300, but must be extracted from the broadcast data by the receiver 200. With regard to this teachings of Lee, the Examiner, in the Final Office Action, page 24, last paragraph, asserted that "[t]he fact that the 'application address information' is extracted from the broadcast data by the receiver 200 of Lee does not mean that the 'application address information' could not have been extracted from an application, which it is in the combined teachings of Lee and Logan. It is then added to broadcast information such that it can be broadcast by the transmitting device 100." Here, the Examiner merely suggests one possibility but fails to establish why in Lee the broadcasting station server 300 must dynamically divide the data application into application address information and an application, and must transmit the application address information to the transmission device 100, and must transmit the application to the receiving device 100. Accordingly, it is submitted that the Examiner fails to establish inherency of such claim features not disclosed in Lee.

Based on the above, Appellants respectfully submit that the Examiner fails to present any persuasive rationale that, in Lee, the application address information is necessarily transmitted from the broadcasting station server (300) to the transmission device (100). Thus, the Examiner fails to establish inherency of the missing claimed features in Lee. Accordingly, it is clear that any combination of Lee and Logan et al. does not teach or suggest at least a "data application providing server for dynamically dividing the data application into minimum execution data and additional data, transmitting the minimum execution data to a broadcasting server..." as recited in claim 1 (emphasis added). Accordingly, it is respectfully submitted that claim 1 is allowable over the cited references, whether taken alone or in combination.

Examiner’s response:

Again, Examiner maintains that such a “dynamic division” must take place, and that the further extraction which occurs at receiver 200 is being used as a “red herring” by Appellant, as
data can be extracted any number of times as it is transmitted through a system and used by various components of said system.

This is the point at which Examiner will delve into Appellant’s specification and present exactly what Appellant means by “dynamically dividing.” The term “dynamically dividing,” or something similar, is used five times in the specification, other than in the claim language. The first two occurrences are in paragraphs [0032] and [0033], both of which are in the form of claim language, and do not offer any insight into the meaning or use of the term. The next two occurrences are in paragraph [0038], which states:

[0038] Preferably, the data application divider dynamically divides the minimum execution data and the additional data to correspond to a change in the data application, and the additional data storage stores the dynamically divided additional data (emphasis added).

This paragraph merely describes that a minimum execution data and an additional data are divided. The final occurrence is in paragraph [0070], which states:

[0070] The data application providing server 300 dynamically divides the data application into the minimum execution data and an additional data, and transmits the minimum execution data to the broadcasting server 200. The data application providing server 300 receives a transmission request for the additional data transmitted from the receiver 400 corresponding to the minimum execution data that is broadcast by the broadcasting server 200, and transmits the additional data to the receiver 400 to correspond to the transmission request (emphasis added).

This paragraph essentially discloses the same concept as paragraph [0038], that a data application is divided into minimum execution data and additional data. And what exactly is “minimum execution data?” Paragraph [0034] states “[p]referably, the minimum execution data
includes a download location of the data application providing server for obtaining the additional
data.”

Thus, it can be seen that what Appellant actually means by “dynamically dividing” an
application is to separate the “main” data of the application from the address information which
identifies where the “main” data is stored. As such, it is the position of Examiner that, as it
would have been obvious to one of ordinary skill in the art at the time of the invention from the
disclosure of Lee that devices 300 and 100 would have to communicate in some manner in order
for device 100 to be able to broadcast an address that corresponded to a viable address containing
information at server 300 (the rational of which is defended above), this means that at some point
the address would have to be “divided” from the content contained at said address. As Appellant
does not assert any type of new or novel process in the specification to differentiate the concept
of dynamically dividing a memory location from the content at said memory from what is known
in the art by one of ordinary skill at the time of the invention, namely that information
concerning a memory location and the information stored at said location are intrinsically linked,
such that the entity which stores said information must share the location of said information
with an entity desiring to access said information, then Examiner maintains that the concept of
“dynamically dividing” is obviated by the combined teaching of Lee and Logan.

Concerning Appellant’s arguments on pages 14-15 concerning claims 2-7, 10-13 and 16:

Independent claim 4 recites, inter alia:
a minimum execution data storage for storing a minimum execution data received from a
data application providing server, the data application providing server dynamically dividing the
data application into the minimum execution data and an additional data and providing the minimum execution data and the additional data (emphasis added)

As shown above, claim 4 recites features similar to those of claim 1 as discussed above, and is thus allowable for at least this reason.

Independent claim 7 recites, inter alia:
A data application providing server ... comprising:
a data application divider for dividing the data application into a minimum execution data and an additional data;
a minimum execution data transmitter for transmitting the minimum execution data to a broadcasting server for carrying out a digital broadcast such that the broadcasting server broadcasts the minimum execution data; (emphasis added)

As shown above, claim 7 recites features similar to those of claim 1 as discussed above, and the arguments for claim 1 are applied hereto, mutatis mutandis.

Independent claim 13 recites, inter alia:
a minimum execution data receiver for receiving minimum execution data, which have been transmitted from a data application providing server to a broadcasting server, through a digital broadcast network from the broadcasting server carrying out a digital broadcast; (emphasis added)

As shown above, claim 13 recites features similar to those of claim 1 as discussed above, and is thus allowable for at least this reason.

Claims 2, 3, 5, 6, 10-12 and 16 depend from claim 1, 4, 7 or 13, and are deemed allowable for at least this reason.

Accordingly, the rejection of claims 1-7, 10-13 and 16 under 35 U.S.C. §103(a) should be reversed.

Examiner’s response:

As Examiner has answered the arguments regarding claim 1, the above arguments regarding claims 2-7, 10-13 and 16 are rendered moot.

Concerning Appellant’s arguments on page 15 concerning claim 1:

C. The Examiner incorrectly identifies the analogous elements of the cited prior art:

The Examiner characterized the application disclosed in Lee as analogous to the "additional data" as recited in claim 1 (Final Office Action, page 7, item 5, line 6); and the application address information disclosed in Lee as analogous to the "minimum execution data" as recited in claim 1 (Final Office Action, page 24, last paragraph).
Appellants submit that the Examiner mischaracterized the corresponding elements of Lee.

In the embodiment shown in Fig. 2 of the present application, the receiver (400) receives the minimum execution data and the additional data to provide the data application. By contrast, the receiving device 200 shown in Fig. 1 of Lee receives the application and the variable data to update the application. In this regard, it is clear that the application and the variable data disclosed in Lee correspond to the "minimum execution data" and the "additional data" as recited in claim 1, respectively. Here, the receiving device 200 of Lee does not analyze the application nor request the variable data. In Lee, the variable data is transmitted by the broadcasting station sever 300 to the transmission device 100, based on the self-checking of the broadcasting station server 300, and therefore, any analysis of the application or request for the variable data is not needed. Thus, even if the Examiner correctly identified these analogous elements of Lee, they would still fail to teach or suggest the claimed subject matter.

Examiner’s response:

Examiner maintains that the application disclosed in Lee is analogous to the "additional data" as recited in claim 1, and that the application address information disclosed in Lee is analogous to the "minimum execution data" as recited in claim 1. The fact that there may be other interpretations as to what "additional data" and "minimum execution data" may correspond to does not diminish the fact that Examiner interpretation of Lee, when taken in combination with Logan, obviates Appellant’s invention as currently claimed.

Concerning Appellant’s arguments on pages 15-17 concerning claims 13-16:

D.
The Examiner rejected claims 13-16 based on unreasonably broad interpretation of the cited prior art:

Claim 13 recites, inter alia:

A receiver for dynamically processing a data application ... comprising:

...
a data application provider for combining the minimum execution data and the additional data to generate the data application, and executing and providing the generated data application.

(emphasis added)

The Examiner characterized the application processing unit 240 as analogous to the "data application provider" as recited in claim 13 (Final Office Action, page 15, line 18). However, no teaching or suggestion is found in Lee that the application processing unit 240 may combine "the minimum execution data and the additional data to generate the data application" and "executing and providing the generated the data application," as recited in claim 13. The portions of the machine translation of Lee, page 3, paragraph 10 and page 4, paragraphs 5, 6, and 9-11, upon which the Examiner relies, do not actually teach these features as claimed.

With regard to these claim features, the Examiner asserted, in the Non-Final Office Action mailed May 15, 2012, page 21, paragraph 2, that "[i]n terms of 'combination' argument, because the manner in which Lee performs the process of obtaining an application is similar to the manner in which Applicant describes obtaining an application as described in claim 1, Examiner finds it to be obvious that both processes can be [seen] as 'combining' the two different types of data. If Applicant disagrees with Examiner's assessment, Applicant is asked to present a thorough explain of how the 'combining' of Applicant is different than the 'combining' of Lee."

According to the claimed subject matter, the data application provider combines "the minimum execution data and the additional data to generate the data application" and executes and provides "the generated the data application." However, in Lee, the application address data and the application are not combined to generate, execute, and provide a data application. In Lee, the application address data are used solely for requesting and receiving the application, but could not possibly be combined with the application to execute a data application. According to the Examiner's interpretation above, any two data would be regarded as being "combined" if they are received by a single device. This is absolutely unreasonably broad interpretation of the cited prior art.

Accordingly, contrary to the Examiner's assertion above, Lee fails to teach or suggest at least "a data application provider for combining the minimum execution data and the additional data to generate the data application, and executing and providing the generated data application," as recited in claim 13. The secondary reference, Logan, was cited against another feature of claim 13, but fails to cure these deficiencies of Lee. Hence, assuming arguendo Lee and Logan can be combined and a reasonable expectation of success exists, the combined references still do not teach all of the features recited in claim 13.

Claims 14-16 depend from claim 13, and are thus allowable for at least this reason.

Examiner’s response:

Examiner disagrees with Appellant's conclusion that “[a]ccording to the Examiner's interpretation above, any two data would be regarded as being "combined" if they are received by a single device.” Examiner’s position is not that being received by a single device is what
causes data to be seen as being combined, but rather being used in combination to attain a desired result. That is, the address information of Lee is used to gain access to the application; therefore, in order to achieve the result of obtaining the application, both the address information and the application must be used, and therefore one can see them as being “combined” in order to obtain the application. Again, something similar to this is what is described in Appellant’s specification.

It terms of Examiner's earlier request, reiterated above by Appellant, in which Examiner asks Appellant to “present a thorough explanation of how the 'combining' of Applicant is different than the 'combining' of Lee,” Examiner does not see anything above that differentiates the two. All Applicant states is that “[a]ccording to the claimed subject matter, the data application provider combines "the minimum execution data and the additional data to generate the data application" and executes and provides "the generated the data application."” Examiner maintains that this is what Lee does.

Appellant goes on to say that “in Lee, the application address data and the application are not combined to generate, execute, and provide a data application. In Lee, the application address data are used solely for requesting and receiving the application, but could not possibly be combined with the application to execute a data application.” Examiner does not understand what Appellant means by saying that the address data “could not possibly be combined with the application to execute a data application,” as this is what Appellant’s own specification describes; minimum execution data (which is merely address data) is “combined” with the application; but all this means is that the minimum execution data is used to request the application, just like in the teaching of Lee.
In conclusion, the crux of the matter being appealed, as Examiner sees it, is that Appellant uses the terms “dynamically dividing” and “combining” to refer to two rather straightforward processes, the first involving sending out the address information related to data, and the second involving using said address information to access the data. The use of this terminology may make the Office Actions and the above arguments and responses somewhat confusing, but when both Appellant’s specification and the Lee reference are read thoroughly, it can be seen that both are performing similar methods using similar structures, and that Appellant’s use of the terms “dynamically dividing” and “combining” do not add any novelty to the claims.

Appellant’s further arguments on pages 17-18 concerning claims 8, 9, 14 and 15 are rendered moot in view of the above responses.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

/Josh Taylor/
Primary Examiner, Art Unit 2426

Conferees:

/HAI V. TRAN/
Primary Examiner, Art Unit 2423

/Nasser Moazzami/
Supervisory Patent Examiner, Art Unit 2426
IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re the Application of:

Wonjang BAEK et al.

Application No. 12/449,565

Confirmation No. 8285

Filed: August 13, 2009

Group Art Unit: 2426

Examiner: Joshua D. TAYLOR

For: DATA APPLICATION PROVIDING SERVER, BROADCASTING SERVER AND RECEIVER FOR DYNAMICALLY PROCESSING DATA APPLICATION AND DIGITAL BROADCASTING SYSTEM INCLUDING THE SAME

APPEAL BRIEF UNDER 37 C.F.R § 41.37

Mail Stop Appeal Brief-Patents
Commissioner for Patents
PO Box 1450
Alexandria, VA 22313-1450

Sir:

Pursuant to Appellant’s earlier filed Notice of Appeal on January 8, 2013, Appellants hereby appeal to the Patent Trial and Appeal Board from the final rejection mailed October 10, 2012. Appellants hereby submit this Appeal Brief. No fee is required to be paid under 37 C.F.R. §41.20(b)(2)(i).

Also enclosed is a Claims Appendix in compliance with 37 C.F.R. § 41.37(c)(1)(viii). An Evidence Appendix in compliance with 37 C.F.R. § 41.37(c)(1)(ix) is enclosed and indicated as being NONE. A Related Proceedings Appendix in compliance with 37 C.F.R. § 41.37(c)(1)(x) is enclosed and indicated as being NONE.
I. **REAL PARTY IN INTEREST**

Pursuant to 37 C.F.R. §41.37(c)(1)(i), due to the assignment to SK PLANET CO., LTD., executed on February 27, 2012 by assignor ANYPOINT MEDIA GROUP and recorded in the United States Patent and Trademark Office (USPTO) at Reel 027801, Frame 0582, which in turn was previously due to the assignment to ANYPOINT MEDIA GROUP, executed on October 4, 2010 by assignor DREAMER and recorded in the USPTO at Reel 026132, Frame 0956, which in turn was previously due to the assignment to DREAMER, executed on May 12, 2009 by the inventors Wonjang BAEK, John KIM and Seong Baek LEE and recorded in the USPTO at Reel 023111, Frame 0831, the real party in interest is as follows:

SK PLANET CO., LTD.
II. RELATED APPEALS AND INTERFERENCES

Although the real party in interest may have other appeals and interferences, none of the other pending appeals and interferences is believed to directly affect or be directly affected by, or have any bearing upon the decision of the Patent Trial and Appeal Board in this appeal.
III. STATUS OF CLAIMS

The status of the claims of the application is as follows:

Claims 1-16: Rejected.

Claims 1-16 are the subject of this appeal.
IV. STATUS OF AMENDMENTS

Claims 1-16 were rejected, and claims 1 and 13 were objected to in the Final Office Action mailed October 10, 2012. The Applicants responded to the Office Action in a response filed on December 6, 2012.

In the Advisory Action mailed January 2, 2013, the Examiner checked Box 7(b), indicating that the proposed amendments will be entered. In addition, in the Advisory Action, the Examiner checked Box 5, indicating that the objection to claims 1 and 13 has been overcome by Applicants’ reply. Therefore, it is respectfully submitted that there are currently no outstanding issues regarding the status of amendments.

A copy of the claims involved in the appeal is included in the Claims Appendix.
V. SUMMARY OF THE CLAIMED SUBJECT MATTER

In the summary below, reference numbers have been inserted after recited claim elements to indicate where such elements are supported in Fig. 2.

Aspects of the claimed subject matter are directed to a digital broadcasting system for dynamically processing a data application; a broadcasting server for dynamically processing a data application; a data application providing server for dynamically processing a data application; and a receiver for dynamically processing a data application.

In an aspect of the claimed subject matter, a digital broadcasting system for dynamically processing a data application comprises (Fig. 2; page 8, lines 2-3 of the specification as originally filed):

a data application providing server (300) for dynamically dividing the data application into minimum execution data and additional data, transmitting the minimum execution data to a broadcasting server, and transmitting the additional data to a receiver (400) (Fig. 2; page 8, lines 17-23 of the specification as originally filed);

the broadcasting server (200) for receiving the minimum execution data from the data application providing server and relaying the minimum execution data to the receiver (400) and carrying out a digital broadcast (Fig. 2; page 8, lines 9-12 of the specification as originally filed); and

the receiver (400) for receiving the minimum execution data from the broadcasting server (200), analyzing the minimum execution data, transmitting a transmission request for the additional data to the data application providing server (300), the transmission request being generated based on the analysis of the minimum execution data, and providing the data application including the additional data provided by the data application providing server (300) according to the transmission request and the minimum execution data relayed by the broadcasting server (200) (Fig. 2; page 8, lines 24-31 and lines 9-12 of the specification as originally filed).

In another aspect of the claimed subject matter, a broadcasting server (200) for dynamically processing a data application comprises (Fig. 2; page 8, lines 2-15 of the
specification as originally filed):

    a minimum execution data storage (210) for storing a minimum execution data received
from a data application providing server (300), the data application providing server (300)
dynamically dividing the data application into the minimum execution data and an additional data
and providing the minimum execution data and the additional data (Fig. 2; page 9, lines 19-21
and page 8, lines 17-19 of the specification as originally filed);

    a minimum execution data transmitter (230) for transmitting the minimum execution data
stored in the minimum execution data storage (210) through a digital broadcast network to a
receiver (400) for providing the data application (Fig. 2; page 9, lines 22-24 of the specification
as originally filed).

    In another aspect of the claimed subject matter, a data application providing server (300)
for dynamically processing a data application comprises (Fig. 2; page 8, lines 2-4 and lines 16-
19 of the specification as originally filed):

    a data application divider (310) for dividing the data application into a minimum execution
data and an additional data (Fig. 2; page 9, lines 33-34 of the specification as originally filed);

    a minimum execution data transmitter (330) for transmitting the minimum execution data
to a broadcasting server (200) for carrying out a digital broadcast such that the broadcasting
server (200) broadcasts the minimum execution data (Fig. 2; page 10, lines 13-15 of the
specification as originally filed);

    an additional data storage (350) for storing the additional data corresponding to the
minimum execution data (Fig. 2; page 10, lines 16-17 of the specification as originally filed); and

    a receiver communication interface (370) for transmitting the additional data to the
receiver (400) according to a transmission request of the additional data received from the
receiver (400) providing the data application (Fig. 2; page 10, lines 27-29 of the specification as
originally filed).

    In another aspect of the claimed subject matter, a receiver (400) for dynamically
processing a data application comprises (Fig. 2; page 8, lines 2-4 and lines 24-31 of the
specification as originally filed):

   a minimum execution data receiver (410) for receiving minimum execution data, which have been transmitted from a data application providing server (300) to a broadcasting server (200), through a digital broadcast network from the broadcasting server (200) carrying out a digital broadcast (Fig. 2; page 11, lines 17-19 and page 8, lines 17-19 of the specification as originally filed);

   a minimum execution data analyzer (430) for analyzing the minimum execution data to extract an execution condition information of the data application and an information on an additional data corresponding to the minimum execution data required for executing the data application (Fig. 2; page 11, lines 20-23 of the specification as originally filed);

   a data application providing server interface (450) for transmitting a transmission request for the additional data to the data application providing server (300) during an execution of the minimum execution data, and for receiving the additional data from the data application providing server (300) (Fig. 2; page 11, lines 24-27 of the specification as filed); and

   a data application provider (470) for combining the minimum execution data and the additional data to generate the data application, and executing and providing the generated the data application (Fig. 2; page 11, line 38 – page 12, line 2 of the specification as originally filed).
VI. GROUNDS OF REJECTION TO BE REVIEWED


2. Whether claim 8 is unpatentable under 35 U.S.C. §103(a) over Lee in view of Logan, and in further view of U.S. Patent Application Publication No. 2007/0192818 to Bourges-Sevenier et al. (hereinafter, "Bourges-Sevenier").


4. Whether claim 14 is unpatentable under 35 U.S.C. §103(a) over Lee in view of Logan, and in further view of Bourges-Sevenier.

5. Whether claim 15 is unpatentable under 35 U.S.C. §103(a) over Lee in view of Logan, and in further view of Higgins.
VII. ARGUMENT

1. Claims 1-7, 10-13 and 16 stand rejected under 35 U.S.C. §103(a) as allegedly unpatentable over Lee in view of Logan. Appellants respectfully traverse this rejection.

A. The alleged combination of the cited prior art fails to disclose all of the features recited in claim 1:

To establish an obviousness rejection under 35 U.S.C. § 103(a), four factual inquiries must be examined. The four factual inquiries include (a) determining the scope and contents of the prior art; (b) ascertaining the differences between the prior art and the claims in issue; (c) resolving the level of ordinary skill in the pertinent art; and (d) evaluating evidence of secondary consideration. *Graham v. John Deere*, 383 U.S. 1, 17-18 (1966). In view of these four factors, the analysis supporting a rejection under 35 U.S.C. 103(a) should be made explicit, and should "identify a reason that would have prompted a person of ordinary skill in the relevant field to combine the [prior art] elements" in the manner claimed. *KSR Int'l. Co. v. Telefax, Inc.*, 550 U.S. 398 (2007). Furthermore, even if the prior art may be combined, there must be a reasonable expectation of success, and the reference or references, when combined, must disclose or suggest all of the claim limitations. *See in re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991).

Assuming *arguendo* Lee and Logan can be combined and a reasonable expectation of success exists, the combined references still do not disclose these features of claim 1, *inter alia*:

- a data application providing server for *dynamically dividing* the data application into minimum execution data and additional data, *transmitting the minimum execution data to a broadcasting server*, and transmitting the additional data to a receiver;
- the broadcasting server for *receiving the minimum execution data from the data application providing server* and *relaying* the minimum execution data to the receiver and carrying out a digital broadcast (emphasis added)

In the Final Office Action mailed October 10, 2012, the Examiner *admitted* that Lee fails to disclose these claim features. *See the Final Office Action, page 8, lines 12-18.*
The Examiner, however, contended that such deficiencies of Lee can be cured by Logan, stating that Logan discloses that "metadata can be routed from a metadata supplier 180, via the internet, to a headend location 120, where it is then broadcast to users (Fig. 1, elements 180 and 120, paras. [0026] and [0035]-[0037]), which teaches that metadata may be routed from one server to another before being delivered to a client." See the Final Office Action, page 8, lines 18-22.

In the Response filed December 6, 2012, Appellants pointed out that the Final Office Action "still does not articulate how the secondary reference, Logan et al., teaches the features 'dynamically dividing …' as recited in claim 1." In the Advisory Action mailed January 2, 2013, the Examiner effectively conceded this deficiency of Logan, but turning back to the primary reference, Lee, asserting that "although Lee does not explicitly disclose dynamically dividing, the fact that such a division is obviously implied in Lee …" (emphasis added). See the Advisory Action, page 3, fourth-third lines from bottom.

Accordingly, by the Examiner's own admission, neither Lee nor Logan discloses at least "a data application providing server for dynamically dividing the data application into minimum execution data and additional data, transmitting the minimum execution data to a broadcasting server …" as recited in claim 1 (emphasis added). Thus, even if the teachings of Lee and Logan are combinable, this combination of the cited prior art still fails to disclose such claim features of claim 1.

The Examiner's remaining assertion above, i.e., the missing claim features are "obviously implied in Lee," will be traversed below.

B. The Examiner fails to take the burden of proof for Inherency of the missing claim features:

In the Final Office Action, page 8, lines 8-12, the Examiner contended that "[f]urther, although not stated explicitly by Lee, it is obvious that devices 300 and 100 would have to communicate in some manner in order for device 100 to be able to broadcast an address that corresponded to a viable address containing information at server 300, meaning that at some point the address would have to be 'divided' from the content contained at said address" (emphasis added). In other words, referring to Fig. 1 of Lee, the Examiner essentially asserts that at some point the application address information must be transmitted from the
broadcasting station server (300) to the transmission device (100). This is a rejection based on
the theory of inherency, which means that the missing features of claim 1, supra, is inherently
present in Lee.

"To establish inherency, the extrinsic evidence, ‘must make clear that the missing
descriptive matter is necessarily present in the thing described in the reference, and that it would
be so recognized by persons of ordinary skill in the art." In re Robertson, 169 F.3d 743, 745, 49
USPQ2d, 1949, 1950-51 (Fed. Cir. 1999) (citations omitted). "In relying upon the theory of
inherency, the Examiner must provide a basis in fact and/or technical reasoning to reasonably
support the determination that the allegedly inherent characteristic necessarily flows from the
teachings of the applied prior art." Ex parte Levy, 17 UjSPQ2d 1461, 1464 (Bd. Pat. App. &
Inter. 1990) (emphasis in original). "The fact that a certain result or characteristic may occur or
be present in the prior art is not sufficient to establish the inherency of that result or
characteristic." MPEP § 2112.IV (citing to In re Rijckaert, 9 F.3d 1531, 1534, (Fed. Cir. 1993))
(emphasis added).

In the Final Office Action, while the Examiner essentially asserts that at some point the
application address information must be transmitted from the broadcasting station server (300)
to the transmission device (100), Appellants respectfully submit that this is one that may occur,
but does not necessarily occur in Lee. Contrary to the Examiner's assertion, the application
address information does not necessarily be transmitted from the broadcasting station server
(300) to the transmission device (100). For example, one of ordinary skill in the art would easily
understand that the application address information can simply be generated by the
transmission device (100) itself, or it is transmitted from a third device other than the
broadcasting station server (300). Again, "[t]he fact that a certain result or characteristic may
occur or be present in the prior art is not sufficient to establish the inherency of that result or
characteristic." MPEP § 2112.IV (citing to In re Rijckaert, 9 F.3d 1531, 1534, (Fed. Cir. 1993))
(emphasis added).

Furthermore, in Fig. 1 of Lee, the transmission of the application address information
(allegedly corresponding to the "minimum execution data" of claim 1) and the variable data from
the transmission device (100) to the receiving device (200) is clearly shown, but between the
broadcasting station server (300) and the transmission device is only the transmission of the
variable data. If the transmission of the application address information from the broadcasting
station server (300) to the transmission device (100) were necessary, not only the variable data
but also the application address information would be shown as being transmitted between the two devices (300, 100), just like both the variable data and the application address information are shown as being transmitted from the transmission device (100) to the receiving device (200). Thus, Appellants respectfully submit that the alleged transmission of the "application address information" from the broadcasting station server (300) to the transmission device (100) is purely speculative, or at best, merely one possibility out of many. Neither could establish inherency as asserted by the Examiner. As noted above, "[t]o establish inherency, the extrinsic evidence, 'must make clear that the missing descriptive matter is necessarily present in the thing described in the reference, and that it would be so recognized by persons of ordinary skill in the art." In re Robertson, 169 F.3d 743, 745, 49 USPQ2d, 1949, 1950-51 (Fed. Cir. 1999) (citations omitted).

Moreover, in Lee, the application address information is extracted from the broadcast data by the receiving device 200, which are received from the transmission device 100. See Lee, page 3, paragraph 4 (corresponding to the machine-generated English translation, page 3, paragraph 7). In other words, the application address information of Lee is not extracted by the broadcasting station server 300, but must be extracted from the broadcast data by the receiver 200. With regard to this teachings of Lee, the Examiner, in the Final Office Action, page 24, last paragraph, asserted that "[t]he fact that the 'application address information' is extracted from the broadcast data by the receiver 200 of Lee does not mean that the 'application address information' could not have been extracted from an application, which it is in the combined teachings of Lee and Logan. It is then added to broadcast information such that it can be broadcast by the transmitting device 100." Here, the Examiner merely suggests one possibility but fails to establish why in Lee the broadcasting station server 300 must dynamically divide the data application into application address information and an application, and must transmit the application address information to the transmission device 100, and must transmit the application to the receiving device 100. Accordingly, it is submitted that the Examiner fails to establish inherency of such claim features not disclosed in Lee.

Based on the above, Appellants respectfully submit that the Examiner fails to present any persuasive rationale that, in Lee, the application address information is necessarily transmitted from the broadcasting station server (300) to the transmission device (100). Thus, the Examiner fails to establish inherency of the missing claimed features in Lee. Accordingly, it is clear that any combination of Lee and Logan et al. does not teach or suggest at least a "data application providing server for dynamically dividing the data application into minimum execution data and
additional data, *transmitting the minimum execution data to a broadcasting server ...* as recited in claim 1 (emphasis added). Accordingly, it is respectfully submitted that claim 1 is allowable over the cited references, whether taken alone or in combination.

Independent claim 4 recites, *inter alia*:

a minimum execution data storage for storing a minimum execution data received from a data application providing server, *the data application providing server dynamically dividing the data application into the minimum execution data and an additional data and providing the minimum execution data and the additional data* (emphasis added)

As shown above, claim 4 recites features similar to those of claim 1 as discussed above, and is thus allowable for at least this reason.

Independent claim 7 recites, *inter alia*:

A data application providing server ... comprising:

a data application divider for *dividing the data application into a minimum execution data and an additional data*;

a minimum execution data transmitter for *transmitting the minimum execution data to a broadcasting server for carrying out a digital broadcast* such that the broadcasting server broadcasts the minimum execution data; (emphasis added)

As shown above, claim 7 recites features similar to those of claim 1 as discussed above, and the arguments for claim 1 are applied hereto, *mutatis mutandis*.

Independent claim 13 recites, *inter alia*:

a minimum execution data receiver for receiving *minimum execution data, which have been transmitted from a data application providing server to a broadcasting server, through a digital broadcast network from the broadcasting server carrying out a digital broadcast*; (emphasis added)

As shown above, claim 13 recites features similar to those of claim 1 as discussed
above, and is thus allowable for at least this reason.

Claims 2, 3, 5, 6, 10-12 and 16 depend from claim 1, 4, 7 or 13, and are deemed allowable for at least this reason.

Accordingly, the rejection of claims 1-7, 10-13 and 16 under 35 U.S.C. §103(a) should be reversed.

C. The Examiner incorrectly identifies the analogous elements of the cited prior art:

The Examiner characterized the application disclosed in Lee as analogous to the "additional data" as recited in claim 1 (Final Office Action, page 7, item 5, line 6); and

the application address information disclosed in Lee as analogous to the "minimum execution data" as recited in claim 1 (Final Office Action, page 24, last paragraph).

Appellants submit that the Examiner mischaracterized the corresponding elements of Lee.

In the embodiment shown in Fig. 2 of the present application, the receiver (400) receives the minimum execution data and the additional data to provide the data application. By contrast, the receiving device 200 shown in Fig. 1 of Lee receives the application and the variable data to update the application. In this regard, it is clear that the application and the variable data disclosed in Lee correspond to the "minimum execution data" and the "additional data" as recited in claim 1, respectively. Here, the receiving device 200 of Lee does not analyze the application nor request the variable data. In Lee, the variable data is transmitted by the broadcasting station sever 300 to the transmission device 100, based on the self-checking of the broadcasting station server 300, and therefore, any analysis of the application or request for the variable data is not needed. Thus, even if the Examiner correctly identified these analogous elements of Lee, they would still fail to teach or suggest the claimed subject matter.

D. The Examiner rejected claims 13-16 based on unreasonably broad interpretation of the cited prior art:

Claim 13 recites, *inter alia*:

A receiver for dynamically processing a data application ... comprising:
... a data application provider for *combining the minimum execution data and the additional data to generate the data application, and executing and providing the generated the data application*.

(emphasis added)

The Examiner characterized the application processing unit 240 as analogous to the "data application provider" as recited in claim 13 (Final Office Action, page 15, line 18). However, no teaching or suggestion is found in Lee that the application processing unit 240 may combine "the minimum execution data and the additional data to generate the data application" and "executing and providing the generated the data application," as recited in claim 13. The portions of the machine translation of Lee, page 3, paragraph 10 and page 4, paragraphs 5, 6, and 9-11, upon which the Examiner relies, do not actually teach these features as claimed.

With regard to these claim features, the Examiner asserted, in the Non-Final Office Action mailed May 15, 2012, page 21, paragraph 2, that "[i]n terms of ‘combination’ argument, because the manner in which Lee performs the process of obtaining an application is similar to the manner in which Applicant describes obtaining an application as described in claim 1, Examiner finds it to be obvious that both processes can be as ‘combining’ the two different types of data. If Applicant disagrees with Examiner’s assessment, Applicant is asked to present a thorough explain of how the ‘combining’ of Applicant is different than the ‘combining’ of Lee."

According to the claimed subject matter, the data application provider combines "the minimum execution data and the additional data to *generate the data application*" and executes and provides "*the generated the data application*." However, in Lee, the application address data and the application are not combined to *generate, execute, and provide a data application*. In Lee, the application address data are used *solely for requesting and receiving the application*, but could not possibly be combined with the application to execute a data application. According to the Examiner's interpretation above, any two data would be regarded as being "combined" if they are received by a single device. This is absolutely unreasonably broad interpretation of the cited prior art.

Accordingly, contrary to the Examiner’s assertion above, Lee fails to teach or suggest at least "a data application provider for combining the minimum execution data and the additional data to generate the data application, and executing and providing the generated the data"
application," as recited in claim 13. The secondary reference, Logan, was cited against another feature of claim 13, but fails to cure these deficiencies of Lee. Hence, assuming arguendo Lee and Logan can be combined and a reasonable expectation of success exists, the combined references still do not teach all of the features recited in claim 13.

Claims 14-16 depend from claim 13, and are thus allowable for at least this reason.

2. Claim 8 stands rejected under 35 U.S.C. §103(a) as allegedly unpatentable over Lee in view of Logan, and in further view of Bourges-Sevenier.

Claim 8 depends from claim 7. Bourges-Sevenier was cited by the Examiner against the additional features of dependent claim 8, but fails to cure the deficiencies of Lee and Logan et al. as noted above with regard to claim 7. Hence, assuming arguendo Lee, Logan et al., and Bourges-Sevenier may be combined and a reasonable expectation of success exists, this combination still does not teach all of the features recited in claim 7. Accordingly, claim 8 is allowable over Lee, Logan et al., and Bourges-Sevenier, whether taken alone or in combination, at least because it depends from allowable claim 7.

Accordingly, the rejection of claim 8 under 35 U.S.C. §103(a) should be reversed.

3. Claim 9 stands rejected under 35 U.S.C. §103(a) as allegedly unpatentable over Lee in view of Logan, and in further view of Higgins.

Claim 9 depends from claim 7. Higgins et al. was cited by the Examiner against the additional features of dependent claim 9, but fails to cure the deficiencies of Lee and Logan et al. as noted above with regard to claim 7. Hence, assuming arguendo Lee, Logan et al., and Higgins et al. may be combined and a reasonable expectation of success exists, this combination still does not teach all of the features recited in claim 7. Accordingly, claim 9 is allowable over Lee, Logan et al., and Higgins et al., whether taken alone or in combination, at least because it depends from allowable claim 7.

Accordingly, the rejection of claim 9 under 35 U.S.C. §103(a) should be reversed.
4. **Claim 14 stands rejected under 35 U.S.C. §103(a) as allegedly unpatentable over Lee in view of Logan, and in further view of Bourges-Sevenier.**

Claim 14 depends from claim 13. Bourges-Sevenier was cited by the Examiner against the additional features of dependent claim 14, but fails to cure the deficiencies of Lee as noted above with regard to claim 13. Hence, assuming *arguendo* Lee and Bourges-Sevenier may be combined and a reasonable expectation of success exists, this combination still does not teach all of the features recited in claim 13. Accordingly, claim 14 is allowable over Lee and Bourges-Sevenier, whether taken alone or in combination, at least because it depends from allowable claim 13.

Accordingly, the rejection of claim 14 under 35 U.S.C. §103(a) should be reversed.

5. **Claim 15 stands rejected under 35 U.S.C. §103(a) as allegedly unpatentable over Lee in view of Logan, and in further view of Higgins.**

Claim 15 depends from claim 13. Higgins et al. is cited by the Examiner against the additional features of dependent claim 15, but fails to cure the deficiencies of Lee as noted above with regard to claim 13. Hence, assuming *arguendo* Lee and Higgins et al. may be combined and a reasonable expectation of success exists, this combination still does not teach all of the features recited in claim 13. Accordingly, claim 15 is allowable over Lee and Higgins et al., whether taken alone or in combination, at least because it depends from allowable claim 13.

Accordingly, the rejection of claim 15 under 35 U.S.C. §103(a) should be reversed.
VIII. CONCLUSION

In view of the law and facts stated herein, the Appellants respectfully submit that the Examiner has failed to cite a reference sufficient to maintain the rejection of the pending claims and has failed to rebut the Applicants’ arguments in the Amendments dated August 13, 2012 and December 6, 2012 and in previous responses.

For all the foregoing reasons, the Appellant respectfully submits that the cited prior art does not teach or suggest the presently claimed invention. The claims are patentable over the prior art of record and the Examiner’s findings of unpatentability regarding claims 1-16 should be reversed.

The Commissioner is hereby authorized to charge any additional fees required in connection with the filing of the Appeal Brief to our Deposit Account No. 503333.

Respectfully submitted,

STEIN MCEWEN, LLP

Date: March 19, 2013

By: Sungyeop Chung
Registration No. 64130

1400 Eye St., N.W., Suite 300
Washington, D.C. 20005
Telephone: (202) 216-9505
Facsimile: (202) 216-9510
IX. CLAIMS APPENDIX

1. A digital broadcasting system for dynamically processing a data application, the system comprising:

   a data application providing server for dynamically dividing the data application into minimum execution data and additional data, transmitting the minimum execution data to a broadcasting server, and transmitting the additional data to a receiver;

   the broadcasting server for receiving the minimum execution data from the data application providing server and relaying the minimum execution data to the receiver and carrying out a digital broadcast; and

   the receiver for receiving the minimum execution data from the broadcasting server, analyzing the minimum execution data, transmitting a transmission request for the additional data to the data application providing server, the transmission request being generated based on the analysis of the minimum execution data, and providing the data application including the additional data provided by the data application providing server according to the transmission request and the minimum execution data relayed by the broadcasting server.

2. The system in accordance with claim 1, wherein the minimum execution data includes a download location of the data application providing server for obtaining the additional data.

3. The system in accordance with claim 1, wherein the minimum execution data comprises one of a metadata for the data application and a foundation class data for minimally executing the data application.

4. A broadcasting server for dynamically processing a data application, the server comprising:

   a minimum execution data storage for storing a minimum execution data received from a data application providing server, the data application providing server dynamically dividing the
data application into the minimum execution data and an additional data and providing the minimum execution data and the additional data;

a minimum execution data transmitter for transmitting the minimum execution data stored in the minimum execution data storage through a digital broadcast network to a receiver for providing the data application.

5. The server in accordance with claim 4, wherein the minimum execution data includes a download location of the data application providing server for obtaining the additional data.

6. The server in accordance with claim 4, wherein the minimum execution data comprises one of a metadata for the data application and a foundation class data for minimally executing the data application.

7. A data application providing server for dynamically processing a data application, the server comprising:

a data application divider for dividing the data application into a minimum execution data and an additional data;

a minimum execution data transmitter for transmitting the minimum execution data to a broadcasting server for carrying out a digital broadcast such that the broadcasting server broadcasts the minimum execution data;

an additional data storage for storing the additional data corresponding to the minimum execution data; and

a receiver communication interface for transmitting the additional data to the receiver according to a transmission request of the additional data received from the receiver providing the data application.

8. The server in accordance with claim 7, wherein the receiver communication
interface transmits the additional data via a communication based on an asynchronous socket.

9. The server in accordance with claim 7, further comprising a task manager for managing a thread of the data application providing server and scheduling a task.

10. The server in accordance with claim 7, wherein the data application divider dynamically divides the minimum execution data and the additional data to correspond to a change in the data application, and the additional data storage stores the dynamically divided additional data.

11. The server in accordance with claim 7, wherein the additional data storage stores the additional data based on a memory.

12. The server in accordance with claim 7, wherein the minimum execution data comprises one of a metadata for the data application and a foundation class data for minimally executing the data application.

13. A receiver for dynamically processing a data application, the receiver comprising:

   a minimum execution data receiver for receiving minimum execution data, which have been transmitted from a data application providing server to a broadcasting server, through a digital broadcast network from the broadcasting server carrying out a digital broadcast;

   a minimum execution data analyzer for analyzing the minimum execution data to extract an execution condition information of the data application and an information on an additional data corresponding to the minimum execution data required for executing the data application;

   a data application providing server interface for transmitting a transmission request for the additional data to the data application providing server during an execution of the minimum execution data, and for receiving the additional data from the data application providing server; and
a data application provider for combining the minimum execution data and the additional data to generate the data application, and executing and providing the generated the data application.

14. The receiver in accordance with claim 13, wherein the data application providing server interface receives the additional data from the data application providing server via a communication based on an asynchronous socket.

15. The receiver in accordance with claim 13, further comprising a task manager for managing a thread of the data application providing server and scheduling a task.

16. The receiver in accordance with claim 13, wherein the minimum execution data comprises one of a metadata for the data application and a foundation class data for minimally executing the data application.
X. EVIDENCE APPENDIX

NONE
XI. RELATED PROCEEDINGS APPENDIX

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**Warnings:**

**Information:**
This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111
If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371
If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office
If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.
TRANSMITTAL FORM
(to be used for all correspondence after initial filing)

Application Number 12/449,565
Filing Date August 13, 2009
First Named Inventor Wonjang BEAK, et al.
Art Unit 2425
Examiner Name Joshua D. TAYLOR

Total Number of Pages in This Submission
Attorney Docket Number 0366-1010

ENCLOSURES (Check all that apply)

☐ Fee Transmittal Form
☐ Fee Attached
☐ Amendment/Reply
☐ After Final
☐ Affidavits/declaration(s)
☐ Extension of Time Request
☐ Express Abandonment Request
☐ Information Disclosure Statement
☐ Certified Copy of Priority Document(s)
☐ Reply to Missing Parts/Incomplete Application
☐ landscapetable on CD

Drawing(s)
Licensed-related Papers
Petition
Petition to Convert to a Provisional Application
Power of Attorney, Revocation
Change of Correspondence Address
Terminal Disclaimer
Request for Refund
CD, Number of CD(s)

Remarks

☐ After Allowance Communication to TC
☐ Appeal Communication to Board of Appeals and Interferences
☐ Appeal Communication to TC
(Proprietary Information)
☐ Proprietary Information
☐ Status Letter
☐ Other Enclosure(s) (please identify below):

SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT

Firm Name STEIN IP, LLC
Signature /schung/
Printed name Sungyeop Chung
Date March 19, 2013
Reg. No. 64,130

CERTIFICATE OF TRANSMISSION/MAILING

I hereby certify that this correspondence is being facsimile transmitted to the USPTO or deposited with the United States Postal Service with sufficient postage as first class mail in an envelope addressed to: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450 on the date shown below:

Signature

Typed or printed name Date

This collection of information is required by 37 CFR 1.5. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to 2 hours to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.
Privacy Act Statement

The Privacy Act of 1974 (P.L. 93-579) requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C. 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether disclosure of these records is required by the Freedom of Information Act.

2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.

3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.

4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).

5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.

6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).

7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency’s responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.

8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspection or an issued patent.

9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.
Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.
Notice of Panel Decision from Pre-Appeal Brief Review

This is in response to the Pre-Appeal Brief Request for Review filed 08 January, 2013.

1. □ Improper Request – The Request is improper and a conference will not be held for the following reason(s):

   □ The Notice of Appeal has not been filed concurrent with the Pre-Appeal Brief Request.
   □ The request does not include reasons why a review is appropriate.
   □ A proposed amendment is included with the Pre-Appeal Brief request.
   □ Other:

The time period for filing a response continues to run from the receipt date of the Notice of Appeal or from the mail date of the last Office communication, if no Notice of Appeal has been received.

2. ☑ Proceed to Board of Patent Appeals and Interferences – A Pre-Appeal Brief conference has been held. The application remains under appeal because there is at least one actual issue for appeal. Applicant is required to submit an appeal brief in accordance with 37 CFR 41.37. The time period for filing an appeal brief will be reset to be one month from mailing this decision, or the balance of the two-month time period running from the receipt of the notice of appeal, whichever is greater. Further, the time period for filing of the appeal brief is extendible under 37 CFR 1.136 based upon the mail date of this decision or the receipt date of the notice of appeal, as applicable.

   ☑ The panel has determined the status of the claim(s) is as follows:
   Claim(s) allowed: ______.
   Claim(s) objected to: ______.
   Claim(s) rejected: 1-16.
   Claim(s) withdrawn from consideration: ______.

3. □ Allowable application – A conference has been held. The rejection is withdrawn and a Notice of Allowance will be mailed. Prosecution on the merits remains closed. No further action is required by applicant at this time.

4. □ Reopen Prosecution – A conference has been held. The rejection is withdrawn and a new Office action will be mailed. No further action is required by applicant at this time.

All participants:

(1) JOSHUA TAYLOR.
(2) NASSER GOODARZI.
(3) ______.
(4) ______.

/Josh Taylor/
Primary Examiner, Art Unit 2426

/Nasser Moazzami/
Supervisory Patent Examiner, Art Unit 2426
IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re the Application of:

Wonjang BAEK et al.                                      Confirmation No.:  8285
Application No.: 12/449,565                                 Group Art Unit:  2426
Filed:  August 13, 2009                                     Examiner:  Joshua D. Taylor
For:  DATA APPLICATION PROVIDING SERVER, BROADCASTING SERVER AND
      RECEIVER FOR DYNAMICALLY PROCESSING DATA APPLICATION AND DIGITAL
      BROADCASTING SYSTEM INCLUDING THE SAME

NOTICE OF APPEAL FROM THE PRIMARY EXAMINER
TO THE BOARD OF PATENT APPEALS AND INTERFERENCES

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Attention:  After Final

Sir:

Applicant hereby appeals to the Board from the decision of the Primary Examiner mailed
October 10, 2012, finally rejecting claims 1 through 16.
The items checked below are appropriate:

1. EXTENSION OF TIME PETITION AND FEE

   — Attached is a petition for a ___-month extension of time
      for reply to the final rejection.  $________

   ___ Less ___ -month extension of time previously paid - $________

2. APPEAL FEE

   X Other than small entity  $630.00

   TOTAL FEE  $ 630.00
3. PAYMENT

- Credit Card Payment Form, Form PTO-2038 (attached).
- Charge Deposit Account No. 503333 for any fee deficiency.

4. PRE-APPEAL BRIEF REQUEST FOR REVIEW

- Attached is a Pre-Appeal Brief Request for Review pursuant to 1296 OG 67 and 1303 OG 21.

Respectfully submitted,

STEIN MCEWEN, LLP

Dated: January 8, 2013
1400 Eye St., N.W.
Suite 300
Washington, D.C. 20005
Telephone: (202) 216-9505
Facsimile: (202) 216-9510

By: [Signature]

Sungyop Chung
Registration No. 64,130
**PRE-APPEAL BRIEF REQUEST FOR REVIEW**

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**Signed**

Sungyeop Chung

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Applicant requests review of the final rejection in the above-identified application. No amendments are being filed with this request.

This request is being filed with a notice of appeal.

The review is requested for the reason(s) stated on the attached sheet(s).

Note: No more than five (5) pages may be provided.

I am the

☐ applicant/inventor.
☐ assignee of record of the entire interest.
See 37 CFR 3.71. Statement under 37 CFR 3.73(b) is enclosed.
(Form PTO/SB/66)

☑ attorney or agent of record.
Registration number 64,130

☑ attorney or agent acting under 37 CFR 1.34.
Registration number if acting under 37 CFR 1.34

January 8, 2013

Signature

Sungyeop Chung

Typed or printed name

(202) 216-9505

Telephone number

Date

Note: Signatures of all the inventors or assignees of record of the entire interest or their representative(s) are required. Submit multiple forms if more than one signature is required, see below.

☑ Total of 1 forms are submitted.
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<td>Wonjang Baek</td>
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**Warnings:**

**Information:**

| Total Files Size (in bytes): | 266422 |

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

**New Applications Under 35 U.S.C. 111**

If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

**National Stage of an International Application under 35 U.S.C. 371**

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

**New International Application Filed with the USPTO as a Receiving Office**

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.
Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

docketing@smiplaw.com
Response to Arguments

Applicant’s amendments to correct the typographical errors in claims 1 and 13 remove the need for the claims to be objected to, and thus the objections to claims 1 and 13 have been withdrawn.

Applicant’s arguments filed December 6, 2012 have been fully considered but they are not persuasive.

Regarding Applicant’s arguments on pages 6-7 concerning claims 1-7 and 10-12:


   To establish an obviousness rejection under 35 U.S.C. § 103(a), four factual inquiries must be examined. The four factual inquiries include (a) determining the scope and contents of the prior art; (b) ascertaining the differences between the prior art and the claims in issue; (c) resolving the level of ordinary skill in the pertinent art; and (d) evaluating evidence of secondary consideration. Graham v. John Deere, 383 U.S. 1, 17-18 (1966). In view of these four factors, the analysis supporting a rejection under 35 U.S.C. 103(a) should be made explicit, and should "identify a reason that would have prompted a person of ordinary skill in the relevant field to combine the [prior art] elements" in the manner claimed. KSR Int'l. Co. v. Teleflex, Inc., 550 U.S. 398 (2007). Furthermore, even if the prior art may be combined, there must be a reasonable expectation of success, and the reference or references, when combined, must disclose or suggest all of the claim limitations. See in re Vaeck, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991).

Examiner’s response:

Examiner agrees that this is the standard to be met.

Regarding Applicant’s arguments on pages 7-8 concerning claims 1-7 and 10-12:

In the Office Action, page 8, lines 12-18, it is admitted that the primary reference, Lee, fails to disclose the following features of claim 1:
a data application providing server for dynamically dividing the data application into minimum execution data and additional data, transmitting the minimum execution data to a broadcasting server, and transmitting the additional data to a receiver; the broadcasting server for receiving the minimum execution data from the data application providing server and relaying the minimum execution data to the receiver and carrying out a digital broadcast (emphasis by the Examiner)

However, the Examiner asserts that these deficiencies of Lee with regard to claim 1 could be cured by the teachings of Logan et al. because the secondary reference discloses that "metadata can be routed from a metadata supplier 180, via the internet, to a headend location 120, where it is then broadcast to users (Fig. 1, elements 180 and 120, paras. [0026] and [0035]-[0037]), which teaches that metadata may be routed from one server to another before being delivered to a client." See the Office Action, page 8, lines 18-22.

Applicants respectfully note that notwithstanding the Office Action admits Lee's failure of teaching the features "dynamically dividing ..." as recited in claim 1, it still does not articulate how the secondary reference, Logan et al., teaches the features "dynamically dividing ..." as recited in claim 1. See the Office Action, page 8, line 12 through page 9, line 10.

Accordingly, assuming arguendo Lee and Logan et al. can be combined and a reasonable expectation of success exists, these combined references still do not teach at least "a data application providing server for dynamically dividing the data application into minimum execution data and additional data ..." as recited in claim 1 (emphasis added). This standard of obviousness is already agreed by the Examiner. See the Office Action, page 21, lines 3-4. Hence, it is clear that claim 1 is allowable over Lee and Logan et al., whether taken alone or in combination.

Examiner’s response:

As Examiner states on page 8 of the Final Office Action of October 10, 2012, it is obvious from the disclosure of Lee that devices 300 and 100 would have to communicate in some manner in order for device 100 to be able to broadcast an address that corresponded to a viable address containing information at server 300, meaning that at some point the address would have to be “divided” from the content contained at said address. Thus, although Lee does not explicitly disclose dynamically dividing, the fact that such a division is obviously implied in Lee, combined with the teaching of Logan concerning routing metadata, would result in one of ordinary skill in the art at the time of the invention finding it obvious to allow for the dividing
suggested in Lee to be used to dynamically carry out the functions that would result in Applicant’s invention.

Regarding Applicant’s arguments on page 8 concerning claims 1-7 and 10-12:

Furthermore, Applicants respectfully submit that the alleged combination of the teachings of Lee and Logan et al. is impermissible hindsight, and even if combined, the resulting is inoperable. “One cannot use hindsight reconstruction to pick and choose among isolated disclosures in the prior art to deprecate the claimed invention.” In re Fine, 837 F.2d 1071, 1075 (Fed. Cir. 1988).

Examiner’s response:

In response to Applicant's argument that Examiner's conclusion of obviousness is based upon improper hindsight reasoning, it must be recognized that any judgment on obviousness is in a sense necessarily a reconstruction based upon hindsight reasoning. But so long as it takes into account only knowledge which was within the level of ordinary skill at the time the claimed invention was made, and does not include knowledge gleaned only from the applicant's disclosure, such a reconstruction is proper. See In re McLaughlin, 443 F.2d 1392, 170 USPQ 209 (CCPA 1971).

Regarding Applicant’s arguments on page 8 concerning claims 1-7 and 10-12:

The main feature of Lee is that the receiver (200) receives different data from two different channels (100, 300) to reduce the load of the broadcasting station server (300). See the machine translation of Lee, page 3, paragraphs 2-3. To that end, the receiver (200) of Lee receives the application address information and the variable data from the transmission device (100) while receiving directly from the broadcasting station server (300) the application, thereby significantly reducing the load of the server (300) (Fig. 1 of Lee).
In Logan et al., on the contrary, all data from the metadata supplier (180) are transmitted to the headend location (120) via either the internet (140) or the satellite (164) (Fig. 1 of Logan et al.). This scheme cannot reduce the load of the headend location (120), which may correspond to the broadcasting station server (300) of Lee, and therefore, is clearly against the teachings of Lee. Accordingly, there is no reason for one of ordinary skill in the art who knows the teachings of Lee to turn to Logan et al. because their teachings are opposite or incompatible. Moreover, for at least this reason, even if Lee and Logan et al. may be combined, the resulting system is completely inoperable.

Still furthermore, Applicants respectfully submit that the arguments presented in the previous response of August 13, 2012, on pages 7-10, remain valid and the Examiner's responses thereto in the Office Action are not persuasive. See below.

Examiner’s response:

Examiner disagrees that the teachings of Logan would render Lee inoperable and that their teachings are incompatible. Again, the application address information sent to 200 from 100 would obviously have to be previously received at some point by 100 from 300, in order to know the address at which the related information is located in 300. Therefore, the load may be able to be spread out over time, but not necessary reduced in this way. Thus, the teachings of Logan would be able to be used to modify Lee to arrive at Applicant’s invention as currently claimed.

Regarding Applicant’s arguments on pages 8-9 concerning claims 1-7 and 10-12:

Regarding the Examiner's response in the Office Action, page 22, paragraph 2: The Office Action states the following:

In response to Applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See In re Keller, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); In re Merck & Co., 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986). That is, Logan need not disclose the elements of Applicant’s invention which Lee has already been shown to disclose. Rather, Logan must provide teaching which one of ordinary skill in the art at the time of the invention could have used to modify Lee to arrive at Applicant’s claimed invention. Thus, as Logan discloses relaying metadata through a
server, said one of ordinary skill could use that teaching to modify Lee such that the minimum execution data could be routed from the broadcasting station server through the transmission device 100 to be delivered to the receiver 200.

Applicants respectfully agree with the Examiner in that "[t]hat is, Logan need not disclose the elements of Applicant's invention which Lee has already been shown to disclose," as recited above. However, the Examiner is respectfully advised that "the reference or references, when combined, must disclose or suggest all of the claim limitations." See in re Vaeck, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991) (emphasis added). This standard is agreed by the Examiner (Office Action, page 21, lines 3-4). As discussed previously, neither Lee nor Logan et al. teaches at least a "data application providing server for dynamically dividing the data application into minimum execution data and additional data ..." as recited in claim 1 (emphasis added). Thus, no combination of Lee and Logan et al. teaches such claim features. Accordingly, it is respectfully submitted that claim 1 is allowable over the cited references, whether taken alone or in combination.

Examiner’s response:

As stated above in response to an earlier, similar argument, Examiner states on page 8 of the Final Office Action of October 10, 2012, it is obvious from the disclosure of Lee that devices 300 and 100 would have to communicate in some manner in order for device 100 to be able to broadcast an address that corresponded to a viable address containing information at server 300, meaning that at some point the address would have to be “divided” from the content contained at said address. Thus, although Lee does not explicitly disclose dynamically dividing, the fact that such a division is obviously implied in Lee, combined with the teaching of Logan concerning routing metadata would result in one of ordinary skill in the art at the time of the invention finding it obvious to allow for the dividing suggested in Lee to be used to dynamically carry out the functions that would result in Applicant’s invention.

Regarding Applicant’s arguments on pages 9-10 concerning claims 1-7 and 10-12:
Regarding the Examiner's response in the Office Action, page 24, paragraph 2:

The Office Action states the following:

The "application address information" is only a part of the broadcast data after it has been joined to the broadcast data at transmitting device 100. Applicant performs a similar process in claim 1, for example, in claiming that the broadcasting server relays the minimum execution data to the receiver and comes out a digital broadcast; i.e. broadcasts the minimum execution data to the receiver. The fact that the "application address information" is extracted from the broadcast data by the receiver 200 of Lee does not mean that the "application address information" could not have earlier been extracted from an application, which it is in the combined teachings of Lee and Logan. It is then added to broadcast information such that it can be broadcast by the transmitting device 100.

As recited above, the Examiner notes that "[t]he fact that the 'application address information' is extracted from the broadcast data by the receiver 200 of Lee does not mean that the 'application address information' could not have earlier been extracted from application, which it is in the combined teachings of Lee and Logan." Applicants respectfully submit that even if the "application address information" could have earlier been extracted from the application, as asserted by the Examiner, this does not necessarily mean the "application address information" is extracted by the broadcasting station server (300) of Lee or the metadata supplier (180) of Logan et al. because, for example, the "application address information" can be generated by the transmission device (100). The reasoning above only relies on possibilities or probabilities, but clearly, possibilities or probabilities do not constitute a teaching or suggestion. "Inherency, however, may not be established by probabilities or possibilities. The mere fact that a certain thing may result from a given set of circumstances is not sufficient." In re Robertson, 169 F.3d 743, 745, 49 USPQ2d 1949, 1950-51 (Fed. Cir. 1999) (citations omitted) Accordingly, it is clear that any combination of Lee and Logan et al. does not teach or suggest at least a "data application providing server for dynamically dividing the data application into minimum execution data and additional data..." as recited in claim 1 (emphasis added). Accordingly, it is respectfully submitted that claim 1 is allowable over the cited references, whether taken alone or in combination.

Examiner’s response:

Examiner disagrees that the above reasoning relies on possibilities or probabilities.

Applicant was arguing in the August 13, 2012 response that the ‘application address information’ was excluded from being extracted by the server 300 of Lee because it must be extracted from the broadcast data by the receiver 200. Examiner is simply saying that one extraction does not
preclude another extraction. Thus, there is teaching in the prior art of record which obviates this element of Applicant's invention as claimed.

As an example, if a reference discloses a server that is capable of providing services A, B, and C, but only one at a time, and an application claims a server capable of providing service A, then said reference may be used to reject said application. This is true even though providing service A is only one of three possibilities which said server may be providing at any given time, and the probability is that it will be providing either service B or C the majority of the time.

Regarding Applicant’s arguments on pages 10-12 concerning claims 1-7 and 10-12:

Regarding the Examiner's response in the Office Action, page 26, paragraph 1"
The Office Action states the following:

Examiner disagrees that this is a rational of inherency. Inherency is a standard which must be met in a 35 USC 102 rejection, and is a higher standard than the standard of obviousness which must be met in a 35 USC 103 rejection. Therefore, Examiner need not meet the level of establishing inherency, but rather only the level of showing that such a conclusion would have been obvious to one of ordinary skill in the art at the time of the invention. Examiner has done as much. If an address which will allow a computer to locate an application is to function properly, then at some point there must be a communication between the computer storing the application at said address and the computer requesting the application using the address. Thus, it would have been obvious to one of ordinary skill in the art at the time of the invention that, when the application was stored, in order for the address at which it was stored to get from the broadcasting station server 300 of Lee to the transmission device 100 of Lee, there would have had to be at some point a transmission of such information from server 300 to device 100, which can be called a division because information which relates to each other (an address location and the contents of that address) are separated, with one part (the address location) being sent out and the other part (the contents) remaining. Therefore, the fact that inherency may not have been met is moot, as obviousness has been met.

As recited above, the Examiner contends that "[i]nherency is a standard which must be met in a 35 USC 102 rejection, and is a higher standard than the standard of obviousness which must be met in a 35 USC 103 rejection. Therefore, Examiner need not meet the level of
establishing inherency, but rather only the level of showing that such a conclusion would have been obvious to one of ordinary skill in the art at the time of the invention." Applicants respectfully submit that the Examiner incorrectly understands the standard of inherency. On the contrary, the burden of proof for inherency is the same, whether it is subjected to a 35 U.S.C. 102 rejection or a 35 U.S.C. 103 rejection. See MPEP 2112 (Requirements of Rejection Based on Inherency; Burden of Proof). "Whether the rejection is based on 'inherency' under 35 U.S.C. 102, on 'prima facie obviousness' under 35 U.S.C. 103, jointly or alternatively, the burden of proof is the same...[footnote omitted]." The burden of proof is similar to that required with respect to product-by-process claims. In re Fitzgerald, 619 F.2d 67, 70, 205 USPQ 594, 596 (CCPA 1980) (quoting In re Best, 562 F.2d 1252, 1255, 195 USPQ 430, 433-34 (CCPA 1977))."

In view of the above framework, Applicants respectfully request the Examiner to establish the missing claim feature, "a data application providing server for dynamically dividing the data application into minimum execution data and additional data, transmitting the minimum execution data to a broadcasting server" is necessarily and inevitably flew from the teachings of Lee and Logan et al. As noted, supra, for example, the "application address information" of Lee could be independently generated by the transmission device 100, or could be present outside of a data application in the server 300. Thus, it is submitted that the Office Action fails to establish inherency of such feature of claim 1. Accordingly, it is respectfully submitted that claim 1 is allowable over the cited references, whether taken alone or in combination.

Examiner’s response:

Yes, the burden of proof is the same, but the manner in which said proof may be met is different. Examiner maintains that the burden of proof for prima facie obviousness has been met, and thus maintains the rejection of Applicant’s invention as currently claimed. Examiner of course allows that there may be elements of the invention contained in the specification which are not yet claimed which may overcome the prior art of record and place the Application in condition for allowance, and Applicant is welcome to present any of these potential elements to Examiner for consideration.

Applicant’s further arguments on pages 12-14 are rendered moot based on the above responses.
Application/Control Number: 12/449,565
Art Unit: 2426

/Josh Taylor/
Primary Examiner, Art Unit 2426
December 19, 2012
Advisory Action
Before the Filing of an Appeal Brief

Applicant(s)
BAEK ET AL.

Examiner
JOSHUA TAYLOR

Art Unit
2426

---The MAILING DATE of this communication appears on the cover sheet with the correspondence address---

THE REPLY FILED 06 December 2012 FAILS TO PLACE THIS APPLICATION IN CONDITION FOR ALLOWANCE.

NO NOTICE OF APPEAL FILED.

1. ☑️ The reply was filed after a final rejection. No Notice of Appeal has been filed. To avoid abandonment of this application, applicant must timely file one of the following replies: (1) an amendment, affidavit, or other evidence, which places the application in condition for allowance; (2) a Notice of Appeal (with appeal fee) in compliance with 37 CFR 41.31; or (3) a Request for Continued Examination (RCE) in compliance with 37 CFR 1.114 if this is a utility or plant application. Note that RCEs are not permitted in design applications. The reply must be filed within one of the following time periods:
   a) ☑️ The period for reply expires _____ months from the mailing date of the final rejection.
   b) ☑️ The period for reply expires on: (1) the mailing date of this Advisory Action; or (2) the date set forth in the final rejection, whichever is later. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of the final rejection.
   c) ☑️ A prior Advisory Action was mailed more than 3 months after the mailing date of the final rejection in response to a first-after-final reply filed within 2 months of the mailing date of the final rejection. The current period for reply expires _____ months from the mailing date of the prior Advisory Action or SIX MONTHS from the mailing date of the final rejection, whichever is earlier.

Examiner Note: If box 1 is checked, check either box (a), (b) or (c). ONLY CHECK BOX (b) WHEN THIS ADVISORY ACTION IS THE FIRST RESPONSE TO APPLICANT’S FIRST AFTER-FINAL REPLY WHICH WAS FILED WITHIN TWO MONTHS OF THE FINAL REJECTION. ONLY CHECK BOX (c) IN THE LIMITED SITUATION SET FORTH UNDER BOX (c). See MPEP 706.07(f).

Extensions of time may be obtained under 37 CFR 1.136(a). The date on which the petition under 37 CFR 1.136(a) and the appropriate extension fee have been filed is the date for purposes of determining the period of extension and the corresponding amount of the fee. The appropriate extension fee under 37 CFR 1.17(a) is calculated from: (1) the expiration date of the shortened statutory period for reply originally set in the final Office action; or (2) as set forth in (b) or (c) above, if checked. Any reply received by the Office later than three months after the mailing date of the final rejection, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

NOTICE OF APPEAL.

2. ☑️ The Notice of Appeal was filed on ____. A brief in compliance with 37 CFR 41.37 must be filed within two months of the date of filing the Notice of Appeal (37 CFR 41.37(a)); or any extension thereof (37 CFR 41.37(e)), to avoid dismissal of the appeal. Since a Notice of Appeal has been filed, any reply must be filed within the time period set forth in 37 CFR 41.37(a).

AMENDMENTS.

3. ☑️ The proposed amendments filed after a final rejection, but prior to the date of filing a brief, will not be entered because
   a) ☑️ They raise new issues that would require further consideration and/or search (see NOTE below);
   b) ☑️ They raise the issue of new matter (see NOTE below);
   c) ☑️ They are not deemed to place the application in better form for appeal by materially reducing or simplifying the issues for appeal; and/or
   d) ☑️ They present additional claims without canceling a corresponding number of finally rejected claims.

   NOTE: _____ (See 37 CFR 1.116 and 41.33(a)).

4. ☑️ The amendments are not in compliance with 37 CFR 1.121. See attached Notice of Non-Compliant Amendment (PTOL-324).

5. ☑️ Applicant’s reply has overcome the following rejection(s): The objections to claims 1 and 13.

6. ☑️ Newly proposed or amended claim(s) ________ would be allowable if submitted in a separate, timely filed amendment canceling the non-allowable claim(s).

7. ☑️ For purposes of appeal, the proposed amendment(s): (a) ☑️ will not be entered, or (b) ☑️ will be entered, and an explanation of how the new or amended claims would be rejected is provided below or appended.

AFFIDAVIT OR OTHER EVIDENCE.

8. ☑️ The affidavit or other evidence filed after final action, but before or on the date of filing a Notice of Appeal will not be entered because applicant failed to provide a showing of good and sufficient reasons why the affidavit or other evidence is necessary and was not earlier presented. See 37 CFR 1.116(e).

9. ☑️ The affidavit or other evidence filed after the date of filing the Notice of Appeal, but prior to the date of filing a brief, will not be entered because the affidavit or other evidence failed to overcome all rejections under appeal and/or appellant fails to provide a showing of good and sufficient reasons why it is necessary and was not earlier presented. See 37 CFR 41.33(d)(1).

10. ☑️ The affidavit or other evidence is entered. An explanation of the status of the claims after entry is below or attached.

REQUEST FOR RECONSIDERATION/OTHER

11. ☑️ The request for reconsideration has been considered but does NOT place the application in condition for allowance because:

   See attached response.

12. ☑️ Note the attached Information Disclosure Statement(s). (PTO/SB/08) Paper No(s). ______

13. ☑️ Other: __________

STATUS OF CLAIMS

14. The status of the claim(s) is (or will be) as follows:
   Claim(s) allowed: ______
   Claim(s) objected to: ______
   Claim(s) rejected: 1-16.
   Claim(s) withdrawn from consideration: ______

/Josh Taylor/
Primary Examiner, Art Unit 2426

U.S. Patent and Trademark Office
PTOL-303 (Rev. 09-2010) Advisory Action Before the Filing of an Appeal Brief Part of Paper No. 20121219
IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re the Application of:

Wonjang BAEK, et al. 

Application No.: 12/449,565

Filed: August 13, 2009

For: DATA APPLICATION PROVIDING SERVER, BROADCASTING SERVER AND RECEIVER FOR DYNAMICALLY PROCESSING DATA APPLICATION AND DIGITAL BROADCASTING SYSTEM INCLUDING THE SAME

Confirmation No.: 8285

Group Art Unit: 2426

Examiner: Joshua D. Taylor

AMENDMENT AFTER FINAL UNDER 37 C.F.R. §1.116

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Attention: BOX AF

Sir:

This is in response to the Final Office Action mailed October 10, 2012, and having a period for response set to expire on January 10, 2013.

The two-month date from the mailing date of the Final Office Action of October 10, 2012, is December 10, 2012. This response is being filed on or before December 10, 2012, and thus is being filed within two months of the mailing date of the Final Office Action of October 10, 2012, for the purposes of MPEP 714.13(I).

Reconsideration of the claims is respectfully requested. The following remarks are respectfully submitted.

OK TO ENTER: /J.T./
IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re the Application of:
Wonjang BAEK, et al.                          Confirmation No.: 8285
Application No.: 12/449,565                   Group Art Unit:  2426
Filed: August 13, 2009                          Examiner: Joshua D. Taylor

For: DATA APPLICATION PROVIDING SERVER, BROADCASTING SERVER AND RECEIVER FOR DYNAMICALLY PROCESSING DATA APPLICATION AND DIGITAL BROADCASTING SYSTEM INCLUDING THE SAME

AMENDMENT AFTER FINAL UNDER 37 C.F.R. §1.116

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Attention: BOX AF

Sir:

This is in response to the Final Office Action mailed October 10, 2012, and having a period for response set to expire on January 10, 2013.

The two-month date from the mailing date of the Final Office Action of October 10, 2012, is December 10, 2012. This response is being filed on or before December 10, 2012, and thus is being filed within two months of the mailing date of the Final Office Action of October 10, 2012, for the purposes of MPEP 714.13(I).

Reconsideration of the claims is respectfully requested. The following remarks are respectfully submitted.
IN THE CLAIMS:

Please AMEND claims 1 and 13, in accordance with the following:

1. (Currently amended) A digital broadcasting system for dynamically processing a data application, the system comprising:
   a data application providing server for dynamically dividing the data application into minimum execution data and additional data, transmitting the minimum execution data to a broadcasting server, and transmitting the additional data to the receiver;
   the broadcasting server for receiving the minimum execution data from the data application providing server and relaying the minimum execution data to the receiver and carrying out a digital broadcast; and
   the receiver for receiving the minimum execution data from the broadcasting server,
   analyzing the minimum execution data, transmitting a transmission request for the additional data to the data application providing server, the transmission request being generated based on the analysis of the minimum execution data, and providing the data application including the additional data provided by the data application providing server according to the transmission request and the minimum execution data relayed by the broadcasting server.

2. (Original) The system in accordance with claim 1, wherein the minimum execution data includes a download location of the data application providing server for obtaining the additional data.

3. (Original) The system in accordance with claim 1, wherein the minimum execution data comprises one of a metadata for the data application and a foundation class data for minimally executing the data application.

4. (Previously Presented) A broadcasting server for dynamically processing a data application, the server comprising:
   a minimum execution data storage for storing a minimum execution data received from a data application providing server, the data application providing server dynamically dividing the data application into the minimum execution data and an additional data and providing the minimum execution data and the additional data;
a minimum execution data transmitter for transmitting the minimum execution data stored in the minimum execution data storage through a digital broadcast network to a receiver for providing the data application.

5. (Original) The server in accordance with claim 4, wherein the minimum execution data includes a download location of the data application providing server for obtaining the additional data.

6. (Original) The server in accordance with claim 4, wherein the minimum execution data comprises one of a metadata for the data application and a foundation class data for minimally executing the data application.

7. (Original) A data application providing server for dynamically processing a data application, the server comprising:
   a data application divider for dividing the data application into a minimum execution data and an additional data;
   a minimum execution data transmitter for transmitting the minimum execution data to a broadcasting server for carrying out a digital broadcast such that the broadcasting server broadcasts the minimum execution data;
   an additional data storage for storing the additional data corresponding to the minimum execution data; and
   a receiver communication interface for transmitting the additional data to the receiver according to a transmission request of the additional data received from the receiver providing the data application.

8. (Original) The server in accordance with claim 7, wherein the receiver communication interface transmits the additional data via a communication based on an asynchronous socket.

9. (Original) The server in accordance with claim 7, further comprising a task manager for managing a thread of the data application providing server and scheduling a task.
10. (Original) The server in accordance with claim 7, wherein the data application divider dynamically divides the minimum execution data and the additional data to correspond to a change in the data application, and the additional data storage stores the dynamically divided additional data.

11. (Original) The server in accordance with claim 7, wherein the additional data storage stores the additional data based on a memory.

12. (Original) The server in accordance with claim 7, wherein the minimum execution data comprises one of a metadata for the data application and a foundation class data for minimally executing the data application.

13. (Currently amended) A receiver for dynamically processing a data application, the receiver comprising:
   a minimum execution data receiver for receiving minimum execution data, which have been transmitted from a data application providing server to the broadcasting server, through a digital broadcast network from the broadcasting server carrying out a digital broadcast;
   a minimum execution data analyzer for analyzing the minimum execution data to extract an execution condition information of the data application and an information on an additional data corresponding to the minimum execution data required for executing the data application;
   a data application providing server interface for transmitting a transmission request for the additional data to the data application providing server during an execution of the minimum execution data, and for receiving the additional data from the data application providing server;
   and
   a data application provider for combining the minimum execution data and the additional data to generate the data application, and executing and providing the generated the data application.

14. (Original) The receiver in accordance with claim 13, wherein the data application providing server interface receives the additional data from the data application providing server via a communication based on an asynchronous socket.
15. (Original) The receiver in accordance with claim 13, further comprising a task manager for managing a thread of the data application providing server and scheduling a task.

16. (Original) The receiver in accordance with claim 13, wherein the minimum execution data comprises one of a metadata for the data application and a foundation class data for minimally executing the data application.
REMARKS

In accordance with the foregoing, claims 1 and 13 have been amended to correct informalities. Claims 1-16 are pending and under consideration. No new matter within the meaning of 35 U.S.C. §132 is presented in this Amendment.

CLAIM OBJECTIONS:

Claims 1 and 13 stand objected to because of the following informalities: the term "the receiver" recited in line 5 of claim 1 and the term "the broadcasting server" recited in line 4 of claim 13 lack an antecedent basis.

By this amendment, the term "the receiver" in line 5 of claim 1 has been replaced with the new term -- a receiver --; and the term "the broadcasting server" in line 4 of claim 13 has been replaced with the new term -- a broadcasting server --. Applicants respectfully note that the outstanding objection to the claims is obviated in view of this amendment. Accordingly, it is respectfully requested that the objection to claims 1 and 13 be withdrawn.

DOUBLE PATENTING REJECTION(S):

Claims 1-8, 11-14 and 16 stand provisionally rejected on the ground of non-statutory obviousness-type double patenting as being unpatentable over claims 1-5, 8-10, 12 and 14 of co-pending Application No. 12/449,563.

Applicants respectfully request that this rejection be held in abeyance until an indication that the claims are otherwise allowable. Applicants, at that time, will either address this rejection or file a terminal disclaimer.

REJECTIONS UNDER 35 U.S.C. §103:


To establish an obviousness rejection under 35 U.S.C. § 103(a), four factual inquiries must be examined. The four factual inquiries include (a) determining the scope and contents of
the prior art; (b) ascertaining the differences between the prior art and the claims in issue; (c) resolving the level of ordinary skill in the pertinent art; and (d) evaluating evidence of secondary consideration. *Graham v. John Deere*, 383 U.S. 1, 17-18 (1966). In view of these four factors, the analysis supporting a rejection under 35 U.S.C. 103(a) should be made explicit, and should "identify a reason that would have prompted a person of ordinary skill in the relevant field to combine the [prior art] elements" in the manner claimed. *KSR Int'l Co. v. Teleflex, Inc.*, 550 U.S. 398 (2007). Furthermore, even if the prior art may be combined, there must be a reasonable expectation of success, and the reference or references, when combined, must disclose or suggest all of the claim limitations. *See in re Vaech*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991).

In the Office Action, page 8, lines 12-18, it is admitted that the primary reference, Lee, fails to disclose the following features of claim 1:

- a data application providing server for **dynamically dividing** the data application into minimum execution data and additional data, **transmitting the minimum execution data to a broadcasting server**, and transmitting the additional data to a receiver;
- the broadcasting server for **receiving the minimum execution data from the data application providing server** and **relaying** the minimum execution data to the receiver and carrying out a digital broadcast (emphasis by the Examiner)

However, the Examiner asserts that these deficiencies of Lee with regard to claim 1 could be cured by the teachings of Logan et al. because the secondary reference discloses that "metadata can be routed from a metadata supplier 180, via the internet, to a headend location 120, where it is then broadcast to users (Fig. 1, elements 180 and 120, paras. [0026] and [0035]-[0037]), which teaches that metadata may be routed from one server to another before being delivered to a client." See the Office Action, page 8, lines 18-22.

Applicants respectfully note that notwithstanding the Office Action admits Lee’s failure of teaching the features "dynamically dividing ..." as recited in claim 1, it still does not articulate how the secondary reference, Logan et al., teaches the features "dynamically dividing ..." as recited in claim 1. See the Office Action, page 8, line 12 through page 9, line 10.

Accordingly, assuming *arguendo* Lee and Logan et al. can be combined and a reasonable expectation of success exists, these combined references still do not teach at least: "a data application providing server for **dynamically dividing** the data application into minimum execution data and additional data ..." as recited in claim 1 (emphasis added). This standard of
obviousness is already agreed by the Examiner. See the Office Action, page 21, lines 3-4. Hence, it is clear that claim 1 is allowable over Lee and Logan et al., whether taken alone or in combination.

Furthermore, Applicants respectfully submit that the alleged combination of the teachings of Lee and Logan et al. is impermissible hindsight, and even if combined, the resulting is inoperable. “One cannot use hindsight reconstruction to pick and choose among isolated disclosures in the prior art to depreciate the claimed invention.” *In re Fine*, 837 F.2d 1071, 1075 (Fed. Cir. 1988).

The main feature of Lee is that the receiver (200) receives different data from two different channels (100, 300) to reduce the load of the broadcasting station server (300). See the machine translation of Lee, page 3, paragraphs 2-3. To that end, the receiver (200) of Lee receives the application address information and the variable data from the transmission device (100) while receiving directly from the broadcasting station server (300) the application, thereby significantly reducing the load of the server (300) (Fig. 1 of Lee).

In Logan et al., on the contrary, all data from the metadata supplier (180) are transmitted to the headend location (120) via either the internet (140) or the satellite (164) (Fig. 1 of Logan et al.). This scheme cannot reduce the load of the headend location (120), which may correspond to the broadcasting station server (300) of Lee, and therefore, is clearly against the teachings of Lee. Accordingly, there is no reason for one of ordinary skill in the art who knows the teachings of Lee to turn to Logan et al. because their teachings are opposite or incompatible. Moreover, for at least this reason, even if Lee and Logan et al. may be combined, the resulting system is completely inoperable.

Still furthermore, Applicants respectfully submit that the arguments presented in the previous response of August 13, 2012, on pages 7-10, remain valid and the Examiner’s responses thereto in the Office Action are not persuasive. See below.

**APPLICANTS’ REBUTTAL TO THE EXAMINER’S RESPONSE**

(1) Regarding the Examiner’s response in the Office Action, page 22, paragraph 2:

The Office Action states the following:
In response to Applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. *See In re Keller, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); In re Merck & Co., 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).* That is, Logan need not disclose the elements of Applicant's invention which Lee has already been shown to disclose. Rather, Logan must provide teaching which one of ordinary skill in the art at the time of the invention could have used to modify Lee to arrive at Applicant's claimed invention. Thus, as Logan discloses relaying metadata through a server, said one of ordinary skill could use that teaching to modify Lee such that the minimum execution data could be routed from the broadcasting station server through the transmission device 100 to be delivered to the receiver 200.

Applicants respectfully agree with the Examiner in that "[t]hat is, Logan need not disclose the elements of Applicant's invention which Lee has already been shown to disclose," as recited above. However, the Examiner is respectfully advised that "the reference or references, when combined, must disclose or suggest all of the claim limitations." *See in re Vaeck, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991)* (emphasis added). This standard is agreed by the Examiner (Office Action, page 21, lines 3-4). As discussed previously, neither Lee nor Logan et al. teaches at least a "data application providing server for dynamically dividing the data application into minimum execution data and additional data ..." as recited in claim 1 (emphasis added). Thus, no combination of Lee and Logan et al. teaches such claim features. Accordingly, it is respectfully submitted that claim 1 is allowable over the cited references, whether taken alone or in combination.

(2) Regarding the Examiner's response in the Office Action, page 24, paragraph 2:

The Office Action states the following:
The “application address information” is only a part of the broadcast data after it has been joined to the broadcast data at transmitting device 100. Applicant performs a similar process in claim 1, for example, in claiming that the broadcasting server relays the minimum execution data to the receiver and carries out a digital broadcast, i.e. broadcasts the minimum execution data to the receiver. The fact that the “application address information” is extracted from the broadcast data by the receiver 200 of Lee does not mean that the “application address information” could not have earlier been extracted from an application, which it is in the combined teachings of Lee and Logan. It is then added to broadcast information such that it can be broadcast by the transmitting device 100.

As recited above, the Examiner notes that “[t]he fact that the ‘application address information’ is extracted from the broadcast data by the receiver 200 of Lee does not mean that the ‘application address information’ could not have earlier been extracted from application, which it is in the combined teachings of Lee and Logan.” Applicants respectfully submit that even if the “application address information” could have earlier been extracted from the application, as asserted by the Examiner, this does not necessarily mean the “application address information” is extracted by the broadcasting station server (300) of Lee or the metadata supplier (180) of Logan et al. because, for example, the “application address information” can be generated by the transmission device (100). The reasoning above only relies on possibilities or probabilities, but clearly, possibilities or probabilities do not constitute a teaching or suggestion. “Inherency, however, may not be established by probabilities or possibilities. The mere fact that a certain thing may result from a given set of circumstances is not sufficient.” In re Robertson, 169 F.3d 743, 745, 49 USPQ2d 1949, 1950-51 (Fed. Cir. 1999) (citations omitted) Accordingly, it is clear that any combination of Lee and Logan et al. does not teach or suggest at least a “data application providing server for dynamically dividing the data application into minimum execution data and additional data ...” as recited in claim 1 (emphasis added). Accordingly, it is respectfully submitted that claim 1 is allowable over the cited references, whether taken alone or in combination.

(3) Regarding the Examiner’s response in the Office Action, page 26, paragraph 1:

The Office Action states the following:
Examiner disagrees that this is a rational of inherency. Inherency is a standard which must be met in a 35 USC 102 rejection, and is a higher standard than the standard of obviousness which must be met in a 35 USC 103 rejection. Therefore, Examiner need not meet the level of establishing inherency, but rather only the level of showing that such a conclusion would have been obvious to one of ordinary skill in the art at the time of the invention. Examiner has done as much. If an address which will allow a computer to locate an application is to function properly, then at some point there must be a communication between the computer storing the application at said address and the computer requesting the application using the address. Thus, it would have been obvious to one of ordinary skill in the art at the time of the invention that, when the application was stored, in order for the address at which it was stored to get from the broadcasting station server 300 of Lee to the transmission device 100 of Lee, there would have had to be at some point a transmission of such information from server 300 to device 100, which can be called a division because information which relates to each other (an address location and the contents of that address) are separated, with one part (the address location) being sent out and the other part (the contents) remaining. Therefore, the fact that inherency may not have been met is moot, as obviousness has been met.

As recited above, the Examiner contends that "[i]nherency is a standard which must be met in a 35 USC 102 rejection, and is a higher standard than the standard of obviousness which must be met in a 35 USC 103 rejection. Therefore, Examiner need not meet the level of establishing inherency, but rather only the level of showing that such a conclusion would have been obvious to one of ordinary skill in the art at the time of the invention." Applicants respectfully submit that the Examiner incorrectly understands the standard of inherency. On the contrary, the burden of proof for inherency is the same, whether it is subjected to a 35 U.S.C. §102 rejection or a 35 U.S.C. §103 rejection. See MPEP §2112 (Requirements of Rejection Based on Inherency; Burden of Proof), "Whether the rejection is based on ‘inherency’ under 35 U.S.C. 102, on ‘prima facie obviousness’ under 35 U.S.C. 103, jointly or alternatively, the burden of proof is the same...[footnote omitted]." The burden of proof is similar to that required with respect to product-by-process claims. In re Fitzgerald, 619 F.2d 67, 70, 205 USPQ 594,

In view of the above framework, Applicants respectfully request the Examiner to establish the missing claim feature, "a data application providing server for dynamically dividing the data application into minimum execution data and additional data, transmitting the minimum execution data to a broadcasting server" is necessarily and inevitably flew from the teachings of Lee and Logan et al. As noted, supra, for example, the "application address information" of Lee could be independently generated by the transmission device 100, or could be present outside of a data application in the server 300. Thus, it is submitted that the Office Action fails to establish inherency of such feature of claim 1. Accordingly, it is respectfully submitted that claim 1 is allowable over the cited references, whether taken alone or in combination.

2. Claim 8 stands rejected under 35 U.S.C. §103(a) as being unpatentable over Lee (Korean Application Publication No. 10-2004-0067505 in view of Logan et al. (U.S. Publication No. 2004/0255336), and further in view of Bourges-Sevenier et al. (U.S. Publication No. 2007/0192818).

Claim 8 depends from claim 7. Bourges-Sevenier is cited by the Office Action against claim 8 in an attempt to assert disclosure of the additional features of the dependent claim, but fails to cure the deficiencies of Lee and Logan et al. as noted above with regard to claim 7. Hence, assuming arguendo Lee, Logan et al., and Bourges-Sevenier may be combined and a reasonable expectation of success exists, this combination still does not teach all of the features recited in claim 7. Accordingly, claim 8 is allowable over Lee, Logan et al., and Bourges-Sevenier, whether taken alone or in combination, at least because it depends from allowable claim 7.

3. Claim 9 stands rejected under 35 U.S.C. §103(a) as being unpatentable over Lee (Korean Application Publication No. 10-2004-0067505 in view of Logan et al. (U.S. Publication No. 2004/0255336), and further in view of Higgins et al. (U.S. Publication No. 2002/0116505).

Claim 9 depends from claim 7. Higgins et al. is cited by the Office Action against claim 9 in an attempt to assert disclosure of the additional features of the dependent claim, but fails to cure the deficiencies of Lee and Logan et al. as noted above with regard to claim 7. Hence, assuming arguendo Lee, Logan et al., and Higgins et al. may be combined and a reasonable expectation of success exists, this combination still does not teach all of the features recited in
claim 7. Accordingly, claim 9 is allowable over Lee, Logan et al., and Higgins et al., whether taken alone or in combination, at least because it depends from allowable claim 7.


Claim 13, as amended, recite, inter alia:

a minimum execution data receiver for receiving a minimum execution data, which have been transmitted from a data application providing server to the broadcasting server, through a digital broadcast network from the broadcasting server carrying out a digital broadcast (emphasis added)

As least these amended claim features are similar to those discussed above with regard to claim 1. Thus, the arguments presented for claim 1 will be applied to claim 13, mutatis mutandis. Accordingly, it is respectfully submitted that claim 13 is allowable over Lee.

Claim 16 depends from claim 13, and is thus allowable for at least this reason.


Claim 14 depends from claim 13. Bourges-Sevenier is cited by the Office Action against claim 13 in an attempt to assert disclosure of the additional features of the dependent claim, but fails to cure the deficiencies of Lee as noted above with regard to claim 13. Hence, assuming arguendo Lee and Bourges-Sevenier may be combined and a reasonable expectation of success exists, this combination still does not teach all of the features recited in claim 13. Accordingly, claim 14 is allowable over Lee and Bourges-Sevenier, whether taken alone or in combination, at least because it depends from allowable claim 13.


Claim 15 depends from claim 13. Higgins et al. is cited by the Office Action against claim 13 in an attempt to assert disclosure of the additional features of the dependent claim, but fails to cure the deficiencies of Lee as noted above with regard to claim 13. Hence, assuming arguendo Lee and Higgins et al. may be combined and a reasonable expectation of success exists, this combination still does not teach all of the features recited in claim 13. Accordingly,
claim 15 is allowable over Lee and Higgins et al., whether taken alone or in combination, at least because it depends from allowable claim 13.

In view of the foregoing, the rejection of claims 1-16 under 35 U.S.C. §103(a) is respectfully requested to be withdrawn.

CONCLUSION:

There being no further outstanding objections or rejections, it is submitted that the application is in condition for allowance. An early action to that effect is courteously solicited.

Finally, if there are any formal matters remaining after this response, the Examiner is requested to telephone the undersigned to attend to these matters.

If there are any additional fees associated with filing of this Amendment, please charge the same to our Deposit Account No. 503333.

Respectfully submitted,

STEIN MCEWEN, LLP

Date: December 6, 2012

By: _____________________________

Christopher Reaves
Registration No. 67,548

1400 Eye St., N.W.
Suite 300
Washington, D.C. 20005
Telephone: (202) 216-9505
Facsimile: (202) 216-9510
# Electronic Acknowledgement Receipt

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**Title of Invention:**
DATA APPLICATION PROVIDING SERVER, BROADCASTING SERVER AND RECEIVER FOR DYNAMICALLY PROCESSING DATA APPLICATION AND DIGITAL BROADCASTING SYSTEM INCLUDING THE SAME

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**Warnings:**

**Information:**

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This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

**New Applications Under 35 U.S.C. 111**

If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

**National Stage of an International Application under 35 U.S.C. 371**

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

**New International Application Filed with the USPTO as a Receiving Office**

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.
REPLY/AMENDMENT FEE TRANSMITTAL

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Since an Official Action set an original due date of January 10, 2013, no extension fee is due and owing.

If Notice of Appeal is enclosed, add ($630.00)

If Statutory Disclaimer under Rule 20(d) is enclosed, add fee ($140.00)

Information Disclosure Statement (Rule 1.17(p)) ($180.00)

Total of above Calculations = $0.00

Reduction by 50% for filing by small entity (37 CFR 1.27 & 1.28)

Reduction by 75% for filing by micro entity (37 CFR 1.23(a)(1))

TOTAL FEES DUE = $0.00

(1) If entry (1) is less than entry (2), entry (3) is "0".
(2) If entry (2) is less than 20, change entry (2) to "20".
(3) If entry (4) is less than entry (5), entry (6) is "0".
(4) If entry (5) is less than 3, change entry (5) to "3".

METHOD OF PAYMENT

☐ Check enclosed as payment. ☐ Credit Card Payment Form, Form PTO-2038 (attached).

☐ Charge "TOTAL FEES DUE" to the Deposit Account No. below.

☒ No payment is enclosed and no charges to the Deposit Account are authorized at this time (unless specifically required to obtain a filing date).

GENERAL AUTHORIZATION

☒ If the above-noted "AMOUNT ENCLOSED" is not correct, the Commissioner is hereby authorized to credit any overpayment or charge any additional fees necessary to:

Deposit Account No. 503333
Deposit Account Name STEIN MCEWEN, LLP

☒ The Commissioner is also authorized to credit any overpayments or charge any additional fees required under 37 CFR 1.16 (filing fees) or 37 CFR 1.17 (processing fees) during the prosecution of this application, including any related application(s) claiming benefit hereof pursuant to 35 USC § 120 (e.g., continuations/divisionals/CIPs under 37 CFR 1.53(b) and/or continuations/divisionals/CPAs under 37 CFR 1.53(d)) to maintain pendency hereof or of any such related application.

SUBMITTED BY: STEIN MCEWEN, LLP

Typed Name  Christopher Reaves  Reg. No.  67,548
Signature  [Signature]  Date  December 6, 2012
PATENT APPLICATION FEE DETERMINATION RECORD
Substitute for Form PTO-875

Application or Docket Number: 12/449,565
Filing Date: 08/13/2009

APPLICATION AS FILED – PART I
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- [ ] SEARCH FEE (37 CFR 1.16(b), (g), or (m))
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- [ ] EXAMINATION FEE (37 CFR 1.16(g), (p), or (q))
  - NumberFiled: N/A
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- [ ] TOTAL CLAIMS (37 CFR 1.16(i))
  - NumberFiled: minus 20
  - NumberExtra: *

- [ ] INDEPENDENT CLAIMS (37 CFR 1.16(h))
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- [ ] APPLICATION SIZE FEE (37 CFR 1.16(e))
  - If the specification and drawings exceed 100 sheets of paper, the application size fee due is $250 ($125 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(g).

- [ ] MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))

* If the difference in column 1 is less than zero, enter "0" in column 2.

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- [ ] CLAIMS REMAINING AFTER AMENDMENT
  - Date: 12/06/2012
  - Total (37 CFR 1.16(h))
    - NumberFiled: 16
    - NumberExtra: - 0
  - Independent (37 CFR 1.16(h))
    - NumberFiled: 4
    - NumberExtra: - 0

- [ ] Application Size Fee (37 CFR 1.16(e))

- [ ] FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))

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- [ ] CLAIMS REMAINING AFTER AMENDMENT
  - Total (37 CFR 1.16(h))
    - NumberFiled: *
    - NumberExtra: *
  - Independent (37 CFR 1.16(h))
    - NumberFiled: *
    - NumberExtra: *

- [ ] Application Size Fee (37 CFR 1.16(e))

- [ ] FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))

** If the entry in column 1 is less than the entry in column 2, write "0" in column 3.
*** If the “Highest Number Previously Paid For” in this SPACE is less than 20, enter "20".
**** If the “Highest Number Previously Paid For” in this SPACE is less than 3, enter "3".

The “Highest Number Previously Paid For” (Total or Independent) is the highest number found in the appropriate box in column 1.

Legal Instrument Examiner:
PEARLIE A. FENNELL

This collection of information is required by 37 CFR 1.16. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.
Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

docketing@smiplaw.com
Office Action Summary

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).

Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) ☒ Responsive to communication(s) filed on 13 August 2012.

2a) ☒ This action is FINAL.

2b) □ This action is non-final.

3) □ An election was made by the applicant in response to a restriction requirement set forth during the interview on ______; the restriction requirement and election have been incorporated into this action.

4) □ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under Ex parte Quayle, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

5) ☒ Claim(s) 1-16 is/are pending in the application.

5a) Of the above claim(s) ______ is/are withdrawn from consideration.

6) □ Claim(s) _____ is/are allowed.

7) ☒ Claim(s) 1-16 is/are rejected.

8) □ Claim(s) 1 and 13 is/are objected to.

9) □ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

10) □ The specification is objected to by the Examiner.

11) ☒ The drawing(s) filed on 13 August 2009 is/are: a) ☒ accepted or b) □ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

12) □ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a) ☒ All  b) □ Some * c) □ None of:

1. ☒ Certified copies of the priority documents have been received.

2. □ Certified copies of the priority documents have been received in Application No. ______.

3. □ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) □ Notice of References Cited (PTO-892)

2) □ Notice of Draftsperson’s Patent Drawing Review (PTO-948)

3) □ Information Disclosure Statement(s) (PTO/SB/08)

4) □ Interview Summary (PTO-413)

5) □ Notice of Informal Patent Application

6) □ Other: ______.
DETAILED ACTION

1. This Office Action is in response to an AMENDMENT entered on August 13, 2012 for the patent application 12/449,565 filed on August 13, 2009.

2. Claims 1-16 are pending.

Claim Objections

3. Claim 1 is objected to because of the following informalities: In line 6 of the claim, the term "the receiver" is used without a prior mention of a receiver in the claim. As Examiner understands what Applicant means in this instance, a 35 USC 112 rejection for lack of antecedent basis will not be given. Appropriate correction is required.

Claim 13 is objected to because of the following informalities: In line 4 of the claim, the term "the broadcasting server" is used without a prior mention of a broadcasting server in the claim. As Examiner understands what Applicant means in this instance, a 35 USC 112 rejection for lack of antecedent basis will not be given. Appropriate correction is required.
Double Patenting

4. Claim1-8, 11-14 and 16 of this application conflict with claims 1-5, 8-10, 12 and 14 of Application No. 12/449,563. 37 CFR 1.78(b) provides that when two or more applications filed by the same applicant contain conflicting claims, elimination of such claims from all but one application may be required in the absence of good and sufficient reason for their retention during pendency in more than one application. Applicant is required to either cancel the conflicting claims from all but one application or maintain a clear line of demarcation between the applications. See MPEP § 822.

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the “right to exclude” granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., In re Berg, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); In re Goodman, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); In re Longi, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); In re Van Ornum, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); In re Vogel, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and In re Thorington, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting
ground provided the conflicting application or patent either is shown to be commonly owned
with this application, or claims an invention made as a result of activities undertaken within the
scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal
disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR
3.73(b).

Claims 1-8, 11-14 and 16 are provisionally rejected on the ground of nonstatutory
obviousness-type double patenting as being unpatentable over claims 1-5, 8-10, 12 and 14 of
copending Application No. 12/449,563. Although the conflicting claims are not identical, they
are not patentably distinct from each other because they generally perform the same methods; i.e.
sending a minimum execution data with location information, obtaining additional application
data from said location over a different communication channel than the channel which sent the
minimum execution data, and running said application. Application ‘565 adds additional details
such as storage locations to store the application data, and thus ‘563 is a broader recitation of the
claims.

This is a provisional obviousness-type double patenting rejection because the conflicting
claims have not in fact been patented.

<table>
<thead>
<tr>
<th>Instant Application</th>
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<tr>
<td>1. A digital broadcasting system for dynamically processing a data application, the system comprising: a data application providing server for dynamically dividing the data application into minimum execution data and additional data, transmitting the minimum execution data to a broadcasting server, and transmitting the additional data to the receiver; the broadcasting server for receiving the minimum execution data from the data application providing server and relaying the minimum execution data to the receiver and carrying out</td>
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<table>
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<th>Copending Application</th>
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<tbody>
<tr>
<td>1. A method for executing a data application of a digital broadcasting, the method comprising steps of: (a) receiving a minimum execution data for executing the data application through a digital broadcast network; (b) executing the minimum execution data; (c) receiving an additional data required during the execution of the minimum execution data; and (d) combining the minimum execution data and the additional data to provide the data application.</td>
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</table>
a digital broadcast; and the receiver for receiving the minimum execution data from the broadcasting server, analyzing the minimum execution data, transmitting a transmission request for the additional data to the data application providing server, the transmission request being generated based on the analysis of the minimum execution data, and providing the data application including the additional data provided by the data application providing server according to the transmission request and the minimum execution data relayed by the broadcasting server.

2. The system in accordance with claim 1, wherein the minimum execution data includes a download location of the data application providing server for obtaining the additional data.

3. The system in accordance with claim 1, wherein the minimum execution data comprises one of a metadata for the data application and a foundation class data for minimally executing the data application.

4. A broadcasting server for dynamically processing a data application, the server comprising: a minimum execution data storage for storing a minimum execution data received from a data application providing server, the data application providing server dynamically dividing the data application into the minimum execution data and an additional data and providing the minimum execution data and the additional data; a minimum execution data transmitter for transmitting the minimum execution data stored in the minimum execution data storage through a digital broadcast network to a receiver providing the data application.

5. The server in accordance with claim 4, wherein the minimum execution data includes a download location of the data application providing server for obtaining the additional data.

6. The server in accordance with claim 4, wherein the minimum execution data comprises one of a metadata for the data application and a foundation class data for minimally executing the data application.

7. A data application providing server for dynamically processing a data application, the server comprising: a data application divider for dividing the data application into a minimum execution data and an additional data; a minimum execution data transmitter for transmitting the minimum execution data to a broadcasting server for carrying out a digital broadcast such that the broadcasting server broadcasts the minimum execution data; an additional data storage for storing the additional data.

8. The method in accordance with claim 4, wherein the instruction (b) comprises (b-1) receiving the additional data by carrying out a socket-based communication.

9. A method for executing a data application of a digital broadcasting, the method comprising steps of: (a) receiving a metadata for the data application; (b) analyzing the metadata to extract an information required for executing the data application; (c) receiving the data application based on the information extracted in the step (b); and (d) executing and providing the data application, wherein the metadata comprises an execution condition information of the data application.

10. The method in accordance with claim 9, wherein the step (a) comprises (a-1) receiving the metadata via a digital broadcast network.

12. The method in accordance with claim 10, wherein the step (b) comprises (b-1) extracting the location information of the data application or the execution condition information of the data application from the metadata.

14. The method in accordance with claim 13, wherein the step (c-1) comprises (c-2) receiving the data application by carrying out a socket-based communication.
data corresponding to the minimum execution data; and a receiver communication interface for transmitting the additional data to the receiver according to a transmission request of the additional data received from the receiver providing the data application.

8. The server in accordance with claim 7, wherein the receiver communication interface transmits the additional data via a communication based on an asynchronous socket.

11. The server in accordance with claim 7, wherein the additional data storage stores the additional data based on a memory.

12. The server in accordance with claim 7, wherein the minimum execution data comprises one of a metadata for the data application and a foundation class data for minimally executing the data application.

13. A receiver for dynamically processing a data application, the receiver comprising: a minimum execution data receiver for receiving minimum execution data, which have been transmitted from a data application providing server to the broadcasting server, through a digital broadcast network from the broadcasting server carrying out a digital broadcast; a minimum execution data analyzer for analyzing the minimum execution data to extract an execution condition information of the data application and an information on an additional data corresponding to the minimum execution data required for executing the data application; a data application providing server interface for transmitting a transmission request for the additional data to the data application providing server during an execution of the minimum execution data, and for receiving the additional data from the data application providing server; and a data application provider for combining the minimum execution data and the additional data to generate the data application, and executing and providing the generated data application.

14. The receiver in accordance with claim 13, wherein the data application providing server interface receives the additional data from the data application providing server via a communication based on an asynchronous socket.

16. The receiver in accordance with claim 13, wherein the minimum execution data comprises one of a metadata for the data application and a foundation class data for minimally executing the data application.
Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.


Regarding claim 1, Lee discloses a digital broadcasting system for dynamically processing a data application, the system comprising: a data application providing server for transmitting additional data to the receiver (Fig. 1, element 300, pg. 3, para. 4. The broadcasting station server provides a requested application (additional data) to a receiving device. Examiner is using citations from a translation of Lee, a copy of which was provided to Applicant with the Office Action of November 14, 2011.); a broadcasting server for sending the minimum execution data to the receiver and carrying out a digital broadcast (Fig. 1, element 100 and the line between element 100 and element 200, pg. 3, para. 7); and the receiver for receiving the minimum execution data from the broadcasting server, analyzing the minimum execution data, transmitting a transmission request for the additional data to the data application providing server, the transmission request being generated based on the
**Analysis of the minimum execution data** (Fig. 1, element 200, pg. 3, para. 7. The minimum execution data would obviously have to be received and analyzed in order to be properly used to make the request.), and **providing the data application including the additional data provided by the data application providing server according to the transmission request and the minimum execution data relayed by the broadcasting server** (Fig. 2, element 240, Fig. 3, pg. 4, paras. 7-10). Lee further discloses that certain information, such as variable data, can be sent from the broadcasting station server 300 to the transmitting device 100, and then relayed via broadcast to the receiving device 200 (page 3, paras. 7-9). Further, although not stated explicitly by Lee, it is obvious that devices 300 and 100 would have to communicate in some manner in order for device 100 to be able to broadcast an address that corresponded to a viable address containing information at server 300, meaning that at some point the address would have to be “divided” from the content contained at said address. However, Lee does not explicitly disclose a **data application providing server for dynamically dividing the data application into minimum execution data and additional data, and transmitting the minimum execution data to a broadcasting server**; nor does Lee explicitly disclose the broadcasting server for receiving the minimum execution data from the data application providing server and relaying the minimum execution data to the receiver (emphasis added to distinguish the elements of the limitations not explicitly taught by Lee). In analogous art, Logan discloses that metadata can be routed from a metadata supplier 180, via the internet, to a headend location 120, where it is then broadcast to users (Fig. 1, elements 180 and 120, paras. [0026] and [0035]-[0037]), which teaches that metadata may be routed from one server to another before being delivered to a client. Therefore, it would have been obvious to one of ordinary skill in the
art at the time of the invention to modify Lee to allow for the address information, which can be seen as metadata, to be divided at server 300 and then transmitted over a back channel to transmitting device 100, and thus have the address information (minimum execution data) \textit{relayed} by device 100 when broadcast to receiver 200. This would have produced predictable and desirable results, in that the address information broadcast by device 100 would align properly with the content stored at said address, and further, address information would be sent from a high-bandwidth transmitter, which would conserve bandwidth on the channel between the broadcasting station server 300 and the receiver 200 for distribution of the additional data, when requested by a user of receiver 200.

Regarding claim 2, the combined teaching of Lee and Logan discloses \textbf{the system in accordance with claim 1}, and Lee further discloses \textbf{wherein the minimum execution data includes a download location of the data application providing server for obtaining the additional data} (pg. 4, para. 2. The data comprises application address information, i.e. a download location.).

Regarding claim 3, the combined teaching of Lee and Logan discloses \textbf{the system in accordance with claim 1}, and Lee further discloses \textbf{wherein the minimum execution data comprises one of a metadata for the data application and a foundation class data for minimally executing the data application} (Fig. 1, elements 100 and 200, pg. 3, paras. 6-9. Applicant does not define “foundation class data” as anything more specific than data needed to initiate an application, and there do not appear to be any industry related terms defining what “foundation class data” may be. Therefore, because Lee discloses that minimum execution data
is sent, Lee also discloses that said data is “foundation class data.” Further, the data comprises application address information, i.e. a download location, and thus can be seen as metadata.

Regarding claim 4, Lee discloses a broadcasting server for dynamically processing a data application, the server comprising: a minimum execution data storage for storing a minimum execution data (Fig. 1, element 100. It is obvious that transmitting device 100 could have had a storage section for storing the minimum execution data prior to transmission. If Applicant disagrees with this statement of obviousness, Examiner submits that it is further obvious in view of the teachings of Logan concerning storing metadata prior to broadcast (Logan, Fig. 1 and para. [0035])), the data application providing server providing an additional data included in the data application (Fig. 2, elements 240 and 300, Fig. 3, pg. 4, paras. 7-10); a minimum execution data transmitter for transmitting the minimum execution data stored in the minimum execution data storage through a digital broadcast network to a receiver providing the data application (Fig. 1, element 100 and the line between element 100 and element 200, pg. 3, para. 7). Lee further discloses that certain information, such as variable data, can be sent from the broadcasting station server 300 to the transmitting device 100, and then relayed via broadcast to the receiving device 200 (page 3, paras. 7-9). Further, although not stated explicitly by Lee, it is obvious that devices 300 and 100 would have to communicate in some manner in order for device 100 to be able to broadcast an address that corresponded to a viable address containing information at server 300, meaning that at some point the address would have to be “divided” from the content contained at said address. However, Lee does not explicitly disclose a minimum execution data storage for storing a minimum execution data received from a data application providing server, the data
application providing server *dynamically dividing* the data application into minimum execution data and additional data and providing *the minimum execution data* and an additional data included in the data application (emphasis added to distinguish the elements of the limitations not explicitly taught by Lee). In analogous art, Logan discloses that metadata can be routed from a metadata supplier 180, via the internet, to a headend location 120, where it is then broadcast to users (Fig. 1, elements 180 and 120, paras. [0026] and [0035]-[0037]), which teaches that metadata may be routed from one server to another before being delivered to a client. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify Lee to allow for the address information, which can be seen as metadata, to be divided at server 300 and then transmitted over a back channel to transmitting device 100, and thus have the address information (minimum execution data) *relayed* by device 100 when broadcast to receiver 200. This would have produced predictable and desirable results, in that the address information broadcast by device 100 would align properly with the content stored at said address, and further, address information would be sent from a high-bandwidth transmitter, which would conserve bandwidth on the channel between the broadcasting station server 300 and the receiver 200 for distribution of the additional data, when requested by a user of receiver 200.

Regarding claim 5, the combined teaching of Lee and Logan discloses the server in accordance with claim 4, and Lee further discloses *wherein the minimum execution data includes a download location of the data application providing server for obtaining the additional data* (pg. 4, para. 2. The data comprises application address information, i.e. a download location.).
Regarding claim 6, the combined teaching of Lee and Logan discloses the server in accordance with claim 4, and Lee further discloses wherein the minimum execution data comprises one of a metadata for the data application and a foundation class data for minimally executing the data application (Fig. 1, elements 100 and 200, pg. 3, paras. 6-9. Applicant does not define “foundation class data” as anything more specific than data needed to initiate an application, and there do not appear to be any industry related terms defining what “foundation class data” may be. Therefore, because Lee discloses that minimum execution data is sent, Lee also discloses that said data is “foundation class data.” Further, the data comprises application address information, i.e. a download location, and thus can be seen as metadata.).

Regarding claim 7, Lee discloses a data application providing server for dynamically processing a data application, the server comprising: a data application provider for providing an additional data (Fig. 1, element 300, pg. 3, para. 4. The broadcasting station server provides a requested application (additional data) to a receiving device.); a broadcasting server for broadcasting a minimum execution data (Fig. 1, element 100 and the line between element 100 and element 200, pg. 3, para. 7); an additional data storage for storing the additional data corresponding to the minimum execution data (Fig. 1, element 300, pg. 3, para. 7, pg. 4, para. 2. Application is downloaded from the broadcasting station server 300; thus, it is obvious that said server has data storage.); and a receiver communication interface for transmitting the additional data to the receiver according to a transmission request of the additional data received from the receiver providing the data application (Fig. 2, element 240, Fig. 3, pg. 4, paras. 7-10). Lee further discloses that certain information, such as variable data, can be sent from the broadcasting station server 300 to the transmitting device 100, and
then relayed via broadcast to the receiving device 200 (page 3, paras. 7-9). Further, although not stated explicitly by Lee, it is obvious that devices 300 and 100 would have to communicate in some manner in order for device 100 to be able to broadcast an address that corresponded to a viable address containing information at server 300, meaning that at some point the address would have to be “divided” from the content contained at said address. However, Lee does not explicitly disclose a data application divider for dividing the data application into a minimum execution data and an additional data, nor a minimum execution data transmitter for transmitting the minimum execution data to a broadcasting server for carrying out a digital broadcast (emphasis added to distinguish the elements of the limitations not explicitly taught by Lee). In analogous art, Logan discloses that metadata can be routed from a metadata supplier 180, via the internet, to a headend location 120, where it is then broadcast to users (Fig. 1, elements 180 and 120, paras. [0026] and [0035]-[0037]), which teaches that it can be advantageous to relay certain information to a broadcasting device to take advantage of the larger bandwidth available in a satellite transmission, for example. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify Lee to allow for the address information, which can be seen as metadata, to be divided at server 300 and then transmitted over a back channel to transmitting device 100, and thus have the address information (minimum execution data) relayed by device 100 when broadcast to receiver 200. This would have produced predictable and desirable results, in that the address information broadcast by device 100 would align properly with the content stored at said address, and further, address information would be sent from a high-bandwidth transmitter, which would conserve
bandwidth on the channel between the broadcasting station server 300 and the receiver 200 for distribution of the additional data, when requested by a user of receiver 200.

Regarding claim 10, the combined teaching of Lee and Logan discloses the server in accordance with claim 7, and further discloses wherein the data application divider dynamically divides the minimum execution data and the additional data to correspond to a change in the data application, and the additional data storage stores the dynamically divided additional data (Lee, pg. 3, para. 8, pg. 4, paras. 6 and 9. An up-to-date application is held by the server 300. Thus, the location information will reflect the up-to-date application. This claim is rejected on the same grounds as claim 7.).

Regarding claim 11, the combined teaching of Lee and Logan discloses the server in accordance with claim 7, and Lee further discloses wherein the additional data storage stores the additional data based on a memory (Fig. 1, element 300, pg. 3, para. 7, pg. 4, para. 2. Data storage and memory are synonymous terms in the art.).

Regarding claim 12, the combined teaching of Lee and Logan discloses the server in accordance with claim 7, and Lee further discloses wherein the minimum execution data comprises one of a metadata for the data application and a foundation class data for minimally executing the data application (Fig. 1, elements 100 and 200, pg. 3, paras. 6-9. Applicant does not define “foundation class data” as anything more specific than data needed to initiate an application, and there do not appear to be any industry related terms defining what “foundation class data” may be. Therefore, because Lee discloses that minimum execution data
is sent, Lee also discloses that said data is “foundation class data.” Further, the data comprises application address information, i.e. a download location, and thus can be seen as metadata.).

Regarding claim 13, Lee discloses a **receiver for dynamically processing a data application**, the receiver comprising: a minimum execution data receiver for receiving a minimum execution data through a digital broadcast network from the broadcasting server carrying out a **digital broadcast** (Fig. 1, elements 100 and 200, pg. 3, paras. 6-9); a minimum execution data analyzer for analyzing the minimum execution data to extract an execution condition information of the data application and an information on an additional data corresponding to the minimum execution data required for executing the data application (Fig. 2, element 220, Pg. 3, para. 10 and pg. 4, para. 2); a **data application providing server interface** for transmitting a transmission request for the additional data to a data application providing server during an execution of the minimum execution data, and for receiving the additional data from the **data application providing server** (Fig. 2, element 230, pg. 3, para. 10 and pg. 4, paras. 4-6. Application requester 230 can obviously request the additional data based on the address information contained in the minimum execution data.); and a **data application provider for combining the minimum execution data and the additional data to generate the data application, and executing and providing the generated the data application** (Fig. 2, element 240, pg. 3, para. 10 and pg. 4, paras. 5, 6 and 9-11. Both the minimum execution data and the additional data need to be executed in order for the application to be executed. Therefore, one could obviously say that the minimum execution data and the additional data had been “combined,” as Applicant’s specification performs a similar “combination” as the manner in which the data is processed.). Lee does not explicitly disclose
wherein the minimum execution data **have been transmitted from a data application providing server to a broadcasting server.** In analogous art, Logan discloses that metadata can be routed from a metadata supplier 180, via the internet, to a headend location 120, where it is then broadcast to users (Fig. 1, elements 180 and 120, paras. [0026] and [0035]-[0037]), which teaches that metadata may be routed from one server to another before being delivered to a client. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify Lee to allow for the address information, which can be seen as minimum execution data, to be sent from device 300 to device 100 before being broadcast to receiver 200. This would have produced predictable and desirable results, in that the address information broadcast by device 100 would align properly with the content stored at said address, and further, only the address information would need to be sent out with a broadcast, and thus bandwidth would not be wasted on the application unless a user later used the address information to request the application.

Regarding claim 16, the combined teaching of Lee and Logan discloses **the receiver in accordance with claim 13,** and Lee further discloses **wherein the minimum execution data comprises one of a metadata for the data application and a foundation class data for minimally executing the data application** (Fig. 1, elements 100 and 200, pg. 3, paras. 6-9. Applicant does not define “foundation class data” as anything more specific than data needed to initiate an application, and there do not appear to be any industry related terms defining what “foundation class data” may be. Therefore, because Lee discloses that minimum execution data is sent, Lee also discloses that said data is “foundation class data.” Further, the data comprises application address information, i.e. a download location, and thus can be seen as metadata.).

Regarding claim 8, the combined teaching of Lee and Logan discloses the server in accordance with claim 7, and although the communication path between elements 200 and 300 in figure 1 could obviously be an internet connection, which would mean the additional data was received based on a socket-based communication, Lee and Logan do no explicitly use the term “socket-based,” and thus it could be argued that they do not disclose wherein the receiver communication interface transmits the additional data via a communication based on an asynchronous socket. However, in analogous art, Bourges-Sevenier discloses that when distributing multimedia applications, socket-based communication can be used (para. [0194]). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to allow for the communication path disclosed in Lee’s figure 1 between elements 200 and 300 to be an internet connection, such that communications over said network would be based on an asynchronous socket. This would have produced predictable and desirable results, in that the communications would be carried out over a well-known and reliable network.

Regarding claim 9, the combined teaching of Lee and Logan discloses the server in accordance with claim 7, but does not explicitly disclose how tasks are managed in the server 300, and thus does not explicitly disclose further comprising a task manager for managing a thread of the data application providing server and scheduling a task. However, in analogous art, Higgins discloses that a content provider can have a task queue comprised of tasks and threads, as well as a task manager and a task thread manager in order to control the allocation of system resources (Fig. 4, elements 420, 430 and 440, paras. [0075]-[0077]). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to allow for the server 300 of Lee to comprise a task manager for managing threads and scheduling tasks. This would have produced predictable and desirable results, in that application data would be sent to requesting receivers in a manner that was efficient based on system resources, as threads and tasks could be managed appropriately.

Regarding claim 14, the combined teaching of Lee and Logan discloses the receiver in accordance with claim 13, and although the communication path between elements 200 and 300 in figure 1 could obviously be an internet connection, which would mean the additional data was received based on a socket-based communication, Lee does not explicitly state as much, and thus does not explicitly disclose wherein the data application providing server interface receives the additional data from the data application providing server via a communication based on an asynchronous socket. However, in analogous art, Bourges-Sevenier discloses that when distributing multimedia applications, socket-based communication can be used (para. [0194]). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to allow for the communication path disclosed in Lee’s figure 1 between elements 200 and 300 to be an internet connection, such that communications over said network would be based on an asynchronous socket. This would have produced predictable and desirable results, in that the communications would be carried out over a well-known and reliable network.


Regarding claim 15, the combined teaching of Lee and Logan discloses the receiver in accordance with claim 13, but does not explicitly disclose how tasks are managed in the server 300, and thus does not explicitly disclose further comprising a task manager for managing a
thread of the data application providing server and scheduling a task. However, in analogous art, Higgins discloses that a content provider can have a task queue comprised of tasks and threads, as well as a task manager and a task thread manager in order to control the allocation of system resources (Fig. 4, elements 420, 430 and 440, paras. [0075]-[0077]). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to allow for the server 300 of Lee to comprise a task manager for managing threads and scheduling tasks. This would have produced predictable and desirable results, in that application data would be sent to requesting receivers in a manner that was efficient based on system resources, as threads and tasks could be managed appropriately.

Response to Arguments

10. Applicant's arguments filed August 13, 2012 have been fully considered but they are not persuasive, or else they are rendered moot by the new grounds of rejection necessitated by Applicant’s amendments.

Regarding Applicant’s arguments on pages 6-7:

To establish an obviousness rejection under 35 U.S.C. § 103(a), four factual inquiries must be examined. The four factual inquiries include (a) determining the scope and contents of the prior art; (b) ascertaining the differences between the prior art and the claims in issue; (c) resolving the level of ordinary skill in the pertinent art; and (d) evaluating evidence of secondary consideration. Graham v. John Deere, 383 U.S. 1, 17-18 (1966). In view of these four factors, the analysis supporting a rejection under 35 U.S.C. 103(a) should be made explicit, and should "identify a reason that would have prompted a person of ordinary skill in the relevant field to combine the [prior art] elements” in the manner claimed. KSR Int'l. Co. v. Telefex, Inc., 550 U.S. 398 (2007). Furthermore, even if the prior art may be combined, there must be a reasonable
expectation of success, and the reference or references, when combined, must disclose or suggest all of the claim limitations. See in re Vaeck, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991).

Examiner’s response:

Examiner agrees that this is the standard to be met.

Regarding Applicant’s arguments on pages 7-8:

Claim 1, as amended, recites, inter alia:

a data application providing server for dynamically dividing the data application into minimum execution data and additional data, transmitting the minimum execution data to a broadcasting server...

the broadcasting server for receiving the minimum execution data from the data application providing server and relaying the minimum execution data to the receiver...

the receiver for receiving the minimum execution data from the broadcasting server, analyzing the minimum execution data, ... and providing the data application including the additional data provided by the data application providing server according to the transmission request and the minimum execution data relayed by the broadcasting server. (emphasis added)

Applicant respectfully submits that the Office Action fails to establish a prima case of obviousness of claim 1. Furthermore, neither Lee nor Logan et al. teaches or suggests the features recited in claim 1, supra, whether taken alone or in combination.

In the Office Action, the "broadcasting station server 300" shown in Fig. 1 of Lee is alleged as teaching the "data application providing server" as recited in claim 1; the "transmission device 100" shown in Fig. 1 of Lee as teaching the "broadcasting server" as recited in claim 1; and the "receiving device 200" shown in Fig. 1 of Lee as teaching the "receiver" as recited in claim 1 (see page 7, paragraph 1). The Office Action concedes that Lee fails to disclose "a data application providing server for dynamically dividing and providing a minimum execution data and an additional data included in the data application" nor "a broadcasting server for relaying the minimum execution data received from the data application providing server and carrying out a digital broadcast," which were recited in original claim 1 (see page 7, paragraph 2 to page 8, line 1; italics and underlines in original). The Office Action, however, contends that these admitted deficiencies of Lee with respect to original claim 1 are cured by the teachings of
Logan et al. (see page 8, lines 2-12). Applicant respectfully disagrees with this conclusion by the Office Action for at least the following grounds:

First, the Office Action fails to establish a prima facie case of obviousness of claim 1. Specifically, the Office Action refers to Fig. 1 of Logan et al., particularly, elements 180 and 120, and paragraphs [0026] and [0035]-[0037], as teaching the features of claim 1, which are conceded as not being taught by Lee (see page 8, lines 4-5). Here, in Fig. 1 of Logan et al., element 180 is a metadata supplier, which may correspond to the "data application providing server" as recited in claim 1, and element 120 is a headed location, which may correspond to the "receiver" as recited in claim 1. Logan et al. describes that the functions provided by the metadata supplier 180 can be "controlled and/or performed by a content provider such as the provider 150, a broadcaster which supplies live programs via the satellite 150" (see Logan et al., paragraph [0037]). However, the Office Action fails to identify which element disclosed in Logan et al. may correspond to the "broadcasting server" as recited in claim 1. Thus, it is quite unclear how one of ordinary skill in the art can combine the teachings of Lee and Logan et al., without identifying elements of Logan et al., which may be analogous to those recited in claim 1. Accordingly, it is respectfully submitted that a prima facie case of obviousness is not established in the Office Action. Where the Office Action fails to establish a prima facie case of obviousness, Applicant is under no obligation to present evidence of allowability of claim 1.

Examiner’s response:

In response to Applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See In re Keller, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); In re Merck & Co., 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986). That is, Logan need not disclose the elements of Applicant’s invention which Lee has already been shown to disclose. Rather, Logan must provide teaching which one of ordinary skill in the art at the time of the invention could have used to modify Lee to arrive at Applicant’s claimed invention. Thus, as Logan discloses relaying metadata through a server, said one of ordinary skill could use that teaching to modify Lee such that the minimum execution data could be routed from the broadcasting station server through the transmission device 100 to be delivered to the receiver 200.
Regarding Applicant’s arguments on page 8:

Secondly, the Office Action presents a conclusory statement but fails to provide support therefor. Specifically, the Office Action concludes that Fig. 1 and paragraphs [0026], [0035]-[0037] of Logan et al. "teaches that it can be advantageous to relay certain information to a broadcasting device to take advantage of the larger bandwidth available in a satellite transmission, for example" (see page 8, lines 5-7; emphasis added). However, Applicant could not find this alleged teaching in Fig. 1 or paragraphs [0026], [0035]-[0037] of Logan et al., or any other parts of the cited prior art. Accordingly, Applicant respectfully requests support for this assertion by the Office Action.

Examiner’s response:

First, this was only an example of one of the many things which was taught by Logan. As shown in the new rejections above necessitated by amendment, Logan also teaches that metadata may be routed from one server to another before being delivered to a client. However, what Logan teaches is what one of ordinary skill in the art at the time of the invention would have been able to conclude from the disclosure of Logan. Thus, when Logan states in paragraph [0037] that provider 150 from figure 1 is a broadcaster which supplies live programs via satellite 164, and figure 1 shows arrows connecting the processor 185 of the metadata supplier 180 and the processor of the content provider 150 via the internet, it is clear that the metadata would have to be delivered via the satellite. The conclusory statement by Examiner is one explanation of why Logan may have chosen to have such a configuration, among many possibilities, but whatever the reason, the fact that Logan chose to do so if teaching enough that it was well known in the art at the time of the invention that metadata could be routed from one server to another before being delivered to a client device, which is in part what Logan is used to teach.
Regarding Applicant’s arguments on pages 8-9:

Thirdly, the alleged modification of Lee is not obvious to one of ordinary skill in the art. Specifically, the Office Action concludes that "[t]herefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify Lee to allow for the address information, which can be seen as metadata, to be divided at server 300 and then transmitted over a back channel to transmitting device 100, and thus have the address information (minimum execution data) relayed by device 100 when broadcast to receiver 200" (see page 8, lines 7-11; emphasis added). Here, the Office Action characterizes the "address information" disclosed in Lee as teaching the "minimum execution data" as recited in claim 1. In Lee, however, the "application address information" is extracted from the "broadcast data" by the receiving device 200, which are received from the transmission device 100. See Lee, page 3, paragraph 4 (corresponding to the machine-generated English translation, page 3, paragraph 7). In other words, the "application address information" of Lee is not extracted by the broadcasting station server 300, but must be extracted from the broadcast data by the receiver 200. Moreover, based on the teachings of Lee, it is clear that the "application address information" is a part of the broadcast data, but is not a part of a data application. Accordingly, it is clear that the modification of the teachings of Lee, as alleged by the Office Action, is not obvious.

Examiner’s response:

The “application address information” is only a part of the broadcast data after it has been joined to the broadcast data at transmitting device 100. Applicant performs a similar process in claim 1, for example, in claiming that the broadcasting server relays the minimum execution data to the receiver and carries out a digital broadcast; i.e. broadcasts the minimum execution data to the receiver. The fact that the “application address information” is extracted from the broadcast data by the receiver 200 of Lee does not mean that the “application address information” could not have earlier been extracted from an application, which it is in the combined teachings of Lee and Logan. It is then added to broadcast information such that it can be broadcast by the transmitting device 100.
Regarding Applicant’s arguments on pages 9-10:

Finally, the Office Action fails to properly establish inherency of the missing claim feature. Specifically, it is respectfully submitted that no evidence is found in Lee that at some point the "application address information" would have to be divided from a data application at the broadcasting station server 300, as alleged by the Office Action. The Office Action concludes that "[f]urther, although not stated explicitly by Lee, it is obvious that devices 300 and 100 would have to communicate in some manner in order for device 100 to be able to broadcast an address that corresponded to a viable address containing information at server 300, meaning that at some point the address would have to be 'divided' from the content contained at said address" (page 7, paragraph 2). This is a rationale of inherency. Applicant respectfully disagrees with this assertion of inherency because the Office Action fails to show that the "application address information" must be included in a data application at the server 300 and must be divided from the data application at the server 300. "To establish inherency, the extrinsic evidence, must make clear that the missing descriptive matter is necessarily present in the thing described in the reference, and that it would be so recognized by persons of ordinary skill in the art." In re Robertson, 169 F.3d 743, 745, 49 USPQ2d, 1949, 1950-51 (Fed. Cir. 1999) (citations omitted). "In relying upon the theory of inherency, the Examiner must provide a basis in fact and/or technical reasoning to reasonably support the determination that the allegedly inherent characteristic necessarily flows from the teachings of the applied prior art." Ex parte Levy, 17 USPQ2d 1461, 1464 (Bd. Pat. App. & Inter. 1990) (emphasis in original). "The fact that a certain result or characteristic may occur or be present in the prior art is not sufficient to establish the inherency of that result or characteristic." MPEP § 2112.1V (citing to In re Rieckart, 9 F.3d 1531, 1534, (Fed. Cir. 1993)) (emphasis added). The Office Action only articulates one possibility, but fails to establish the missing claim feature, "a data application providing server for dynamically dividing the data application into minimum execution data and additional data, transmitting the minimum execution data to a broadcasting server; is necessarily flew from the teachings of Lee. On the other hand, for example, the "application address information" of Lee could be independently generated by the broadcasting server 100, or could be present outside of a data application in the server 300. Thus, it is submitted that the Office Action fails to establish inherency of such feature of claim 1.

As such, Applicant respectfully submits that the Office Action fails to establish a prima facie case of obviousness. Furthermore, assuming arguendo Lee and Logan et al. may be combined and a reasonable expectation of success exists, the combined references still do not teach all of the features recited in claim 1. Hence, it is respectfully submitted that claim 1 is allowable over Lee and Logan et al., whether taken alone or in combination.

Independent claims 4 and 7 recite similar features as those discussed above with regard to claim 1, and thus those arguments presented for claim 1 will apply to claims 4 and 7, mutatis mutandis. Claims 2, 3, 5, 6 and 10-12 depend directly or indirectly from claim 1,4 or 7, and are thus allowable for at least this reason.
Examiner’s response:

Examiner disagrees that this is a rational of inherency. Inherency is a standard which must be met in a 35 USC 102 rejection, and is a higher standard than the standard of obviousness which must be met in a 35 USC 103 rejection. Therefore, Examiner need not meet the level of establishing inherency, but rather only the level of showing that such a conclusion would have been obvious to one of ordinary skill in the art at the time of the invention. Examiner has done as much. If an address which will allow a computer to locate an application is to function properly, then at some point there must be a communication between the computer storing the application at said address and the computer requesting the application using the address. Thus, it would have been obvious to one of ordinary skill in the art at the time of the invention that, when the application was stored, in order for the address at which it was stored to get from the broadcasting station server 300 of Lee to the transmission device 100 of Lee, there would have had to be at some point a transmission of such information from server 300 to device 100, which can be called a division because information which relates to each other (an address location and the contents of that address) are separated, with one part (the address location) being sent out and the other part (the contents) remaining. Therefore, the fact that inherency may not have been met is moot, as obviousness has been met.

The remainder of Applicant’s arguments on pages 10-12 are either moot in view of the above responses, or else are moot in view of a new grounds of rejection.
Conclusion

11. Claims 1-16 are rejected.

12. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, THIS ACTION IS MADE FINAL. See MPEP § 706.07(a).

Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to JOSHUA TAYLOR whose telephone number is (571)270-3755. The examiner can normally be reached on 8am-5pm, M-F, EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner’s supervisor, Nasser M. Goodarzi can be reached on (571) 272-4195. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.
Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Josh Taylor/
Primary Examiner, Art Unit 2426
September 14, 2012
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JOSHUA TAYLOR/
Primary Examiner Art Unit 2426
IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re the Application of:

Wonjang BAEK

Application No. 12/449,565

Confirmation No. 8285

Filed: August 13, 2009

Group Art Unit: 2426

For: DATA APPLICATION PROVIDING SERVER, BROADCASTING SERVER AND RECEIVER FOR DYNAMICALLY PROCESSING DATA APPLICATION AND DIGITAL BROADCASTING SYSTEM INCLUDING THE SAME

AMENDMENT UNDER 37 CFR 1.111

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

This is in response to the Office Action mailed May 15, 2012, and having a period for response set to expire on August 15, 2012.

Reconsideration of the claims is respectfully requested. The following remarks are respectfully submitted.
IN THE CLAIMS:

The text of all pending claims, (including withdrawn claims) is set forth below. Cancelled and not entered claims are indicated with claim number and status only. The claims as listed below show added text with underlining and deleted text with strikethrough. The status of each claim is indicated with one of (original), (currently amended), (cancelled), (withdrawn), (new), (previously presented), or (not entered).

Please AMEND claims 1, 4 and 13 in accordance with the following:

1. (Currently amended) A digital broadcasting system for dynamically processing a data application, the system comprising:

   a data application providing server for dynamically dividing the data application into minimum execution data and additional data, and providing a transmitting the minimum execution data to a broadcasting server, and transmitting the an additional data included in the data application to the receiver;

   [[a]] the broadcasting server for receiving the minimum execution data from the data application providing server and relaying the minimum execution data received from the data application providing server to the receiver and carrying out a digital broadcast; and

   [[a]] the receiver for receiving the minimum execution data from the broadcasting server, analyzing the minimum execution data, transmitting a transmission request for the additional data to the data application providing server, the transmission request being generated based on the analysis of the minimum execution data relayed by the broadcasting server, and for providing the data application including the additional data provided by the data application providing server according to the transmission request and the minimum execution data relayed by the broadcasting server.

2. (Original) The system in accordance with claim 1, wherein the minimum execution data includes a download location of the data application providing server for obtaining the additional data.

3. (Original) The system in accordance with claim 1, wherein the minimum execution data comprises one of a metadata for the data application and a foundation class data for minimally executing the data application.
4. (Currently amended) A broadcasting server for dynamically processing a data application, the server comprising:
   a minimum execution data storage for storing a minimum execution data received from a data application providing server, the data application providing server dynamically dividing the data application into the minimum execution data and an additional data and providing the minimum execution data and an the additional data included in the data application;
   a minimum execution data transmitter for transmitting the minimum execution data stored in the minimum execution data storage through a digital broadcast network to a receiver for providing the data application.

5. (Original) The server in accordance with claim 4, wherein the minimum execution data includes a download location of the data application providing server for obtaining the additional data.

6. (Original) The server in accordance with claim 4, wherein the minimum execution data comprises one of a metadata for the data application and a foundation class data for minimally executing the data application.

7. (Original) A data application providing server for dynamically processing a data application, the server comprising:
   a data application divider for dividing the data application into a minimum execution data and an additional data;
   a minimum execution data transmitter for transmitting the minimum execution data to a broadcasting server for carrying out a digital broadcast such that the broadcasting server broadcasts the minimum execution data;
   an additional data storage for storing the additional data corresponding to the minimum execution data; and
   a receiver communication interface for transmitting the additional data to the receiver according to a transmission request of the additional data received from the receiver providing the data application.

8. (Original) The server in accordance with claim 7, wherein the receiver
communication interface transmits the additional data via a communication based on an asynchronous socket.

9.  (Original) The server in accordance with claim 7, further comprising a task manager for managing a thread of the data application providing server and scheduling a task.

10. (Original) The server in accordance with claim 7, wherein the data application divider dynamically divides the minimum execution data and the additional data to correspond to a change in the data application, and the additional data storage stores the dynamically divided additional data.

11. (Original) The server in accordance with claim 7, wherein the additional data storage stores the additional data based on a memory.

12. (Original) The server in accordance with claim 7, wherein the minimum execution data comprises one of a metadata for the data application and a foundation class data for minimally executing the data application.

13. (Currently amended) A receiver for dynamically processing a data application, the receiver comprising:
   a minimum execution data receiver for receiving [[a]] minimum execution data which have been transmitted from a data application providing server to the broadcasting server, through a digital broadcast network from the broadcasting server carrying out a digital broadcast;
   a minimum execution data analyzer for analyzing the minimum execution data to extract an execution condition information of the data application and an information on an additional data corresponding to the minimum execution data required for executing the data application;
   a data application providing server interface for transmitting a transmission request for the additional data to [[a]] the data application providing server during an execution of the minimum execution data, and for receiving the additional data from the data application providing server; and
   a data application provider for combining the minimum execution data and the additional data to generate the data application, and executing and providing the generated the data application.
14. (Original) The receiver in accordance with claim 13, wherein the data application providing server interface receives the additional data from the data application providing server via a communication based on an asynchronous socket.

15. (Original) The receiver in accordance with claim 13, further comprising a task manager for managing a thread of the data application providing server and scheduling a task.

16. (Original) The receiver in accordance with claim 13, wherein the minimum execution data comprises one of metadata for the data application and a foundation class data for minimally executing the data application.
REMARKS

In accordance with the foregoing, claims 1, 4 and 13 have been amended. Support for this amendment may be found at least in paragraphs [69]-[74] of the original specification, and in the original claims. Currently, claims 1-16 are pending and under consideration. No new matter within the meaning of 35 U.S.C. §132 is presented in this Amendment.

DOUBLE PATENTING REJECTION(S):

Claims 1-8, 11-14 and 16 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-5, 8-10, 12 and 14 of copending Application Serial No. 12/449,563. Applicants respectfully traverse this rejection.

Applicants respectfully request that this rejection be held in abeyance until an indication that the claims are otherwise allowable. Applicants, at that time, will either address this rejection or file a terminal disclaimer.

REJECTIONS UNDER 35 U.S.C. §103:

1. Claims 1-7 and 10-12 are rejected under 35 U.S.C. §103(a) as being unpatentable over Lee (Korean Application Publication No. 10-2004-0067505 in view of Logan et al. (U.S. Publication No. 2004/0255336).

To establish an obviousness rejection under 35 U.S.C. § 103(a), four factual inquiries must be examined. The four factual inquiries include (a) determining the scope and contents of the prior art; (b) ascertaining the differences between the prior art and the claims in issue; (c) resolving the level of ordinary skill in the pertinent art; and (d) evaluating evidence of secondary consideration. *Graham v. John Deere*, 383 U.S. I, 17-18 (1966). In view of these four factors, the analysis supporting a rejection under 35 U.S.C. 103(a) should be made explicit, and should "identify a reason that would have prompted a person of ordinary skill in the relevant field to combine the [prior art] elements" in the manner claimed. *KSR Int'l Co. v. Teleflex, Inc.*, 550 U.S. 398 (2007). Furthermore, even if the prior art may be combined, there must be a reasonable expectation of success, and the reference or references, when combined, must disclose or
suggest all of the claim limitations. See in re Vaeck, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991).

Claim 1, as amended, recites, *inter alia*:

*a data application providing server* for *dynamically dividing* the data application *into minimum execution data and additional data, transmitting* the minimum execution data *to a broadcasting server* ...

*the broadcasting server* for *receiving* the minimum execution data *from the data application providing server* and *relaying* the minimum execution data *to the receiver* ...

*the receiver* for *receiving* the minimum execution data *from the broadcasting server*, analyzing the minimum execution data, ... and providing the *data application including the additional data* provided by the data application providing server according to the transmission request and the *minimum execution data* relayed by the broadcasting server. (emphasis added)

Applicant respectfully submits that the Office Action fails to establish a *prima facie* case of obviousness of claim 1. Furthermore, neither Lee nor Logan et al. teaches or suggests the features recited in claim 1, *supra*, whether taken alone or in combination.

In the Office Action, the "broadcasting station server 300" shown in Fig. 1 of Lee is alleged as teaching the "data application providing server" as recited in claim 1; the "transmission device 100" shown in Fig. 1 of Lee as teaching the "broadcasting server" as recited in claim 1; and the "receiving device 200" shown in Fig. 1 of Lee as teaching the "receiver" as recited in claim 1 (see page 7, paragraph 1). The Office Action concedes that Lee fails to disclose "a data application providing server for *dynamically dividing* and providing a *minimum execution data* and an additional data included in the data application" nor "a broadcasting server for *relaying* the minimum execution data *received from the data application providing server* and carrying out a digital broadcast," which were recited in original claim 1 (see page 7, paragraph 2 to page 8, line 1; italics and underlines in original). The Office Action, however, contends that these admitted deficiencies of Lee with respect to original claim 1 are cured by the teachings of Logan et al. (see page 8, lines 2-12). Applicant respectfully disagrees with this conclusion by the Office Action for at least the following grounds:

First, the Office Action fails to establish a *prima facie* case of obviousness of claim 1. Specifically, the Office Action refers to Fig. 1 of Logan et al., particularly, elements 180 and 120,
and paragraphs [0026] and [0035]-[0037], as teaching the features of claim 1, which are conceded as not being taught by Lee (see page 8, lines 4-5). Here, in Fig. 1 of Logan et al., element 180 is a metadata supplier, which may correspond to the "data application providing server" as recited in claim 1, and element 120 is a headed location, which may correspond to the "receiver" as recited in claim 1. Logan et al. describes that the functions provided by the metadata supplier 180 can be "controlled and/or performed by a content provider such as the provider 150, a broadcaster which supplies live programs via the satellite 150" (see Logan et al., paragraph [0037]). However, the Office Action fails to identify which element disclosed in Logan et al. may correspond to the "broadcasting server" as recited in claim 1. Thus, it is quite unclear how one of ordinary skill in the art can combine the teachings of Lee and Logan et al., without identifying elements of Logan et al., which may be analogous to those recited in claim 1. Accordingly, it is respectfully submitted that a prima facie case of obviousness is not established in the Office Action. Where the Office Action fails to establish a prima facie case of obviousness, Applicant is under no obligation to present evidence of allowability of claim 1.

Secondly, the Office Action presents a conclusory statement but fails to provide support therefor. Specifically, the Office Action concludes that Fig. 1 and paragraphs [0026], [0035]-[0037] of Logan et al. "teaches that it can be advantageous to relay certain information to a broadcasting device to take advantage of the larger bandwidth available in a satellite transmission, for example" (see page 8, lines 5-7; emphasis added). However, Applicant could not find this alleged teaching in Fig. 1 or paragraphs [0026], [0035]-[0037] of Logan et al., or any other parts of the cited prior art. Accordingly, Applicant respectfully requests support for this assertion by the Office Action.

Thirdly, the alleged modification of Lee is not obvious to one of ordinary skill in the art. Specifically, the Office Action concludes that "therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify Lee to allow for the address information, which can be seen as metadata, to be divided at server 300 and then transmitted over a back channel to transmitting device 100, and thus have the address information (minimum execution data) relayed by device 100 when broadcast to receiver 200" (see page 8, lines 7-11; emphasis added). Here, the Office Action characterizes the "address information" disclosed in Lee as teaching the "minimum execution data" as recited in claim 1. In Lee, however, the "application address information" is extracted from the "broadcast data by the receiving device 200, which are received from the transmission device 100. See Lee, page 3,
paragraph 4 (corresponding to the machine-generated English translation, page 3, paragraph 7).

In other words, the "application address information" of Lee is not extracted from the broadcasting station server 300, but must be extracted from the broadcast data by the receiver 200. Moreover, based on the teachings of Lee, it is clear that the "application address information" is a part of the broadcast data, but is not a part of a data application. Accordingly, it is clear that the modification of the teachings of Lee, as alleged by the Office Action, is not obvious.

Finally, the Office Action fails to properly establish inherency of the missing claim feature. Specifically, it is respectfully submitted that no evidence is found in Lee that at some point the "application address information" would have to be divided from a data application at the broadcasting station server 300, as alleged by the Office Action. The Office Action concludes that "[f]urther, although not stated explicitly by Lee, it is obvious that devices 300 and 100 would have to communicate in some manner in order for device 100 to be able to broadcast an address that corresponded to a viable address containing information at server 300, meaning that at some point the address would have to be 'divided' from the content contained at said address" (page 7, paragraph 2). This is a rationale of inherency. Applicant respectfully disagrees with this assertion of inherency because the Office Action fails to show that the "application address information" must be included in a data application at the server 300 and must be divided from the data application at the server 300. "To establish inherency, the extrinsic evidence, 'must make clear that the missing descriptive matter is necessarily present in the thing described in the reference, and that it would be so recognized by persons of ordinary skill in the art." In re Robertson, 169 F.3d 743, 745, 49 USPQ2d, 1949, 1950-51 (Fed. Cir. 1999) (citations omitted). "In relying upon the theory of inherency, the Examiner must provide a basis in fact and/or technical reasoning to reasonably support the determination that the allegedly inherent characteristic necessarily flows from the teachings of the applied prior art." Ex parte Levy, 17 UiSPQ2d 1461, 1464 (Bd. Pat. App. & Inter. 1990) (emphasis in original). ). "The fact that a certain result or characteristic may occur or be present in the prior art is not sufficient to establish the inherency of that result or characteristic." MPEP § 2112.IV (citing to In re Rijckaert, 9 F.3d 1531, 1534, (Fed. Cir. 1993)) (emphasis added). The Office Action only articulates one possibility, but fails to establish the missing claim feature, "a data application providing server for dynamically dividing the data application into minimum execution data and additional data, transmitting the minimum execution data to a broadcasting server" is necessarily flew from the teachings of Lee. On the other hand, for example, the "application address information"
of Lee could be independently generated by the broadcasting server 100, or could be present outside of a data application in the server 300. Thus, it is submitted that the Office Action fails to establish inherency of such feature of claim 1.

As such, Applicant respectfully submits that the Office Action fails to establish a *prima facie* case of obviousness. Furthermore, assuming *arguendo* Lee and Logan et al. may be combined and a reasonable expectation of success exists, the combined references still do not teach all of the features recited in claim 1. Hence, it is respectfully submitted that claim 1 is allowable over Lee and Logan et al., whether taken alone or in combination.

Independent claims 4 and 7 recite similar features as those discussed above with regard to claim 1, and thus those arguments presented for claim 1 will apply to claims 4 and 7, *mutatis mutandis*. Claims 2, 3, 5, 6 and 10-12 depend directly or indirectly from claim 1, 4 or 7, and are thus allowable for at least this reason.

2. **Claim 8** is rejected under 35 U.S.C. §103(a) as being unpatentable over Lee (Korean Application Publication No. 10-2004-0067505 in view of Logan et al. (U.S. Publication No. 2004/0255336), and further in view of Bourges-Sevenier et al. (U.S. Publication No. 2007/0192818).

Claim 8 depends from claim 7. Bourges-Sevenier is cited by the Office Action against claim 8 in an attempt to assert disclosure of the additional features of the dependent claim, but fails to cure the deficiencies of Lee and Logan et al. as noted above with regard to claim 7. Hence, assuming *arguendo* Lee, Logan et al., and Bourges-Sevenier may be combined and a reasonable expectation of success exists, this combination still does not teach all of the features recited in claim 7. Accordingly, claim 8 is allowable over Lee, Logan et al., and Bourges-Sevenier, whether taken alone or in combination, at least because it depends from allowable claim 7.

3. **Claim 9** is rejected under 35 U.S.C. §103(a) as being unpatentable over Lee (Korean Application Publication No. 10-2004-0067505 in view of Logan et al. (U.S. Publication No. 2004/0255336), and further in view of Higgins et al. (U.S. Publication No. 2002/0116505).

Claim 9 depends from claim 7. Higgins et al. is cited by the Office Action against claim 9
in an attempt to assert disclosure of the additional features of the dependent claim, but fails to
cure the deficiencies of Lee and Logan et al. as noted above with regard to claim 7. Hence,
assuming arguendo Lee, Logan et al., and Higgins et al. may be combined and a reasonable
expectation of success exists, this combinations still does not teach all of the features recited in
claim 7. Accordingly, claim 9 is allowable over Lee, Logan et al., and Higgins et al., whether
taken alone or in combination, at least because it depends from allowable claim 7.

4. Claims 13 and 16 are rejected under 35 U.S.C. §103(a) as being unpatentable over Lee

Claim 13, as amended, recite, *inter alia*:

a minimum execution data receiver for receiving a *minimum execution data, which
have been transmitted from a data application providing server to the
broadcasting server*, through a digital broadcast network from the broadcasting
server carrying out a digital broadcast (emphasis added)

As least these amended claim features are similar to those discussed above with regard
to claim 1. Thus, the arguments presented for claim 1 will be applied to claim 13, *mutatis
mutandis.* Accordingly, it is respectfully submitted that claim 13 is allowable over Lee.

Claim 16 depends from claim 13, and is thus allowable for at least this reason.

5. Claim 14 is rejected under 35 U.S.C. §103(a) as being unpatentable over Lee (Korean
Application Publication No. 10-2004-0067505 in view of Bourges-Sevenier et al. (U.S.

Claim 14 depends from claim 13. Bourges-Sevenier is cited by the Office Action against
claim 13 in an attempt to assert disclosure of the additional features of the dependent claim, but
fails to cure the deficiencies of Lee as noted above with regard to claim 13. Hence, assuming
arguendo Lee and Bourges-Sevenier may be combined and a reasonable expectation of
success exists, this combination still does not teach all of the features recited in claim 13.
Accordingly, claim 14 is allowable over Lee and Bourges-Sevenier, whether taken alone or in
combination, at least because it depends from allowable claim 13.

Claim 15 depends from claim 13. Higgins et al. is cited by the Office Action against claim 13 in an attempt to assert disclosure of the additional features of the dependent claim, but fails to cure the deficiencies of Lee as noted above with regard to claim 13. Hence, assuming arguendo Lee and Higgins et al. may be combined and a reasonable expectation of success exists, this combination still does not teach all of the features recited in claim 13. Accordingly, claim 15 is allowable over Lee and Higgins et al., whether taken alone or in combination, at least because it depends from allowable claim 13.

In view of the foregoing, the rejection of claims 1-16 under 35 U.S.C. §103(a) is respectfully requested to be withdrawn.

CONCLUSION:

There being no further outstanding objections or rejections, it is submitted that the application is in condition for allowance. An early action to that effect is courteously solicited.

Finally, if there are any formal matters remaining after this response, the Examiner is requested to telephone the undersigned to attend to these matters.

If there are any additional fees associated with filing of this Amendment, please charge the same to our Deposit Account No. 503333.

Respectfully submitted,

STEIN MCEWEN, LLP

Date: August 13, 2012

By: Sangyeop Chung
Registration No. 64,130

1400 Eye St., N.W.
Suite 300
Washington, D.C. 20005
Telephone: (202) 216-9505
Facsimile: (202) 216-9510
**Electronic Acknowledgement Receipt**

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**Title of Invention:**
DATA APPLICATION PROVIDING SERVER, BROADCASTING SERVER AND RECEIVER FOR DYNAMICALLY PROCESSING DATA APPLICATION AND DIGITAL BROADCASTING SYSTEM INCLUDING THE SAME

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<th>Wonjang Baek</th>
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**Payment information:**
Submitted with Payment: no

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This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

**New Applications Under 35 U.S.C. 111**
If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

**National Stage of an International Application under 35 U.S.C. 371**
If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

**New International Application Filed with the USPTO as a Receiving Office**
If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.
REPLY/AMENDMENT
FEE TRANSMITTAL

ATTORNEY DOCKET NO. 0366.1010
APPLICATION NO. 12/449,565
FILING DATE August 13, 2009
FIRST NAMED INVENTOR Wonjang BAEK
GROUP ART UNIT 2426

AMOUNT ENCLOSED $0.00
EXAMINER NAME Joshua D. Taylor

FEE CALCULATION (fees effective 10/02/08)

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Since an Official Action set an original due date of, petition is hereby made for an extension to cover the date this reply is filed for which the requisite fee is enclosed (1 month ($150)); (2 months ($560)); (3 months ($1,270)); (4 months ($1,980)); (5 months ($2,690)); $0.00

If Notice of Appeal is enclosed, add ($620.00) $0.00
If Statutory Disclaimer under Rule 20(d) is enclosed, add fee ($140.00) $0.00
Information Disclosure Statement (Rule 1.17(p)) ($180.00) $0.00
Total of above Calculations = $0.00
Reduction by 50% for filing by small entity (37 CFR 1.19, 1.27 & 1.28) $0.00
Reduction by 75% for filing by micro entity (37 CFR 1.23(a)(1)) $0.00
TOTAL FEES DUE = $0.00

(1) If entry (1) is less than entry (2), entry (3) is "0".
(2) If entry (2) is less than 20, change entry (2) to "20".
(3) If entry (4) is less than zero, entry (5) is "0".
(4) If entry (5) is less than 3, change entry (5) to "3".

METHOD OF PAYMENT
☐ Check enclosed as payment. ☐ Credit Card Payment Form, Form PTO-2038(attached).
☐ Charge the TOTAL FEES DUE to the Deposit Account No. below.
☒ No payment is enclosed and no charges to the Deposit Account are authorized at this time (unless specifically required to obtain a filing date).

GENERAL AUTHORIZATION
☒ If the above-noted "AMOUNT ENCLOSED" is not correct, the Commissioner is hereby authorized to credit any overpayment or charge any additional fees necessary to:

Deposit Account No. 503333
Deposit Account Name STEIN MCEWEN, LLP

☒ The Commissioner is also authorized to credit any overpayments or charge any additional fees required under 37 CFR 1.16 (filing fees) or 37 CFR 1.17 (processing fees) during the prosecution of this application, including any related application(s) claiming benefit hereof pursuant to 35 USC § 120 (e.g., continuations/divisionals/CIPs under 37 CFR 1.53(b) and/or continuations/divisionals/CPAs under 37 CFR 1.53(d)) to maintain pendency hereof or of any such related application.

SUBMITTED BY: STEIN MCEWEN, LLP
Typed Name Sungyeop Chung Reg. No. 64,130
Signature /s/Sungyeop Date 7/13/2012
### PATENT APPLICATION FEE DETERMINATION RECORD

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**APPLICATION SIZE FEE**

[37 CFR 1.16(c)]

If the specification and drawings exceed 100 sheets of paper, the application size fee due is $250 ($125 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(e).

**MULTIPLE DEPENDENT CLAIM PRESENT**

[37 CFR 1.16(j)]

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**Application Size Fee** [37 CFR 1.16(e)]

**FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM** [37 CFR 1.16(j)]

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**Application Size Fee** [37 CFR 1.16(e)]

**FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM** [37 CFR 1.16(j)]

### TOTAL ADD'L FEE

0 OR 0

Legal Instrument Examiner:

/DIANE JOHNSON/

* If the entry in column 1 is less than the entry in column 2, write "0" in column 3.
** If the "Highest Number Previously Paid For" in this space is less than 20, enter "20".
*** If the "Highest Number Previously Paid For" in this space is less than 3, enter "3".

The "Highest Number Previously Paid For" (Total or Independent) is the highest number found in the appropriate box in column 1.

This collection of information is required by 37 CFR 1.16. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.
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49455 7590 08/15/2012

STEIN McEWEN, LLP
1400 EYE STREET, NW
SUITE 300
WASHINGTON, DC 20005

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

docketing@smiplaw.com
Office Action Summary

Application No. 12/449,565
Applicant(s) BAEK ET AL.
Examiner JOSHUA TAYLOR
Art Unit 2426

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).

Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) □ This action is FINAL. 2b) ☒ This action is non-final.

3) □ An election was made by the applicant in response to a restriction requirement set forth during the interview on ______; the restriction requirement and election have been incorporated into this action.

4) □ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under Ex parte Quayle, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

5) ☒ Claim(s) 1-16 is/are pending in the application.

5a) □ Of the above claim(s) _____ is/are withdrawn from consideration.

6) □ Claim(s) _____ is/are allowed.

7) ☒ Claim(s) 1-16 is/are rejected.

8) □ Claim(s) _____ is/are objected to.

9) □ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

10) □ The specification is objected to by the Examiner.

11) ☒ The drawing(s) filed on 13 August 2009 is/are: a) ☒ accepted or b) □ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

12) □ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a) ☒ All  b) □ Some * c) □ None of:

1. ☒ Certified copies of the priority documents have been received.

2. □ Certified copies of the priority documents have been received in Application No. ______.

3. □ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892) 4) □ Interview Summary (PTO-413)
2) □ Notice of Draftsman's Patent Drawing Review (PTO-948) Paper No(s)/Mail Date ______.
3) □ Information Disclosure Statement(s) (PTO/SB/08) 5) □ Notice of Informal Patent Application
   Paper No(s)/Mail Date ______. 6) □ Other: ______.
DETAILED ACTION

1. This Office Action is in response to an AMENDMENT entered on March 1, 2012 for the patent application 12/449,565 filed on August 13, 2009.

2. The previous Office Action of November 14, 2011 is fully incorporated into this Office Action by reference.

3. Claims 1-16 are pending.

Double Patenting

4. Claim 1-8, 11-14 and 16 of this application conflict with claims 1-5, 8-10, 12 and 14 of Application No. 12/449,563. 37 CFR 1.78(b) provides that when two or more applications filed by the same applicant contain conflicting claims, elimination of such claims from all but one application may be required in the absence of good and sufficient reason for their retention during pendency in more than one application. Applicant is required to either cancel the conflicting claims from all but one application or maintain a clear line of demarcation between the applications. See MPEP § 822.

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or
improper timewise extension of the “right to exclude” granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., In re Berg, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); In re Goodman, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); In re Longi, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); In re Van Ornum, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); In re Vogel, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and In re Thorington, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 1-8, 11-14 and 16 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-5, 8-10, 12 and 14 of copending Application No. 12/449,563. Although the conflicting claims are not identical, they are not patentably distinct from each other because they generally perform the same methods; i.e.
sending a minimum execution data with location information, obtaining additional application data from said location over a different communication channel than the channel which sent the minimum execution data, and running said application. Application ‘565 adds additional details such as storage locations to store the application data, and thus ‘563 is a broader recitation of the claims.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

<table>
<thead>
<tr>
<th>Instant Application</th>
<th>Copending Application</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. A digital broadcasting system for dynamically processing a data application, the system comprising: a data application providing server for dynamically dividing and providing a minimum execution data and an additional data included in the data application; a broadcasting server for relaying the minimum execution data received from the data application providing server and carrying out a digital broadcast; and a receiver for transmitting a transmission request for the additional data to the data application providing server, the transmission request being generated based on the minimum execution data relayed by the broadcasting server, and for providing the data application including the additional data provided by the data application providing server according to the transmission request and the minimum execution data relayed by the broadcasting server.</td>
<td>1. A method for executing a data application of a digital broadcasting, the method comprising steps of: (a) receiving a minimum execution data for executing the data application through a digital broadcast network; (b) executing the minimum execution data; (c) receiving an additional data required during the execution of the minimum execution data; and (d) combining the minimum execution data and the additional data to provide the data application.</td>
</tr>
<tr>
<td>2. The system in accordance with claim 1, wherein the minimum execution data includes a download location of the data application providing server for obtaining the additional data.</td>
<td>2. The method in accordance with claim 1, wherein the minimum execution data includes a foundation class data required for executing the data application.</td>
</tr>
<tr>
<td>3. The system in accordance with claim 1, wherein the minimum execution data comprises one of a metadata for the data application and a foundation class data for minimally executing the data application.</td>
<td>3. The method in accordance with claim 1, wherein the additional data comprises an additional class data or a resource data required for executing the data application.</td>
</tr>
<tr>
<td>4. A broadcasting server for dynamically processing a data application, the server comprising: a minimum execution data storage for storing a minimum execution data received from a data application providing server, the data application providing server dynamically dividing and providing the minimum execution data and</td>
<td>4. The method in accordance with claim 1, wherein the minimum execution data comprises a metadata for an execution of the data application, and the metadata comprises a download location information of the additional data or an execution condition information of the data application.</td>
</tr>
<tr>
<td></td>
<td>5. The method in accordance with claim 4, wherein the step (b) comprises (b-1) extracting the download location information of the additional data or the execution condition information of the data application from the metadata.</td>
</tr>
<tr>
<td></td>
<td>8. The method in accordance with claim 7, wherein the step (c-2) comprises (c-3) receiving the additional data by carrying out a socket-based communication.</td>
</tr>
</tbody>
</table>
an additional data included in the data application; a
minimum execution data transmitter for transmitting the
minimum execution data stored in the minimum
execution data storage through a digital broadcast
network to a receiver providing the data application.

5. The server in accordance with claim 4, wherein the
minimum execution data includes a download location
of the data application providing server for obtaining
the additional data.

6. The server in accordance with claim 4, wherein the
minimum execution data comprises one of a metadata
for the data application and a foundation class data for
minimally executing the data application.

7. A data application providing server for dynamically
processing a data application, the server comprising: a
data application divider for dividing the data application
into a minimum execution data and an additional data; a
minimum execution data transmitter for transmitting the
minimum execution data to a broadcasting server for
carrying out a digital broadcast such that the
broadcasting server broadcasts the minimum execution
data; an additional data storage for storing the additional
data corresponding to the minimum execution data; and
a receiver communication interface for transmitting the
additional data to the receiver according to a
transmission request of the additional data received from
the receiver providing the data application.

8. The server in accordance with claim 7, wherein the
receiver communication interface transmits the
additional data via a communication based on an
asynchronous socket.

11. The server in accordance with claim 7, wherein the
additional data storage stores the additional data based
on a memory.

12. The server in accordance with claim 7, wherein the
minimum execution data comprises one of a metadata
for the data application and a foundation class data for
minimally executing the data application.

13. A receiver for dynamically processing a data
application, the receiver comprising: a minimum
execution data receiver for receiving a minimum
execution data through a digital broadcast network from
the broadcasting server carrying out a digital broadcast;
a minimum execution data analyzer for analyzing the
minimum execution data to extract an execution
condition information of the data application and an
information on an additional data corresponding to the

9. A method for executing a data application of a digital
broadcasting, the method comprising steps of: (a)
receiving a metadata for the data application; (b)
analyzing the metadata to extract an information
required for executing the data application; (c) receiving
the data application based on the information extracted
in the step (b); and (d) executing and providing the data
application, wherein the metadata comprises an
execution condition information of the data application.

10. The method in accordance with claim 9, wherein the
step (a) comprises (a-1) receiving the metadata via a
digital broadcast network.

12. The method in accordance with claim 9, wherein the
step (b) comprises (b-1) extracting the location
information of the data application or the execution
condition information of the data application from the
metadata.

14. The method in accordance with claim 13, wherein the
step (c-1) comprises (c-2) receiving the data
application by carrying out a socket-based communication.
minimum execution data required for executing the data application; a data application providing server interface for transmitting a transmission request for the additional data to a data application providing server during an execution of the minimum execution data, and for receiving the additional data from the data application providing server; and a data application provider for combining the minimum execution data and the additional data to generate the data application, and executing and providing the generated data application.

14. The receiver in accordance with claim 13, wherein the data application providing server interface receives the additional data from the data application providing server via a communication based on an asynchronous socket.

16. The receiver in accordance with claim 13, wherein the minimum execution data comprises one of a metadata for the data application and a foundation class data for minimally executing the data application.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negativized by the manner in which the invention was made.


Regarding claim 1, Lee discloses a digital broadcasting system for dynamically processing a data application, the system comprising: a data application providing server
for providing an additional data included in the data application (Fig. 1, element 300, pg. 3, para. 4. The broadcasting station server provides a requested application (additional data) to a receiving device. Examiner is using citations from a translation of Lee, a copy of which was provided to Applicant with the Office Action of November 14, 2011.); a broadcasting server for providing minimum execution data and carrying out a digital broadcast (Fig. 1, element 100 and the line between element 100 and element 200, pg. 3, para. 7); and a receiver for transmitting a transmission request for the additional data to the data application providing server (Fig. 1, element 200, pg. 3, para. 7), the transmission request being generated based on the minimum execution data provided by the broadcasting server (Fig. 2, elements 240 and 300, pg. 4, paras. 4-6), and for providing the data application including the additional data provided by the data application providing server according to the transmission request and the minimum execution data provided by the broadcasting server (Fig. 2, element 240, Fig. 3, pg. 4, paras. 7-10). Lee further discloses that certain information, such as variable data, can be sent from the broadcasting station server 300 to the transmitting device 100, and then relayed via broadcast to the receiving device 200 (page 3, paras. 7-9). Further, although not stated explicitly by Lee, it is obvious that devices 300 and 100 would have to communicate in some manner in order for device 100 to be able to broadcast an address that corresponded to a viable address containing information at server 300, meaning that at some point the address would have to be “divided” from the content contained at said address. However, Lee does not explicitly disclose a data application providing server for dynamically dividing and providing a minimum execution data and an additional data included in the data application, nor a broadcasting server for relaying the minimum execution data
received from the data application providing server and carrying out a digital broadcast

(emphasis added to distinguish the elements of the limitations not explicitly taught by Lee). In analogous art, Logan discloses that metadata can be routed from a metadata supplier 180, via the internet, to a headend location 120, where it is then broadcast to users (Fig. 1, elements 180 and 120, paras. [0026] and [0035]-[0037]), which teaches that it can be advantageous to relay certain information to a broadcasting device to take advantage of the larger bandwidth available in a satellite transmission, for example. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify Lee to allow for the address information, which can be seen as metadata, to be divided at server 300 and then transmitted over a back channel to transmitting device 100, and thus have the address information (minimum execution data) relayed by device 100 when broadcast to receiver 200. This would have produced predictable and desirable results, in that the address information broadcast by device 100 would align properly with the content stored at said address, and further, address information would be sent from a high-bandwidth transmitter, which would conserve bandwidth on the channel between the broadcasting station server 300 and the receiver 200 for distribution of the additional data, when requested by a user of receiver 200.

Regarding claim 2, the combined teaching of Lee and Logan discloses the system in accordance with claim 1, and Lee further discloses wherein the minimum execution data includes a download location of the data application providing server for obtaining the additional data (pg. 4, para. 2. The data comprises application address information, i.e. a download location.).
Regarding claim 3, the combined teaching of Lee and Logan discloses the system in accordance with claim 1, and Lee further discloses wherein the minimum execution data comprises one of a metadata for the data application and a foundation class data for minimally executing the data application (Fig. 1, elements 100 and 200, pg. 3, paras. 6-9. Applicant does not define “foundation class data” as anything more specific than data needed to initiate an application, and there do not appear to be any industry related terms defining what “foundation class data” may be. Therefore, because Lee discloses that minimum execution data is sent, Lee also discloses that said data is “foundation class data.” Further, the data comprises application address information, i.e. a download location, and thus can be seen as metadata.).

Regarding claim 4, Lee discloses a broadcasting server for dynamically processing a data application, the server comprising: a minimum execution data storage for storing a minimum execution data (Fig. 1, element 100. It is obvious that transmitting device 100 could have had a storage section for storing the minimum execution data prior to transmission. If Applicant disagrees with this statement of obviousness, Examiner submits that it is further obvious in view of the teachings of Logan concerning storing metadata prior to broadcast (Logan, Fig. 1 and para. [0035])), the data application providing server providing an additional data included in the data application (Fig. 2, elements 240 and 300, Fig. 3, pg. 4, paras. 7-10); a minimum execution data transmitter for transmitting the minimum execution data stored in the minimum execution data storage through a digital broadcast network to a receiver providing the data application (Fig. 1, element 100 and the line between element 100 and element 200, pg. 3, para. 7). Lee further discloses that certain information, such as variable data, can be sent from the broadcasting station server 300 to the
transmitting device 100, and then relayed via broadcast to the receiving device 200 (page 3, paras. 7-9). Further, although not stated explicitly by Lee, it is obvious that devices 300 and 100 would have to communicate in some manner in order for device 100 to be able to broadcast an address that corresponded to a viable address containing information at server 300, meaning that at some point the address would have to be “divided” from the content contained at said address. However, Lee does not explicitly disclose a minimum execution data storage for storing a minimum execution data received from a data application providing server, the data application providing server dynamically dividing and providing the minimum execution data and an additional data included in the data application (emphasis added to distinguish the elements of the limitations not explicitly taught by Lee). In analogous art, Logan discloses that metadata can be routed from a metadata supplier 180, via the internet, to a headend location 120, where it is then broadcast to users (Fig. 1, elements 180 and 120, paras. [0026] and [0035]-[0037]), which teaches that it can be advantageous to relay certain information to a broadcasting device to take advantage of the larger bandwidth available in a satellite transmission, for example. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify Lee to allow for the address information, which can be seen as metadata, to be divided at server 300 and then transmitted over a back channel to transmitting device 100, and thus have the address information (minimum execution data) relayed by device 100 when broadcast to receiver 200. This would have produced predictable and desirable results, in that the address information broadcast by device 100 would align properly with the content stored at said address, and further, address information would be sent from a high-bandwidth transmitter, which would conserve bandwidth on the channel between the broadcasting station server 300
and the receiver 200 for distribution of the additional data, when requested by a user of receiver 200.

Regarding claim 5, the combined teaching of Lee and Logan discloses the server in accordance with claim 4, and Lee further discloses wherein the minimum execution data includes a download location of the data application providing server for obtaining the additional data (pg. 4, para. 2. The data comprises application address information, i.e. a download location.).

Regarding claim 6, the combined teaching of Lee and Logan discloses the server in accordance with claim 4, and Lee further discloses wherein the minimum execution data comprises one of a metadata for the data application and a foundation class data for minimally executing the data application (Fig. 1, elements 100 and 200, pg. 3, paras. 6-9. Applicant does not define “foundation class data” as anything more specific than data needed to initiate an application, and there do not appear to be any industry related terms defining what “foundation class data” may be. Therefore, because Lee discloses that minimum execution data is sent, Lee also discloses that said data is “foundation class data.” Further, the data comprises application address information, i.e. a download location, and thus can be seen as metadata.).

Regarding claim 7, Lee discloses a data application providing server for dynamically processing a data application, the server comprising: a data application provider for providing an additional data (Fig. 1, element 300, pg. 3, para. 4. The broadcasting station server provides a requested application (additional data) to a receiving device.); a broadcasting server for broadcasting a minimum execution data (Fig. 1, element 100 and the line between
element 100 and element 200, pg. 3, para. 7); **an additional data storage for storing the additional data corresponding to the minimum execution data** (Fig. 1, element 300, pg. 3, para. 7, pg. 4, para. 2. Application is downloaded from the broadcasting station server 300; thus, it is obvious that said server has data storage.); **and a receiver communication interface for transmitting the additional data to the receiver according to a transmission request of the additional data received from the receiver providing the data application** (Fig. 2, element 240, Fig. 3, pg. 4, paras. 7-10). Lee further discloses that certain information, such as variable data, can be sent from the broadcasting station server 300 to the transmitting device 100, and then relayed via broadcast to the receiving device 200 (page 3, paras. 7-9). Further, although not stated explicitly by Lee, it is obvious that devices 300 and 100 would have to communicate in some manner in order for device 100 to be able to broadcast an address that corresponded to a viable address containing information at server 300, meaning that at some point the address would have to be “divided” from the content contained at said address. However, Lee does not explicitly disclose **a data application divider for dividing the data application into a minimum execution data and an additional data**, nor **a minimum execution data transmitter for transmitting the minimum execution data to a broadcasting server for carrying out a digital broadcast** (emphasis added to distinguish the elements of the limitations not explicitly taught by Lee). In analogous art, Logan discloses that metadata can be routed from a metadata supplier 180, via the internet, to a headend location 120, where it is then broadcast to users (Fig. 1, elements 180 and 120, paras. [0026] and [0035]-[0037]), which teaches that it can be advantageous to relay certain information to a broadcasting device to take advantage of the larger bandwidth available in a satellite transmission, for example. Therefore, it would have been
obvious to one of ordinary skill in the art at the time of the invention to modify Lee to allow for the address information, which can be seen as metadata, to be divided at server 300 and then transmitted over a back channel to transmitting device 100, and thus have the address information (minimum execution data) relayed by device 100 when broadcast to receiver 200. This would have produced predictable and desirable results, in that the address information broadcast by device 100 would align properly with the content stored at said address, and further, address information would be sent from a high-bandwidth transmitter, which would conserve bandwidth on the channel between the broadcasting station server 300 and the receiver 200 for distribution of the additional data, when requested by a user of receiver 200.

Regarding claim 10, the combined teaching of Lee and Logan discloses the server in accordance with claim 7, and further discloses wherein the data application divider dynamically divides the minimum execution data and the additional data to correspond to a change in the data application, and the additional data storage stores the dynamically divided additional data (Lee, pg. 3, para. 8, pg. 4, paras. 6 and 9. An up-to-date application is held by the server 300. Thus, the location information will reflect the up-to-date application. This claim is rejected on the same grounds as claim 7.).

Regarding claim 11, the combined teaching of Lee and Logan discloses the server in accordance with claim 7, and Lee further discloses wherein the additional data storage stores the additional data based on a memory (Fig. 1, element 300, pg. 3, para. 7, pg. 4, para. 2. Data storage and memory are synonymous terms in the art.).
Regarding claim 12, the combined teaching of Lee and Logan discloses **the server in accordance with claim 7**, and Lee further discloses **wherein the minimum execution data comprises one of a metadata for the data application and a foundation class data for minimally executing the data application** (Fig. 1, elements 100 and 200, pg. 3, paras. 6-9.

Applicant does not define “foundation class data” as anything more specific than data needed to initiate an application, and there do not appear to be any industry related terms defining what “foundation class data” may be. Therefore, because Lee discloses that minimum execution data is sent, Lee also discloses that said data is “foundation class data.” Further, the data comprises application address information, i.e. a download location, and thus can be seen as metadata.).


Regarding claim 8, the combined teaching of Lee and Logan discloses **the server in accordance with claim 7**, and although the communication path between elements 200 and 300 in figure 1 could obviously be an internet connection, which would mean the additional data was received based on a socket-based communication, Lee and Logan do no explicitly use the term “socket-based,” and thus it could be argued that they do not disclose **wherein the receiver communication interface transmits the additional data via a communication based on an asynchronous socket.** However, in analogous art, Bourges-Sevenier discloses that when
distributing multimedia applications, socket-based communication can be used (para. [0194]). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to allow for the communication path disclosed in Lee’s figure 1 between elements 200 and 300 to be an internet connection, such that communications over said network would be based on an asynchronous socket. This would have produced predictable and desirable results, in that the communications would be carried out over a well-known and reliable network.


Regarding claim 9, the combined teaching of Lee and Logan discloses the server in accordance with claim 7, but does not explicitly disclose how tasks are managed in the server 300, and thus does not explicitly disclose further comprising a task manager for managing a thread of the data application providing server and scheduling a task. However, in analogous art, Higgins discloses that a content provider can have a task queue comprised of tasks and threads, as well as a task manager and a task thread manager in order to control the allocation of system resources (Fig. 4, elements 420, 430 and 440, paras. [0075]-[0077]). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to allow for the server 300 of Lee to comprise a task manager for managing threads and scheduling tasks. This would have produced predictable and desirable results, in that
application data would be sent to requesting receivers in a manner that was efficient based on system resources, as threads and tasks could be managed appropriately.


Regarding claim 13, Lee discloses a receiver for dynamically processing a data application, the receiver comprising: a minimum execution data receiver for receiving a minimum execution data through a digital broadcast network from the broadcasting server carrying out a digital broadcast (Fig. 1, elements 100 and 200, pg. 3, paras. 6-9); a minimum execution data analyzer for analyzing the minimum execution data to extract an execution condition information of the data application and an information on an additional data corresponding to the minimum execution data required for executing the data application (Fig. 2, element 220, Pg. 3, para. 10 and pg. 4, para. 2); a data application providing server interface for transmitting a transmission request for the additional data to a data application providing server during an execution of the minimum execution data, and for receiving the additional data from the data application providing server (Fig. 2, element 230, pg. 3, para. 10 and pg. 4, paras. 4-6. Application requester 230 can obviously request the additional data based on the address information contained in the minimum execution data.); and a data application provider for combining the minimum execution data and the additional data to generate the data application, and executing and providing the generated the data
application (Fig. 2, element 240, pg. 3, para. 10 and pg. 4, paras. 5, 6 and 9-11. Both the minimum execution data and the additional data need to be executed in order for the application to be executed. Therefore, one could obviously say that the minimum execution data and the additional data had been “combined,” as Applicant’s specification performs a similar “combination” as the manner in which the data is processed.).

Regarding claim 16, Lee discloses the receiver in accordance with claim 13, wherein the minimum execution data comprises one of a metadata for the data application and a foundation class data for minimally executing the data application (Fig. 1, elements 100 and 200, pg. 3, paras. 6-9. Applicant does not define “foundation class data” as anything more specific than data needed to initiate an application, and there do not appear to be any industry related terms defining what “foundation class data” may be. Therefore, because Lee discloses that minimum execution data is sent, Lee also discloses that said data is “foundation class data.” Further, the data comprises application address information, i.e. a download location, and thus can be seen as metadata.).


Regarding claim 14, Lee discloses the receiver in accordance with claim 13, and although the communication path between elements 200 and 300 in figure 1 could obviously be an internet connection, which would mean the additional data was received based on a socket-
based communication, Lee does not explicitly state as much, and thus does not explicitly disclose **wherein the data application providing server interface receives the additional data from the data application providing server via a communication based on an asynchronous socket**. However, in analogous art, Bourges-Sevenier discloses that when distributing multimedia applications, socket-based communication can be used (para. [0194]). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to allow for the communication path disclosed in Lee’s figure 1 between elements 200 and 300 to be an internet connection, such that communications over said network would be based on an asynchronous socket. This would have produced predictable and desirable results, in that the communications would be carried out over a well-known and reliable network.


   Regarding claim 15, Lee discloses **the receiver in accordance with claim 13**, but does not explicitly disclose how tasks are managed in the server 300, and thus does not explicitly disclose **further comprising a task manager for managing a thread of the data application providing server and scheduling a task**. However, in analogous art, Higgins discloses that a content provider can have a task queue comprised of tasks and threads, as well as a task manager and a task thread manager in order to control the allocation of system resources (Fig. 4, elements 420, 430 and 440, paras. [0075]-[0077]). Therefore, it would have been obvious to one of
ordinary skill in the art at the time of the invention to allow for the server 300 of Lee to comprise a task manager for managing threads and scheduling tasks. This would have produced predictable and desirable results, in that application data would be sent to requesting receivers in a manner that was efficient based on system resources, as threads and tasks could be managed appropriately.

Response to Arguments

11. Applicant’s arguments, see pages 6-10, filed March 10, 2012, with respect to the rejections of claims 1 and 7 under 35 U.S.C. 102 have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground of rejection is made in view of Logan. Examiner submits that the disclosure of Lee may not inherently disclose all the features of Applicant’s claimed invention, but that the disclosure of Lee does obviate certain elements of Applicant’s claimed invention in certain claims. Because the manner in which Lee performs the process of obtaining an application is similar to the manner in which Applicant describes obtaining an application as described in claim 13, Examiner finds it to be obvious that both processes can be seen as “combining” the two different types of data. If Applicant disagrees with Examiner’s assessment, Applicant is asked to present a thorough explanation of how the “combining” of Applicant is different than the “combining” of Lee. Further, if Applicant feels that the machine translation of Lee being used by Examiner is
misrepresenting the disclosure of Lee, Applicant has the option of presenting Examiner with a different translation for Examiner's review.

 Applicant's arguments concerning claim 13 have been fully considered but they are not persuasive.

 Regarding Applicant’s arguments concerning claim 13 on page 11:

 The Office Action characterizes the application requester (230) as analogous to the "data application server interface" as recited in claim 13 (Office Action, page 10, lines 1-2). However, there is no teaching or suggestion in Lee that the application request (230) may transmit "a transmission request for the additional data to a data application providing server during an execution of the minimum execution data," as recited in claim 13. The portions of the machine translation of Lee, i.e., page 3, paragraph 10 and page 4, paragraphs 4-6, upon which the Examiner relies, do not actually teach these features as claimed.

 The Office Action characterizes the application processing unit (240) as analogous to the "data application provider" as recited in claim 13 (Office Action, page 10, lines 4-5). However, no teaching or suggestion is found in Lee that the application processing unit (240) may combine "the minimum execution data and the additional data to generate the data application," as recited in claim 13. The portions of the machine translation of Lee, page 3, paragraph 10 and page 4, paragraphs 5, 6, and 9-11, upon which the Examiner relies, do not actually teach these features as claimed.

 Moreover, the Office Action even fails to address how Lee teaches the "additional data" as recited in claim 13. Hence, the Office Action fails to establish a prima facie case of anticipation. If the Office Action fails to establish a prima facie case of anticipation, Applicants are under no obligation to present an evidence of allowability of the claim.

 Claims 2, 3, and 10-12 depend from claim 1 or claim 7, and are thus allowable for at least this reason.

 In view of the foregoing, Applicants respectfully request withdrawal of the rejection of claims 1-3, 7, and 10-12 under 35 U.S.C. §102(b).

 Examiner’s response:

 Examiner disagrees that there is no teaching or suggestion in Lee of transmitting "a transmission request for the additional data to a data application providing server during an execution of the minimum execution data." Lee discloses on page 3, paragraph 7 that the receiving device 200 “requests an application using the extracted application address
information.” Further, as Lee performs the request for additional data in the same manner that Applicant does, i.e. by reading address information from the minimum execution data, then Examiner can interpret this request as "during the execution of the minimum execution data."

In terms of the “combination” argument, because the manner in which Lee performs the process of obtaining an application is similar to the manner in which Applicant describes obtaining an application as described in claim 1, Examiner finds it to be obvious that both processes can be seen as "combining" the two different types of data. If Applicant disagrees with Examiner’s assessment, Applicant is asked to present a thorough explanation of how the “combining” of Applicant is different than the “combining” of Lee.

Finally, the “additional data” is the application that is requested by the receiver 200 from the broadcast station server 300 using the address information.

The remainder of Applicant’s arguments are moot in view of the new grounds of rejection presented in the instant Office Action.

Conclusion

12. Claims 1-16 are rejected.
13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to JOSHUA TAYLOR whose telephone number is (571)270-3755. The examiner can normally be reached on 8am-5pm, M-F, EST.
If attempts to reach the examiner by telephone are unsuccessful, the examiner’s supervisor, Nasser M. Goodarzi can be reached on (571) 272-4195. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Josh Taylor/
Primary Examiner, Art Unit 2426
May 8, 2012
Notice of References Cited

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* A copy of this reference is not being furnished with this Office action. (See MPEP § 707.05(a).)

U.S. Patent and Trademark Office

PTO-892 (Rev. 01-2001)
### Index of Claims

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☐ Claims renumbered in the same order as presented by applicant  ☐ CPA  ☐ T.D.  ☐ R.1.47

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/JOSHUA TAYLOR/
Primary Examiner, Art Unit 2426
IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re the Application of:

Wonjang BAEK et al.

Application No. 12/449,565

Confirmation No. 8285

Filed: August 13, 2009

For: DATA APPLICATION PROVIDING SERVER, BROADCASTING SERVER AND RECEIVER FOR DYNAMICALLY PROCESSING DATA APPLICATION AND DIGITAL BROADCASTING SYSTEM INCLUDING THE SAME

AMENDMENT

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

This is in response to the Office Action mailed November 14, 2011, and having a period for response set to expire on February 14, 2012.

A petition for a one-month extension of time is made herein and the appropriate fee is enclosed, extending the due date to March 14, 2012.

Reconsideration of the claims is respectfully requested. The following remarks are respectfully submitted.
IN THE CLAIMS:

The text of all pending claims, (including withdrawn claims) is set forth below. Cancelled and not entered claims are indicated with claim number and status only. The claims as listed below show added text with underlining and deleted text with strikethrough. The status of each claim is indicated with one of (original), (currently amended), (cancelled), (withdrawn), (new), (previously presented), or (not entered).

No claim has been amended by this paper.

1. (Original) A digital broadcasting system for dynamically processing a data application, the system comprising:
   a data application providing server for dynamically dividing and providing a minimum execution data and an additional data included in the data application;
   a broadcasting server for relaying the minimum execution data received from the data application providing server and carrying out a digital broadcast; and
   a receiver for transmitting a transmission request for the additional data to the data application providing server, the transmission request being generated based on the minimum execution data relayed by the broadcasting server, and for providing the data application including the additional data provided by the data application providing server according to the transmission request and the minimum execution data relayed by the broadcasting server.

2. (Original) The system in accordance with claim 1, wherein the minimum execution data includes a download location of the data application providing server for obtaining the additional data.

3. (Original) The system in accordance with claim 1, wherein the minimum execution data comprises one of a metadata for the data application and a foundation class data for minimally executing the data application.

4. (Original) A broadcasting server for dynamically processing a data application, the server comprising:
   a minimum execution data storage for storing a minimum execution data received from a
data application providing server, the data application providing server dynamically dividing and
providing the minimum execution data and an additional data included in the data application;
a minimum execution data transmitter for transmitting the minimum execution data
stored in the minimum execution data storage through a digital broadcast network to a receiver
providing the data application.

5. (Original) The server in accordance with claim 4, wherein the minimum
execution data includes a download location of the data application providing server for
obtaining the additional data.

6. (Original) The server in accordance with claim 4, wherein the minimum
execution data comprises one of a metadata for the data application and a foundation class
data for minimally executing the data application.

7. (Original) A data application providing server for dynamically processing a
data application, the server comprising:
a data application divider for dividing the data application into a minimum execution data
and an additional data;
a minimum execution data transmitter for transmitting the minimum execution data to a
broadcasting server for carrying out a digital broadcast such that the broadcasting server
broadcasts the minimum execution data;
an additional data storage for storing the additional data corresponding to the minimum
execution data; and
a receiver communication interface for transmitting the additional data to the receiver
according to a transmission request of the additional data received from the receiver providing
the data application.

8. (Original) The server in accordance with claim 7, wherein the receiver
communication interface transmits the additional data via a communication based on an
asynchronous socket.

9. (Original) The server in accordance with claim 7, further comprising a task
manager for managing a thread of the data application providing server and scheduling a task.

10. (Original) The server in accordance with claim 7, wherein the data application divider dynamically divides the minimum execution data and the additional data to correspond to a change in the data application, and the additional data storage stores the dynamically divided additional data.

11. (Original) The server in accordance with claim 7, wherein the additional data storage stores the additional data based on a memory.

12. (Original) The server in accordance with claim 7, wherein the minimum execution data comprises one of a metadata for the data application and a foundation class data for minimally executing the data application.

13. (Original) A receiver for dynamically processing a data application, the receiver comprising:
   a minimum execution data receiver for receiving a minimum execution data through a digital broadcast network from the broadcasting server carrying out a digital broadcast;
   a minimum execution data analyzer for analyzing the minimum execution data to extract an execution condition information of the data application and an information on an additional data corresponding to the minimum execution data required for executing the data application;
   a data application providing server interface for transmitting a transmission request for the additional data to a data application providing server during an execution of the minimum execution data, and for receiving the additional data from the data application providing server; and
   a data application provider for combining the minimum execution data and the additional data to generate the data application, and executing and providing the generated data application.

14. (Original) The receiver in accordance with claim 13, wherein the data application providing server interface receives the additional data from the data application providing server via a communication based on an asynchronous socket.
15. (Original) The receiver in accordance with claim 13, further comprising a task manager for managing a thread of the data application providing server and scheduling a task.

16. (Original) The receiver in accordance with claim 13, wherein the minimum execution data comprises one of a metadata for the data application and a foundation class data for minimally executing the data application.
REMARKS

No claim has been amended by this paper, and claims 1-16 are pending and under consideration. No new matter is presented in this Amendment.

DOUBLE PATENTING REJECTION(S):

Claims 1-8, 11-14, and 16 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-5, 8-12, and 14 of copending Application Serial No. 12/449,563.

Applicants respectfully request that this rejection be held in abeyance until an indication that the claims are otherwise allowable. Applicants, at that time, will either address this rejection or file a terminal disclaimer.

REJECTIONS UNDER 35 U.S.C. §102:

Claims 1-3, 7, 10-13 and 16 are rejected under 35 U.S.C. §102(b) as being anticipated by Lee (KR Pub. No. 10-2004-0067505).


First of all, Applicants respectfully submit that this rejection is based on the machine translation of Lee that incorrectly represents the original Korean text. The fourth to sixth paragraphs of page 3 in the original Korean text, which correspond to paragraphs 7-9 of page 3 in the machine translation attached to the Office Action, should be properly translated as follows:
Once the transmitting device (100) has transmitted broadcast data, the receiving device (200) receives the transmitted broadcast data, extracts application address information from the received broadcast data, and connects to the broadcasting station server (300) and requests an application using the extracted application address information. Then, the broadcasting station server (300) checks the requested application and transmits it to the receiving device (200), and the receiving device (200) downloads the transmitted application.

In addition, the broadcasting station server (300) checks the existence of variable data with respect to a predetermined time period, and, if the variable data exist, updates the version of the current application, and transmits the variable data to the transmitting device (100). Here, the variable data is a data file that is actually varied in the application.

In the meantime, once the variable data have been transmitted from the transmitting device (100), the receiving device (200) receives the transmitted variable data and updates the application.

As can be seen from the above, in Lee, the broadcasting station server (300) simply transmits the variable data to the transmitting device (100), but not providing "a minimum execution data and an additional data included in the data application," as recited in claim 1.

In view of the foregoing, Applicants respectfully submit that Lee fails to disclose the following features of claim 1, inter alia:

- a data application providing server for dynamically dividing and providing a minimum execution data and an additional data included in the data application;
- a broadcasting server for relaying the minimum execution data received from the data application providing server and carrying out a digital broadcast;

(emphasis added)

The Office Action concludes that the "address information" described in Lee teaches the "minimum execution data" as recited in claim 1. See the Office Action, page 6, item 3, line 7. However, Lee actually does not describe that the address information is transmitted from the broadcasting station server (300), which the Office Action contends corresponds to the "data application providing server" recited in claim 1, to the transmitting device (100), which the Office Action contends corresponds to the "broadcasting server" recited in claim 1. Moreover, in Fig. 1 of Lee, the Korean caption immediately below the arrow line from the broadcasting station server (300) to the transmitting device (100) means "variable data transmission." In other words, according to the teachings of Lee, the broadcasting station server (300) simply transmits
the variable data to the transmitting device (100), and the transmitting device (100) in turn
transmits the application address information and the variable data to the receiving device
(200). Thus, it is clear that Lee fails to teach at least “a broadcasting server for relaying the
minimum execution data received from the data application providing server and carrying
out a digital broadcast” as recited in claim 1 (emphasis added).

Furthermore, Lee also fails to teach at least the following features of claim 1:

a data application providing server for dynamically dividing and providing a
minimum execution data and an additional data included in the data application;

... 

a receiver for transmitting a transmission request for the additional data to
the data application providing server ... and for providing the data application
including the additional data provided by the data application providing server
according to the transmission request and the minimum execution data relayed
by the broadcasting server.

(emphasis added)

“A claim is anticipated only if each and every element as set forth in the claim is found,
either expressly or inherently described, in a single prior art reference.” Verdegaal Bros. v.
Union Oil Co. of California, 814 F.2d 628, 631, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987). The
Examiner bears initial burden of showing how Lee discloses each and every feature as recited
in claim 1. While the Office Action concludes that the “minimum execution data” is anticipated
by the “address information” of Lee, however it fails to address how Lee teaches the “additional
data included in the data application” or the “transmission request for the additional data” as
recited in claim 1. Thus, Applicants respectfully submit that Lee fails to anticipate claim 1.

As per independent claim 7, Applicants respectfully submit that Lee fails to disclose at
least the following features of claim 7:

A data application providing server ... comprising:

a data application divider for dividing the data application into a minimum
execution data and an additional data;

(emphasis added)

In rejecting claim 7 based on the alleged anticipation of these claim features, the Office
Action relies on Fig. 1, element 300, page 3, paragraph 4, contending that "[t]he broadcasting station server separates the address information (minimum execution data) from the application data" (Office Action, page 8, lines 5-6). The referred portion of Lee reads as follows:

To accomplish the above objects, the invention comprises the broadcasting station server extracting the application address information or variable data from broadcast data transmitted from the transmission device, transmitting broadcast and transmission device, and transmits the application for the application address information requested in the receiving device and the receiving device downloading the application according to the extracted application address information as described above from the broadcasting station server.

(emphasis added)

However, Applicants respectfully note that this machine translation is incorrect. A proper and accurate translation of the corresponding paragraph in the original Korean text is as follows:

To accomplish the above objects, the present invention is characterized by comprising: a transmitting device transmitting broadcast data; a receiving device extracting application address information or variable data from the broadcast data transmitted from the transmitting device and downloading an application from a broadcasting station server according to the extracted application address information; and the broadcasting station server transmitting the application associated with the application address information requested by the receiving device.

(emphasis added)

As can be seen, in Lee, it is the receiving device, not the broadcasting station server, that extracts application address information, which the Examiner believes corresponds to the "minimum execution data" recited in claim 7. Thus, it is clear that Lee fails to disclose at least the data application providing server comprising "a data application divider for dividing the data application into a minimum execution data and an additional data" as recited in claim 7.

Furthermore, Lee also does not teach or suggest at least the following features recited in claim 7:

A data application providing server ... comprising:

... a minimum execution data transmitter for transmitting the minimum execution data to a broadcasting server ...;

(emphasis added)
As noted above with regard to claim 1, Lee describes that the broadcasting station server (300) simply transmits the variable data to the transmitting device (100). No teaching or suggestion is found in Lee that the broadcasting station server (300) may transmit the address information to the transmitting device (100). Thus, it is clear that Lee fails to disclose at least the data application providing server comprising “a minimum execution data transmitter for transmitting the minimum execution data to a broadcasting server” as recited in claim 7.

Moreover, Lee also fails to disclose at least the following features recited in claim 7:

- an additional data storage for storing the additional data corresponding to the minimum execution data; and
- a receiver communication interface for transmitting the additional data to the receiver according to a transmission request of the additional data received from the receiver providing the data application.

"A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference." Verdegaaal Bros. v. Union Oil Co. of California, 814 F.2d 628, 631, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987). The Examiner bears initial burden of showing how Lee discloses each and every feature as recited in claim 7. While the Office Action concludes that the "minimum execution data" is anticipated by the "address information" of Lee, however, it fails to address how Lee teaches the "additional data included in the data application" or the "transmission request for the additional data" as recited in claim 7. Applicants respectfully submit that Lee fails to anticipate claim 7.

As per independent claim 13, Applicants respectfully submit that Lee fails to disclose at least the following features of claim 13:

A receiver for dynamically processing a data application … comprising:

... a data application providing server interface for transmitting a transmission request for the additional data to a data application providing server during an execution of the minimum execution data, and for receiving the additional data from the data application providing server; and

a data application provider for combining the minimum execution data and the additional data to generate the data application, and executing and
providing the generated the data application.

(emphasis added)

The Office Action characterizes the application requester (230) as analogous to the "data application server interface" as recited in claim 13 (Office Action, page 10, lines 1-2). However, there is no teaching or suggestion in Lee that the application request (230) may transmit "a transmission request for the additional data to a data application providing server during an execution of the minimum execution data," as recited in claim 13. The portions of the machine translation of Lee, i.e., page 3, paragraph 10 and page 4, paragraphs 4-6, upon which the Examiner relies, do not actually teach these features as claimed.

The Office Action characterizes the application processing unit (240) as analogous to the "data application provider" as recited in claim 13 (Office Action, page 10, lines 4-5). However, no teaching or suggestion is found in Lee that the application processing unit (240) may combine "the minimum execution data and the additional data to generate the data application," as recited in claim 13. The portions of the machine translation of Lee, page 3, paragraph 10 and page 4, paragraphs 5, 6, and 9-11, upon which the Examiner relies, do not actually teach these features as claimed.

Moreover, the Office Action even fails to address how Lee teaches the "additional data" as recited in claim 13. Hence, the Office Action fails to establish a prima facie case of anticipation. If the Office Action fails to establish a prima facie case of anticipation, Applicants are under no obligation to present an evidence of allowability of the claim.

Claims 2, 3, and 10-12 depend from claim 1 or claim 7, and are thus allowable for at least this reason.

In view of the foregoing, Applicants respectfully request withdrawal of the rejection of claims 1-3, 7, and 10-12 under 35 U.S.C. §102(b).

REJECTIONS UNDER 35 U.S.C. §103:

Independent claim 4 recites the features similar to those discussed above with regard to claims 1, 7, and 13 in the 35 U.S.C. §102(b) rejection. Thus, Applicants' arguments for claims 1, 7, and 13 are applied to claim 4, *mutatis mutandis*. Hence, Applicants note that claim 4 is allowable over Lee. The secondary reference, Dougherty et al. was cited by the Examiner in an attempt to teach the other features as described in the Office Action, page 11, item 4, lines 11-15, but fails to cure the deficiencies of Lee as noted above with regard to claims 1, 7, and 13. Thus, assuming *arguendo* Lee and Dougherty et al. may be combined and a reasonable expectation of success exists, the combined references still do not teach all of the features recited in claim 1, 7, or 13. Therefore, Applicants respectfully note that claim 4 is allowable because it recites the features similarly to claims 1, 7, and 13. Claims 5 and 6 depend from claim 4, and are thus allowable for at least this reason.


Claims 8 and 14 depend from claims 7 and 13, respectively. The secondary reference, Bourges-Sevenier et al., was cited by the Examiner in an attempt to teach the additional features of dependent claims 8 and 14, but fails to cure the deficiencies of Lee as noted above with regard to claims 7 and 13 in the 35 U.S.C. §102(b) rejection. Thus, assuming *arguendo* Lee and Bourges-Sevenier et al. may be combined and a reasonable expectation of success exists, the combined references still do not teach all of the features recited in claims 7 and 13. Accordingly, it is respectfully submitted that claims 8 and 14 are allowable at least because they depend from allowable claims 7 and 13.


Claims 9 and 15 depend from claims 7 and 13, respectively. The secondary reference, Higgins et al., was cited by the Examiner in an attempt to teach the additional features of dependent claims 9 and 15, but fails to cure the deficiencies of Lee as noted above with regard
to claims 7 and 13 in the 35 U.S.C. §102(b) rejection. Thus, assuming *arguendo* Lee and Higgins et al. may be combined and a reasonable expectation of success exists, the combined references still do not teach all of the features recited in claims 7 and 13. Accordingly, it is respectfully submitted that claims 9 and 15 are allowable at least because they depend from allowable claims 7 and 13.

Based on the foregoing, the rejection of claims 4-6, 8, 9, 14, and 15 under 35 U.S.C. §103(a) is respectfully requested to be withdrawn.

**CONCLUSION:**

There being no further outstanding objections or rejections, it is submitted that the application is in condition for allowance. An early action to that effect is courteously solicited.

Finally, if there are any formal matters remaining after this response, the Examiner is requested to telephone the undersigned to attend to these matters.

If there are any additional fees associated with filing of this Amendment, please charge the same to our Deposit Account No. 503333.

Respectfully submitted,

STEIN MCEWEN, LLP

Date: March 1, 2012

By: Sungyeop Chung
Registration No. 64,130

1400 Eye St., N.W.
Suite 300
Washington, D.C. 20005
Telephone: (202) 216-9505
Facsimile: (202) 216-9510
**Electronic Patent Application Fee Transmittal**

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**U.S. National Stage under 35 USC 371 Filing Fees**

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- **Submitted with Payment**: yes
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- **Authorized User**: 

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This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

**New Applications Under 35 U.S.C. 111**
If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

**National Stage of an International Application under 35 U.S.C. 371**
If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/OO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

**New International Application Filed with the USPTO as a Receiving Office**
If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.
REPLY/AMENDMENT
FEE TRANSMITTAL

Attorney Docket No. 0293.1010
Application Number 12/449,565
Filing Date August 13, 2009
First Named Inventor Wonjang BAEK et al.
Group Art Unit 2426

AMOUNT ENCLOSED $75.00
Examiner Name Joshua D. Taylor

FEE CALCULATION

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Since an Official Action set an original due date of February 14, 2012, petition is hereby made for an extension to cover the date this reply is filed for which the requisite fee is enclosed (1 month ($150)); (2 months ($560)); (3 months ($1,270)); (4 months ($1,980)); (5 months ($2,690)):

$150.00

If Notice of Appeal is enclosed, add ($620.00)

If Statutory Disclaimer under Rule 20(d) is enclosed, add fee ($140.00)

Information Disclosure Statement (Rule 1.17(p)) ($180.00)

Total of above Calculations =

$150.00

Reduction by 50% for filing by small entity (37 CFR 1.19 & 1.28)

$75.00

Reduction by 75% for filing by micro entity (37 CFR 1.23(a)(1))

Total Fees Due =

$75.00

METHOD OF PAYMENT

☐ Check enclosed as payment. ☑ Credit Card Payment Form, Form PTO-2038(attached).

☐ Charge "TOTAL FEES DUE" to the Deposit Account No. below.

☐ No payment is enclosed and no charges to the Deposit Account are authorized at this time (unless specifically required to obtain a filing date).

GENERAL AUTHORIZATION

☑ If the above-noted "AMOUNT ENCLOSED" is not correct, the Commissioner is hereby authorized to credit any overpayment or charge any additional fees necessary to:

Deposit Account No. 503333
Deposit Account Name STEIN MCEWEN, LLP

☑ The Commissioner is also authorized to credit any overpayments or charge any additional fees required under 37 CFR 1.16 (filing fees) or 37 CFR 1.17 (processing fees) during the prosecution of this application, including any related application(s) claiming benefit hereof pursuant to 35 USC § 120 (e.g., continuations/divisionals/CIPs under 37 CFR 1.53(b) and/or continuations/divisionals/CPAs under 37 CFR 1.53(d)) to maintain pendency hereof or of any such related application.

SUBMITTED BY: STEIN MCEWEN, LLP

Typed Name Sungyeop Chung
Reg. No. 84,130

Signature
Date March 1, 2012
# PATENT APPLICATION FEE DETERMINATION RECORD

## APPLICATION AS FILED – PART I

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*** If the "Highest Number Previously Paid For" in this space is less than 3, enter "3".

The "Highest Number Previously Paid For" (Total or Independent) is the highest number found in the appropriate box in column 1.

Legal Instrument Examiner: 
PAMELA YOUNG

This collection of information is required by 37 CFR 1.16. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.
APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO.
---|---|---|---|---
12/449,565 | 08/13/2009 | Wonjiang Back | 0293.1010 | 8285

EXAMINER
TAYLOR, JOSHUA D

ART UNIT
2426

PAPER NUMBER

NOTIFICATION DATE | DELIVERY MODE
---|---
11/14/2011 | ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):
docketing@smiplaw.com
Office Action Summary

Application No. 12/449,565
Applicant(s) BAEK ET AL.

Examiner JOSHUA TAYLOR
Art Unit 2426

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply to the finality communication within the allowed period will be treated as though the reply is timely and complete, except that if the reply includes a 50-page or less amendment, this reply is treated as though a new non-provisional application is filed under 37 CFR 1.31(d)

Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) □ Responsive to communication(s) filed on 13 August 2009

2a) □ This action is FINAL.

2b) ■ This action is non-final.

3) □ An election was made by the applicant in response to a restriction requirement set forth during the interview on.

4) □ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under Ex parte Quayle, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

5) ■ Claim(s) 1-16 is/are pending in the application.

5a) Of the above claim(s) ______ is/are withdrawn from consideration.

6) □ Claim(s) ______ is/are allowed.

7) □ Claim(s) 1-16 is/are rejected.

8) □ Claim(s) ______ is/are objected to.

9) □ Claim(s) ______ are subject to restriction and/or election requirement.

Application Papers

10) □ The specification is objected to by the Examiner.

11) ■ The drawing(s) filed on 13 August 2009 is/are: a) ■ accepted or b) □ objected to by the Examiner.

   Applicant may request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

   Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

12) □ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

13) ■ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

   a) □ All

   b) □ Some * c) □ None of:

   1. ■ Certified copies of the priority documents have been received.

   2. ■ Certified copies of the priority documents have been received in Application No. ______.

   3. □ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

   * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ■ Notice of References Cited (PTO-892)

2) □ Notice of Draftsperson’s Patent Drawing Review (PTO-948)

3) □ Information Disclosure Statement(s) (PTO/SB/08)

   Paper No(s)/Mail Date ________.

4) □ Interview Summary (PTO-413)

   Paper No(s)/Mail Date ________.

5) □ Notice of Informal Patent Application

6) □ Other: ________.
DETAILED ACTION

1. Claims 1-16 are pending.

Double Patenting

2. Claim 1-8, 11-14 and 16 of this application conflict with claims 1-5, 8-12 and 14 of Application No. 12/449,563. 37 CFR 1.78(b) provides that when two or more applications filed by the same applicant contain conflicting claims, elimination of such claims from all but one application may be required in the absence of good and sufficient reason for their retention during pendency in more than one application. Applicant is required to either cancel the conflicting claims from all but one application or maintain a clear line of demarcation between the applications. See MPEP § 822.

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the “right to exclude” granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., In re Berg, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); In re Goodman, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); In re Longi, 759 F.2d 887, 225
USPQ 645 (Fed. Cir. 1985); In re Van Ornum, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); In re Vogel, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and In re Thortonington, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 1-8, 11-14 and 16 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-5, 8-12 and 14 of copending Application No. 12/449,563. Although the conflicting claims are not identical, they are not patentably distinct from each other because they generally perform the same methods; i.e. sending a minimum execution data with location information, obtaining additional application data from said location over a different communication channel than the channel which sent the minimum execution data, and running said application. Application ‘565 adds additional details such as storage locations to store the application data, and thus ‘563 is a broader recitation of the claims.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.
Instant Application

1. A digital broadcasting system for dynamically processing a data application, the system comprising: a data application providing server for dynamically dividing and providing a minimum execution data and an additional data included in the data application; a broadcasting server for relaying the minimum execution data received from the data application providing server and carrying out a digital broadcast; and a receiver for transmitting a transmission request for the additional data to the data application providing server, the transmission request being generated based on the minimum execution data relayed by the broadcasting server, and for providing the data application including the additional data provided by the data application providing server according to the transmission request and the minimum execution data relayed by the broadcasting server.

2. The system in accordance with claim 1, wherein the minimum execution data includes a download location of the data application providing server for obtaining the additional data.

3. The system in accordance with claim 1, wherein the minimum execution data comprises one of a metadata for the data application and a foundation class data for minimally executing the data application.

4. A broadcasting server for dynamically processing a data application, the server comprising: a minimum execution data storage for storing a minimum execution data received from a data application providing server, the data application providing server dynamically dividing and providing the minimum execution data and an additional data included in the data application; a minimum execution data transmitter for transmitting the minimum execution data stored in the minimum execution data storage through a digital broadcast network to a receiver providing the data application.

5. The server in accordance with claim 4, wherein the minimum execution data includes a download location of the data application providing server for obtaining the additional data.

6. The server in accordance with claim 4, wherein the minimum execution data comprises one of a metadata for the data application and a foundation class data for minimally executing the data application.

7. A data application providing server for dynamically

Copending Application

1. A method for executing a data application of a digital broadcasting, the method comprising steps of: (a) receiving a minimum execution data for executing the data application through a digital broadcast network; (b) executing the minimum execution data; (c) receiving an additional data required during the execution of the minimum execution data; and (d) combining the minimum execution data and the additional data to provide the data application.

2. The method in accordance with claim 1, wherein the minimum execution data includes a foundation class data required for executing the data application.

3. The method in accordance with claim 1, wherein the additional data comprises an additional class data or a resource data required for executing the data application.

4. The method in accordance with claim 1, wherein the minimum execution data comprises a metadata for an execution of the data application, and the metadata comprises a download location information of the additional data or an execution condition information of the data application.

5. The method in accordance with claim 4, wherein the step (b) comprises (b-1) extracting the download location information of the additional data or the execution condition information of the data application from the metadata.

6. The method in accordance with claim 7, wherein the step (c-2) comprises (c-3) receiving the additional data by carrying out a socket-based communication.

7. A method for executing a data application of a digital broadcasting, the method comprising steps of: (a) receiving a metadata for the data application; (b) analyzing the metadata to extract an information required for executing the data application; (c) receiving the data application based on the information extracted in the step (b); and (d) executing and providing the data application.

8. The method in accordance with claim 9, wherein the step (a) comprises (a-1) receiving the metadata via a digital broadcast network.

9. The method in accordance with claim 9, wherein the metadata comprises a download location information of the data application or an execution condition.
processing a data application, the server comprising: a data application divider for dividing the data application
into a minimum execution data and an additional data; a minimum execution data transmitter for transmitting the
minimum execution data to a broadcasting server for carrying out a digital broadcast such that the
broadcasting server broadcasts the minimum execution data; an additional data storage for storing the additional
data corresponding to the minimum execution data; and a receiver communication interface for transmitting the
additional data to the receiver according to a transmission request of the additional data received from
the receiver providing the data application.

8. The server in accordance with claim 7, wherein the receiver communication interface transmits the
additional data via a communication based on an asynchronous socket.

11. The server in accordance with claim 7, wherein the additional data storage stores the additional data based
on a memory.

12. The server in accordance with claim 7, wherein the minimum execution data comprises one of a metadata
for the data application and a foundation class data for minimally executing the data application.

13. A receiver for dynamically processing a data application, the receiver comprising: a minimum execution
data receiver for receiving a minimum execution data through a digital broadcast network from
the broadcasting server carrying out a digital broadcast; a minimum execution data analyzer for analyzing the
minimum execution data to extract an execution condition information of the data application and an
information on an additional data corresponding to the minimum execution data required for executing the data
application; a data application providing server interface for transmitting a transmission request for the additional
data to a data application providing server during an execution of the minimum execution data, and for
receiving the additional data from the data application providing server; and a data application provider for
combining the minimum execution data and the additional data to generate the data application, and
executing and providing the generated data application.

14. The receiver in accordance with claim 13, wherein the data application providing server interface receives
the additional data from the data application providing server via a communication based on an asynchronous
information of the data application.

12. The method in accordance with claim 9, wherein the step (b) comprises (b-1) extracting the location
information of the data application or the execution condition information of the data application from the
metadata.

14. The method in accordance with claim 13, wherein the step (c-1) comprises (c-2) receiving the data
application by carrying out a socket-based communication.
socket.

16. The receiver in accordance with claim 13, wherein the minimum execution data comprises one of a metadata for the data application and a foundation class data for minimally executing the data application.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.


Regarding claim 1, Lee discloses a digital broadcasting system for dynamically processing a data application, the system comprising: a data application providing server for dynamically dividing and providing a minimum execution data and an additional data included in the data application (Fig. 1, element 300, pg. 3, para. 4. The broadcasting station server separates the address information (minimum execution data) from the application data. Examiner is using citations from a translation of Lee, a copy of which is included with this Office Action.); a broadcasting server for relaying the minimum execution data received from the data application providing server and carrying out a digital broadcast (Fig. 1, element 100 and the line between element 100 and element 200, pg. 3, para. 7); and a receiver
for transmitting a transmission request for the additional data to the data application

providing server (Fig. 1, element 200, pg. 3, para. 7), the transmission request being
generated based on the minimum execution data relayed by the broadcasting server (Fig. 2,
elements 240 and 300, pg. 4, paras. 4-6), and for providing the data application including the
additional data provided by the data application providing server according to the
transmission request and the minimum execution data relayed by the broadcasting server
(Fig. 2, element 240, Fig. 3, pg. 4, paras. 7-10).

Regarding claim 2, Lee discloses the system in accordance with claim 1, wherein the
minimum execution data includes a download location of the data application providing
server for obtaining the additional data (pg. 4, para. 2. The data comprises application address
information, i.e. a download location.).

Regarding claim 3, Lee discloses the system in accordance with claim 1, wherein the
minimum execution data comprises one of a metadata for the data application and a
foundation class data for minimally executing the data application (Fig. 1, elements 100 and
200, pg. 3, paras. 6-9. Applicant does not define “foundation class data” as anything more
specific than data needed to initiate an application, and there do not appear to be any industry
related terms defining what “foundation class data” may be. Therefore, because Lee discloses
that minimum execution data is sent, Lee also discloses that said data is “foundation class data.”
Further, the data comprises application address information, i.e. a download location, and thus
can be seen as metadata.).
Regarding claim 7, Lee discloses a data application providing server for dynamically processing a data application, the server comprising: a data application divider for dividing the data application into a minimum execution data and an additional data (Fig. 1, element 300, pg. 3, para. 4. The broadcasting station server separates the address information (minimum execution data) from the application data.); a minimum execution data transmitter for transmitting the minimum execution data to a broadcasting server for carrying out a digital broadcast (Fig. 1, element 300 and the line between element 300 and element 100, pg. 3, para. 4.) such that the broadcasting server broadcasts the minimum execution data (Fig. 1, element 100 and the line between element 100 and element 200, pg. 3, para. 7); an additional data storage for storing the additional data corresponding to the minimum execution data (Fig. 1, element 300, pg. 3, para. 7, pg. 4, para. 2. Application is downloaded from the broadcasting station server 300; thus, it is axiomatic that said server has data storage.); and a receiver communication interface for transmitting the additional data to the receiver according to a transmission request of the additional data received from the receiver providing the data application (Fig. 2, element 240, Fig. 3, pg. 4, paras. 7-10).

Regarding claim 10, Lee discloses the server in accordance with claim 7, wherein the data application divider dynamically divides the minimum execution data and the additional data to correspond to a change in the data application, and the additional data storage stores the dynamically divided additional data (pg. 3, para. 8, pg. 4, paras. 6 and 9. An up-to-date application is held by the server 300. Thus, the location information will reflect the up-to-date application.).
Regarding claim 11, Lee discloses the server in accordance with claim 7, wherein the additional data storage stores the additional data based on a memory (Fig. 1, element 300, pg. 3, para. 7, pg. 4, para. 2. Data storage and memory are synonymous terms in the art.).

Regarding claim 12, Lee discloses the server in accordance with claim 7, wherein the minimum execution data comprises one of a metadata for the data application and a foundation class data for minimally executing the data application (Fig. 1, elements 100 and 200, pg. 3, paras. 6-9. Applicant does not define “foundation class data” as anything more specific than data needed to initiate an application, and there do not appear to be any industry related terms defining what “foundation class data” may be. Therefore, because Lee discloses that minimum execution data is sent, Lee also discloses that said data is “foundation class data.” Further, the data comprises application address information, i.e. a download location, and thus can be seen as metadata.).

Regarding claim 13, Lee discloses a receiver for dynamically processing a data application, the receiver comprising: a minimum execution data receiver for receiving a minimum execution data through a digital broadcast network from the broadcasting server carrying out a digital broadcast (Fig. 1, elements 100 and 200, pg. 3, paras. 6-9); a minimum execution data analyzer for analyzing the minimum execution data to extract an execution condition information of the data application and an information on an additional data corresponding to the minimum execution data required for executing the data application (Fig. 2, element 220, Pg. 3, para. 10 and pg. 4, para. 2); a data application providing server interface for transmitting a transmission request for the additional data to a data application providing server during an execution of the minimum execution data, and for
receiving the additional data from the data application providing server (Fig. 2, element 230, pg. 3, para. 10 and pg. 4, paras. 4-6); and a data application provider for combining the minimum execution data and the additional data to generate the data application, and executing and providing the generated the data application (Fig. 2, element 240, pg. 3, para. 10 and pg. 4, paras. 5, 6 and 9-11).

Regarding claim 16, Lee discloses the receiver in accordance with claim 13, wherein the minimum execution data comprises one of a metadata for the data application and a foundation class data for minimally executing the data application (Fig. 1, elements 100 and 200, pg. 3, paras. 6-9. Applicant does not define “foundation class data” as anything more specific than data needed to initiate an application, and there do not appear to be any industry related terms defining what “foundation class data” may be. Therefore, because Lee discloses that minimum execution data is sent, Lee also discloses that said data is “foundation class data.” Further, the data comprises application address information, i.e. a download location, and thus can be seen as metadata.).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Regarding claim 4, Lee discloses a broadcasting server for dynamically processing a data application, the server comprising: a minimum execution data receiver for receiving a minimum execution data received from a data application providing server (Fig. 1, element 300 and the line between element 300 and element 100, pg. 3, para. 4. The broadcasting station server separates the address information (minimum execution data) from the application data.), the data application providing server dynamically dividing and providing the minimum execution data and an additional data included in the data application (Fig. 2, elements 240 and 300, Fig. 3, pg. 4, paras. 7-10); a minimum execution data transmitter for transmitting the minimum execution data through a digital broadcast network to a receiver providing the data application (Fig. 1, element 100 and the line between element 100 and element 200, pg. 3, para. 7). Lee does not explicitly disclose wherein digital broadcaster 100 has storage in order to store minimum execution data, and thus does not explicitly disclose a minimum execution data storage for storing a minimum execution data received from a data application providing server, nor does Lee explicitly disclose transmitting the minimum execution data stored in the minimum execution data storage. However, in analogous art, Dougherty discloses a broadcast server containing an interactive application database (Fig. 1, elements 110 and 112, col. 4, ln. 28-43), which teaches that it is desirable to have data related to applications stored in a broadcasting server. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to allow for the broadcaster of Lee to store the minimum execution data received from the data application providing server. This would have
produced predictable and desirable results, in that the minimum execution data would be available to be broadcast, meaning the broadcaster would not have to wait to receive said data from an outside server.

Regarding claim 5, the combined teaching of Lee and Dougherty discloses the server in accordance with claim 4, and Lee further discloses wherein the minimum execution data includes a download location of the data application providing server for obtaining the additional data (pg. 4, para. 2. The data comprises application address information, i.e. a download location.).

Regarding claim 6, the combined teaching of Lee and Dougherty discloses the server in accordance with claim 4, and Lee further discloses wherein the minimum execution data comprises one of a metadata for the data application and a foundation class data for minimally executing the data application (Fig. 1, elements 100 and 200, pg. 3, paras. 6-9.

Applicant does not define “foundation class data” as anything more specific than data needed to initiate an application, and there do not appear to be any industry related terms defining what “foundation class data” may be. Therefore, because Lee discloses that minimum execution data is sent, Lee also discloses that said data is “foundation class data.” Further, the data comprises application address information, i.e. a download location, and thus can be seen as metadata.).

Regarding claim 8, Lee discloses the server in accordance with claim 7, and although the communication path between elements 200 and 300 in figure 1 could obviously be an internet connection, which would mean the additional data was received based on a socket-based communication, Lee does not explicitly state as much, and thus does not explicitly disclose wherein the receiver communication interface transmits the additional data via a communication based on an asynchronous socket. However, in analogous art, Bourges-Sevenier discloses that when distributing multimedia applications, socket-based communication can be used (para. [0194]). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to allow for the communication path disclosed in Lee’s figure 1 between elements 200 and 300 to be an internet connection, such that communications over said network would be based on an asynchronous socket. This would have produced predictable and desirable results, in that the communications would be carried out over a well known and reliable network.

Regarding claim 14, Lee discloses the receiver in accordance with claim 13, and although the communication path between elements 200 and 300 in figure 1 could obviously be an internet connection, which would mean the additional data was received based on a socket-based communication, Lee does not explicitly state as much, and thus does not explicitly disclose wherein the data application providing server interface receives the additional data from the data application providing server via a communication based on an asynchronous socket. However, in analogous art, Bourges-Sevenier discloses that when distributing multimedia applications, socket-based communication can be used (para. [0194]). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to allow
for the communication path disclosed in Lee’s figure 1 between elements 200 and 300 to be an internet connection, such that communications over said network would be based on an asynchronous socket. This would have produced predictable and desirable results, in that the communications would be carried out over a well known and reliable network.


Regarding claim 9, Lee discloses the server in accordance with claim 7, but does not explicitly disclose how tasks are managed in the server 300, and thus does not explicitly disclose further comprising a task manager for managing a thread of the data application providing server and scheduling a task. However, in analogous art, Higgins discloses that a content provider can have a task queue comprised of tasks and threads, as well as a task manager and a task thread manager in order to control the allocation of system resources (Fig. 4, elements 420, 430 and 440, paras. [0075]-[0077]). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to allow for the server 300 of Lee to comprise a task manager for managing threads and scheduling tasks. This would have produced predictable and desirable results, in that application data would be sent to requesting receivers in a manner that was efficient based on system resources, as threads and tasks could be managed appropriately.
Regarding claim 15, Lee discloses the receiver in accordance with claim 13, but does not explicitly disclose how tasks are managed in the server 300, and thus does not explicitly disclose further comprising a task manager for managing a thread of the data application providing server and scheduling a task. However, in analogous art, Higgins discloses that a content provider can have a task queue comprised of tasks and threads, as well as a task manager and a task thread manager in order to control the allocation of system resources (Fig. 4, elements 420, 430 and 440, paras. [0075]-[0077]). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to allow for the server 300 of Lee to comprise a task manager for managing threads and scheduling tasks. This would have produced predictable and desirable results, in that application data would be sent to requesting receivers in a manner that was efficient based on system resources, as threads and tasks could be managed appropriately.

Conclusion

7. Claims 1-16 are rejected.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to JOSHUA TAYLOR whose telephone number is (571)270-3755. The examiner can normally be reached on 8am-5pm, M-F, EST.
If attempts to reach the examiner by telephone are unsuccessful, the examiner’s supervisor, Joseph Hirl can be reached on (571) 272-3685. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Josh Taylor/
Examiner, Art Unit 2426
November 4, 2011
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*Include as applicable: Author, Title, Date, Publisher, Edition or Volume, Pertinent Pages*

*A copy of this reference is not being furnished with this Office action. (See MPEP § 707.05(a).)*

Dates in MM-YYYY format are publication dates. Classifications may be US or foreign.
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- Seong Baek Lee, Seoul, KOREA, REPUBLIC OF;

** CONTINUING DATA ***********************
This application is a 371 of PCT/KR2008/000881 02/14/2008

** FOREIGN APPLICATIONS ****************
REPUBLIC OF KOREA 10-2007-0015394 02/14/2007

** IF REQUIRED, FOREIGN FILING LICENSE GRANTED ** ** SMALL ENTITY **
12/18/2009

Foreign Priority claimed: Yes ☐ No ☑
35 USC 119(a-d) conditions met: Yes ☐ No ☑
Met after Allowance: ☐

STATE OR COUNTRY
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SHEETS DRAWINGS: 2
TOTAL CLAIMS: 16
INDEPENDENT CLAIMS: 4

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UNITED STATES

TITLE
DATA APPLICATION PROVIDING SERVER, BROADCASTING SERVER AND RECEIVER FOR DYNAMICALLY PROCESSING DATA APPLICATION AND DIGITAL BROADCASTING SYSTEM INCLUDING THE SAME

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BIB (Rev. 05/07)
Unexamined Patent Application (A)

(51) Int.Cl. 6
H04N 7/173

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<td>Dong–Jin Kim</td>
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<td>Inventor</td>
<td>Seo–Gu Lee</td>
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<td>Applicant</td>
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<td>SYSTEM AND METHOD FOR PROCESSING APPLICATION AND VARIABLE DATA IN DIGITAL TV BROADCAST</td>
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Abstract
The invention includes the transmission device transmitting broadcast data, and the broadcasting station server extracting the application address information or variable data from broadcast data transmitted from the transmission device and transmits the application for the application address information. And the application address information is extracted from broadcast data transmitted from the transmission device and the application according to the extracted application address information as described above is downloaded from the broadcasting station server. And if variable data is received from the transmission device, the receiving device characterizes to download varied data and update application. The broadcasting station server extracting the application address information or variable data from broadcast data transmitted from the transmission device and transmits the application for the application address information requests in the receiving device and the receiving device downloading the application according to the application address information from the broadcasting station server.

Representative Drawing(s)
Fig. 2

Keyword(s)
The digital television, the application address information, and variable data.

Description
Brief Explanation of the Drawing(s)

Figure 1 is a configuration diagram showing the system processing application and variable data in the digital TV according to the invention.

Figure 2 is a block diagram which schematically shows the system processing application and variable data in the digital TV according to the invention.

Figure 3 is a flow chart which schematically shows the method for processing application and variable data in the digital TV according to the invention.

Figure 4 is a drawing showing the working example updating the application version according to variable data in the broadcasting station server according to the present invention.

The description of the denotation about the main part of drawing.

100: transmission device 200: receiving device.
300: broadcasting station server.

Details of the Invention

Purpose of the Invention

The Technical Field to which the Invention belongs and the Prior Art in that Field

The invention relates to system and the method for processing application and variable data in the digital TV. And particularly, the application address information is transmitted from the transmission device. It is about system and the method for processing application and variable data in the digital TV in which the application about the application address information which it is transmitted as described above is requested in the broadcasting station server and downloading the corresponding application.

Generally, in the digital television, the mode, in which the mode for transmitting the application data a lot mixes data with the air radio frequency and sent and the mode which receives a message immediate data from the broadcasting station server by using the network net are used.

Firstly, the mode which transmits application data by using the air radio frequency is named to the DSMCC−CC data carousel. And the mode applying data carousel repetitively transmits data comprising application. In that way it can cope with although user executes application in the arbitrary time. Generally, actually necessary data is focused on the time when application begins. Therefore if only data signal−changed in after when application begins transmits, it is efficient. But there is a problem that the mode applying data carousel transmits data since not only data changing but also data for executing the initial application is repetitively transmitted but delay generates. Particularly, there is a problem that the phenomenon that is temporarily delayed in order to transmit many datas in case of transmitting data for executing application with audio/video data appears. And the big bandwidth has to be used by sending repeatedly moreover, data.

The mode suggested in data broadcasting standard like ATSC. That is, the address in which application data has is transmitted periodically through the air radio frequency. The mode transmitted variable data signal−changed with application data according to the address of the application data which is transmitted as described above in server. But there is a problem that subordinate hangs on server since demanding service
when looking at in the server standpoint so that many viewers be always transmitted application data. And many costs is created due to the enlargement of server, the capacity and speed enlargement etc. in order to solve this.

■ The Technical Challenges of the Invention
The present invention is to provide system and the method it is worked out in order to solve the above-described problem, and the object of the present invention being transmitted the application address information from the transmission device, and for processing application and variable data in the digital TV which downloads the corresponding application from the broadcasting station server by using the transmitted application address information as described above.

It are another object of the present invention to provide system and the method for processing application and variable data in the digital TV which can reduce the load of the broadcasting station server by being transmitted variable data from the transmission device.

■ Structure & Operation of the Invention
To accomplish the above objects, the invention comprises the broadcasting station server extracting the application address information or variable data from broadcast data transmitted from the transmission device, transmitting broadcast data and transmission device, and transmits the application for the application address information requested in the receiving device and the receiving device downloading the application according to the extracted application address information as described above from the broadcasting station server.

Hereinafter, the preferred embodiment of the present invention is explained particularly with reference to drawings appended.

Figure 1 is a configuration diagram showing the system processing application and variable data in the digital TV according to the invention. It characterizes to include the transmission device (100), and the receiving device (200) and broadcasting station server.

In the transmission device (100), the receiving device (200) receives a message the transmitted broadcast data as described above if broadcast data is transmitted. After the application address information is extracted from the received broadcast data as described above, by using the extracted application address information as described above, it connects to the broadcasting station server (300) and application is requested. Thus, if it refers to the application which it is requested and the broadcasting station server (300) transmits with the receiving device (200), the receiving device (200) downloads the application which it is transmitted.

Moreover, it checks the appearance of data varied based on the predetermined time and the broadcasting station server (300) transmits varied data with update with the transmission device (100) it presently has in the variable data presence. Here, in variable data is application, the actually signal–changed data file is said.

In the meantime, if variable data is transmitted from the transmission device (100), it receives a message transmitted variable data and the receiving device (200) updates application.

Figure 2 is a block diagram which schematically shows the system processing application and variable data in the digital TV according to the invention. It characterizes to include the receiving device (200) and the broadcasting station server (300) including the transmission device (100), the receiver (210), the extracting unit (220), the application requester (230) and application processing unit (240).

The transmission device (100) transmits broadcast data with the receiving device (200). Varied data is transmitted from the broadcasting station server (300). Here, broadcast data which the transmission device
(100) transmits can be understood as the air radio frequency, the satellite wave and cable etc. And variable data which it is transmitted from the broadcasting station server (300) transmits with the receiving device (200).

In broadcast data which the receiving device (200) is transmitted from the transmission device (100), the application address information and variable data are extracted. It connects to the broadcasting station server (300) by using the extracted application address information as described above. Application is downloaded from the broadcasting station server (300).

The application address information and variable data are extracted from broadcast data in which the receiver (210) receives a message broadcast data which the transmission device (100) transmits, and which in the extracting unit (220), the receiver (210) receives a message.

By using the application address information extracted from the extracting unit (220), the application requester (230) connects to the broadcasting station server (300). Application is requested in the broadcasting station server (300).

It is transmitted the application which the application requester (230) requests in the broadcasting station server (300) from the broadcasting station server (300) and the application processing unit (240) downloads.

It refers to the application requesting in the application requester (230) and the broadcasting station server (300) transmits the corresponding application with the application processing unit (240). Here, when starting application, the application transmitted with the application processing unit (240) says necessary data. In the meantime, the broadcasting station server (300) is connected to the receiving device (200) and network. And the application of the up-to-date version is held always. Moreover, the broadcasting station server (300) transmits varied data in the transmission device (100).

Figure 3 is a flow chart which schematically shows the method for processing application and variable data in the digital TV according to the invention. Firstly, the extracting unit (220) is the application address information in the broadcast data which it is transmitted as described above the receiver (210) receives a message broadcast data transmitted is extracted from the transmission device (100)(S100).

By using the application address information which the next, and the application requester (230) extract from the extracting unit (220), it connects to the broadcasting station server (300). The corresponding application is requested in the broadcasting station server (300) (S110).

And then, it refers to the application (data which is necessary in other words, the application beginning) that it is requested and the broadcasting station server (300) transmits with the application processing unit (240) (S120). Here, in the broadcasting station server (300), the application transmitted with the receiving device (200) always the up-to-date version.

This after, and the application processing unit (240) download the application transmitted from the broadcasting station server (300) (S130). Here, data which is necessary in the application beginning is downloaded. In that way in data required for the application beginning, the need to download has no. And if it downloads only datas varied according to this after need, it becomes.

In the meantime, if variable data is transmitted from the broadcasting station server (300), the transmission device (100) transmits varied data which is transmitted from the broadcasting station server (300) with the receiving device (200). Thus, the receiver (210) receives a message the transmitted variable data as described above (S140). The application processing unit (240) updates the application which downloads the received and varied data as described above and practiced (S150). Here, the downloaded variable data as described above can be presently immediately applied to the application practiced. It can be applied to the ash execution time of application.
Figure 4 is a drawing showing the working example updating the application version according to variable data in the broadcasting station server according to the present invention. For example, it assumes because the broadcasting station server (300) has the application version 1.

The broadcasting station server (300) checks the appearance of data varied based on the predetermined time. And in case file (for example, for example, c'txt, d'txt, f'dat and h'png etc) freshly added like the application version 2 exist, it to the corresponding application version (for example, the application version 2) the update. This after, and varied datas are transmitted with the transmission device (100).

Moreover, if variable datas newly added after the time out like the application version 3 are checked, the broadcasting station server (300) updates to the application version of freshly added file (for example, the C''txt, D''txt, F''dat, H''png and i''png etc). That is, it checks the application version based on the predetermined time and if freshly added variable datas exist, the broadcasting station server (300) is proceed update to the new application version. Varied datas are transmitted with the transmission device (100).

In the above, it particularly described about the invention. However, the invention is the man having the normal knowledge as to the technical field belonging. If it is the case, while nots escaping the spirit of this invention and the range defining in the attached claims, the invention is transfigured variously or it varies and it can enforce, it self-evidents. And the technology of the simple change silver the invention according to a preferred embodiment of the present invention cannot be escaped therefore.

Effects of the Invention

According to the invention of the above-described configuration, the advantage which can be rapidly transmitted application through network by being transmitted the corresponding application in the broadcasting station server after receiving a message the application address information transmitted from the transmission device, has.

Moreover, the network overhead of the broadcasting station server can be reduced since viewer requests application in the application beginning in the broadcasting station server. The advantage saving the bandwidth of network has.

Moreover, the advantage which can save bandwidth because of being transmitted through the transmission device only varied data has.

Scope of Claims

Claim 1:
The receiving device wherein in transmitted broadcast data, the application address information or variable data is extracted: and the corresponding application is downloaded in the broadcasting station server by using the extracted application address information as described above.

Claim 2:
The receiving device which is characterized in that the receiving device as to the first claim includes the extracting unit: application requester: which requests application it connects to the broadcasting station server the extracted application address information as described above is used and the application processing unit downloading the application which it is transmitted from the broadcasting station server extracts the application address information and variable data from broadcast data transmitted from the transmission device.
Claim 3:
System that in the digital TV, application and variable data are processed, system comprising: the broadcasting station server which extracts the application address information or variable data from transmission device: broadcast data transmitted from the transmission device; and transmits broadcast data transmits the application for the application address information requested in the receiving device and the receiving device downloading the application according to the extracted application address information as described above from the broadcasting station server.

Claim 4:
The system processing application and variable data in the digital TV, wherein the transmission device as to claim 3 varied data is transmitted from the broadcasting station server.

Claim 5:
The system processing application and variable data in the digital TV, wherein the broadcasting station server as to claim 3 existence and nonexistence of data varied based on the predetermined time are checked and the application version is updated; and the application of the up-to-date version is transmitted most from the receiving device the application on demand.

Claim 6:
The method for processing application and variable data in the digital TV comprising: the step of extracting the application address information in broadcast data which it is transmitted from the transmission device; the step of requesting the corresponding application in the broadcasting station server it uses the extracted application address information as described above; the step of transmitting to the receiving device the application, and the step downloading the transmitted application as described above in the receiving device, and the step of transmitting to the receiving device the application is requested is to referred in the broadcasting station server.

Claim 7:
The method for processing application and variable data in the digital TV which more includes the step that variable data in broadcast data which it is transmitted from the transmission device it downloads to the receiving device variable data it exists as to claim 6.

Claim 8:
The method for processing application and variable data in the digital TV, wherein the application transmitted as to claim 6 from the broadcasting station server most, the up-to-date version.

Fig. 1
송신장치 (100) 

방송국 서버 (300) 

수신장치 (200) 

가변형 데이터 전송 

에볼루션 업그레이드 정보 및 가변 데이터 전송 

에볼루션 업그레이드 요청 

오차방음 에볼루션 전송 

Fig. 2
송신장치 (100) → 수신부 (210) → 추출부 (220) → 애플리케이션 요점부 (230) → 애플리케이션 처리부 (240) → 방송국 서버 (300)

200

Fig. 3
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**Examiner**

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Claims renumbered in the same order as presented by applicant: [ ]

- [ ] CPA
- [ ] T.D.
- [ ] R.1.47
NOTICE OF ACCEPTANCE OF POWER OF ATTORNEY

This is in response to the Power of Attorney filed 08/18/2011.

The Power of Attorney in this application is accepted. Correspondence in this application will be mailed to the above address as provided by 37 CFR 1.33.

/hsarwari/

Office of Data Management, Application Assistance Unit (571) 272-4000, or (571) 272-4200, or 1-888-786-0101
NOTICE REGARDING CHANGE OF POWER OF ATTORNEY

This is in response to the Power of Attorney filed 08/18/2011.

The Power of Attorney to you in this application has been revoked by the assignee who has intervened as provided by 37 CFR 3.71. Future correspondence will be mailed to the new address of record (37 CFR 1.33).

/hsarwari/

Office of Data Management, Application Assistance Unit (571) 272-4000, or (571) 272-4200, or 1-888-786-0101
IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re the Application of:

Wonjang BAEK et al.

Application No. 12/449,565               Group Art Unit: 2423

Confirmation No. 8285

Filed: August 13, 2009               Examiner: Andrew Y. Koenig

For: DATA APPLICATION PROVIDING SERVER, BROADCASTING SERVER AND RECEIVER FOR DYNAMICALLY PROCESSING DATA APPLICATION AND DIGITAL BROADCASTING SYSTEM INCLUDING THE SAME

LETTER TO THE EXAMINER REQUESTING ENTRY OF CHANGE IN POWER OF ATTORNEY AND CORRESPONDENCE ADDRESS

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

In accordance with the enclosed Power of Attorney, it is respectfully submitted that the attorneys of Stein McEwen, LLP, customer number 49,455, are associated with the instant application and all prior powers of attorney have been revoked.

Please direct all correspondence to the address associated with customer number 49,455, which is presently as follows:

Stein McEwen, LLP
1400 Eye St., NW
Suite 300
Washington, D.C. 20005

Respectfully submitted,

STEIN MCEWEN, LLP

Date: August 18, 2011

1400 Eye St. N.W., Suite 300
Washington, D.C. 20005
Telephone: (202) 216-9505
Facsimile: (202) 216-9510

By: ____________________________

Michael D. Stein
Registration No. 37,240
POWER OF ATTORNEY BY ASSIGNEE OF ENTIRE INTEREST
AND REVOCATION OF PRIOR POWERS

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

The undersigned corporation is the assignee of record of the entire right, title, and
interest of the patent applications and patents identified listed in the enclosed Attachment A:

REVOCATION OF PRIOR POWERS OF ATTORNEY

revokes all powers of attorney previously given, and

NEW POWER OF ATTORNEY

appoints the attorneys and/or agents of STEIN MCEWEN LLP under Customer No.
49,455 to prosecute and transact all business in the United States Patent and Trademark Office
connected therewith.

CORRESPONDENCE CHANGE OF ADDRESS

All correspondence and telephone communications should be directed to the address
associated with Customer Number 49,455, which is currently:

STEIN MCEWEN LLP
1400 EYE ST., N.W.
SUITE 300
WASHINGTON, D.C. 20005
PHONE: (202) 216-9505
FACSIMILE: (202) 216-9510
STATEMENT AND CERTIFICATION UNDER 37 CFR §3.73(B)

ANYPOINT MEDIA GROUP, a United States corporation, certifies that it is the assignee of the entire right, title and interest in the patent applications and patents identified in the enclosed Attachment A, by way of assignments, and those assignments were recorded in the USPTO with available data identified in the Attachment A and/or are attached hereto as indicated in Attachment A.

The undersigned is empowered to sign this certificate on behalf of the assignee.

I hereby declare that all statements made herein of my own knowledge are true, and that all statements made on information and belief are believed to be true; and further, that these statements are made with knowledge that willful false statements, and the like so made, are punishable by fine or imprisonment, or both, under Section 1001, Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application or any patent issuing thereon.

If there are any fees associated with the filing of this Statement and Certification, please charge and/or credit the same to Deposit Account No. 503333.

By: [Signature]
Name: HAN JUN-SIK
Title: Managing Director

Dated 08/16/11
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# Electronic Acknowledgement Receipt

**EFS ID:** 10766361  
**Application Number:** 12449565  
**International Application Number:**  
**Confirmation Number:** 8285  
**Title of Invention:** DATA APPLICATION PROVIDING SERVER, BROADCASTING SERVER AND RECEIVER FOR DYNAMICALLY PROCESSING DATA APPLICATION AND DIGITAL BROADCASTING SYSTEM INCLUDING THE SAME  
**First Named Inventor/Applicant Name:** Wonjang Baek  
**Customer Number:** 20529  
**Filer:** James Garrett McEwen/Dana Jenkins  
**Filer Authorized By:** James Garrett McEwen  
**Attorney Docket Number:** 30315U  
**Receipt Date:** 18-AUG-2011  
**Filing Date:** 13-AUG-2009  
**Time Stamp:** 15:21:44  
**Application Type:** U.S. National Stage under 35 USC 371  

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Submitted with Payment: no  

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**New Applications Under 35 U.S.C. 111**
If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

**National Stage of an International Application under 35 U.S.C. 371**
If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

**New International Application Filed with the USPTO as a Receiving Office**
If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.
APPLICATION NUMBER | FILING OR 371(C) DATE | FIRST NAMED APPLICANT | ATTY. DOCKET NO./TITLE
12/449,565 | 08/13/2009 | Wonjung Back | 30315U

CONFIRMATION NO. 8285

PUBLICATION Notice

Title: DATA APPLICATION PROVIDING SERVER, BROADCASTING SERVER AND RECEIVER FOR DYNAMICALLY PROCESSING DATA APPLICATION AND DIGITAL BROADCASTING SYSTEM INCLUDING THE SAME

Publication No: US-2010-0100920-A1
Publication Date: 04/22/2010

NOTICE OF PUBLICATION OF APPLICATION

The above-identified application will be electronically published as a patent application publication pursuant to 37 CFR 1.211, et seq. The patent application publication number and publication date are set forth above.

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In addition, information on the status of the application, including the mailing date of Office actions and the dates of receipt of correspondence filed in the Office, may also be accessed via the Internet through the Patent Electronic Business Center at www.uspto.gov using the public side of the Patent Application Information and Retrieval (PAIR) system. The direct link to access this status information is currently http://pair.uspto.gov/. Prior to publication, such status information is confidential and may only be obtained by applicant using the private side of PAIR.

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**TOTAL IND.:** 4
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**TOTAL CLAIMS:** 16
PATENT APPLICATION FEE DETERMINATION RECORD
Effective October 2, 2008

Application or Docket Number
12449565

CLAIMS AS FILED - PART I

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CLAIMS AS AMENDED - PART II

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** If the entry in column 1 is less than the entry in column 2, write "0" in column 3.
*** If the "Highest Number Previously Paid For" in THIS SPACE is less than "20", enter "20".
**** If the "Highest Number Previously Paid For" in THIS SPACE is less than "3", enter "3".
The "Highest Number Previously Paid For" (Total or Independent) is the highest number found in the appropriate box in column 1.
Date Mailed: 01/13/2010

NOTICE OF ACCEPTANCE OF APPLICATION UNDER 35 U.S.C 371 AND 37 CFR 1.495

The applicant is hereby advised that the United States Patent and Trademark Office in its capacity as a Designated / Elected Office (37 CFR 1.495), has determined that the above identified international application has met the requirements of 35 U.S.C. 371, and is ACCEPTED for national patentability examination in the United States Patent and Trademark Office.

The United States Application Number assigned to the application is shown above and the relevant dates are:

<table>
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A Filing Receipt (PTO-103X) will be issued for the present application in due course. THE DATE APPEARING ON THE FILING RECEIPT AS THE "FILING DATE" IS THE DATE ON WHICH THE LAST OF THE 35 U.S.C. 371 (c)(1), (c)(2) and (c)(4) REQUIREMENTS HAS BEEN RECEIVED IN THE OFFICE. THIS DATE IS SHOWN ABOVE. The filing date of the above identified application is the international filing date of the international application (Article 11(3) and 35 U.S.C. 363). Once the Filing Receipt has been received, send all correspondence to the Group Art Unit designated thereon.

The following items have been received:

- Indication of Small Entity Status
- Copy of the International Application filed on 08/13/2009
- Copy of the International Search Report filed on 08/13/2009
- Preliminary Amendments filed on 08/13/2009
- Oath or Declaration filed on 08/13/2009
- Request for Immediate Examination filed on 08/13/2009
- U.S. Basic National Fees filed on 08/13/2009
- Priority Documents filed on 08/13/2009
Applicant is reminded that any communications to the United States Patent and Trademark Office must be mailed to the address given in the heading and include the U.S. application no. shown above (37 CFR 1.5)

Marilyn J Younger

Telephone: (703) 756-1436
Receipt is acknowledged of this non-provisional patent application. The application will be taken up for examination in due course. Applicant will be notified as to the results of the examination. Any correspondence concerning the application must include the following identification information: the U.S. APPLICATION NUMBER, FILING DATE, NAME OF APPLICANT, and TITLE OF INVENTION. Fees transmitted by check or draft are subject to collection. Please verify the accuracy of the data presented on this receipt. If an error is noted on this Filing Receipt, please submit a written request for a Filing Receipt Correction. Please provide a copy of this Filing Receipt with the changes noted thereon. If you received a "Notice to File Missing Parts" for this application, please submit any corrections to this Filing Receipt with your reply to the Notice. When the USPTO processes the reply to the Notice, the USPTO will generate another Filing Receipt incorporating the requested corrections.

Applicant(s)

Wonjang Baek, Gyeonggi-do, KOREA, REPUBLIC OF;
John Kim, Seoul, KOREA, REPUBLIC OF;
Seong Baek Lee, Seoul, KOREA, REPUBLIC OF;

Assignment For Published Patent Application
DREAMER, BURBANK, CA

Power of Attorney: The patent practitioners associated with Customer Number 20529

Domestic Priority data as claimed by applicant
This application is a 371 of PCT/KR2008/000881 02/14/2008

Foreign Applications
REPUBLIC OF KOREA 10-2007-0015394 02/14/2007

If Required, Foreign Filing License Granted: 12/18/2009

The country code and number of your priority application, to be used for filing abroad under the Paris Convention, is US 12/449,565

Projected Publication Date: 04/22/2010

Non-Publication Request: No

Early Publication Request: No
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LICENSE FOR FOREIGN FILING UNDER
Title 35, United States Code, Section 184
Title 37, Code of Federal Regulations, 5.11 & 5.15

GRANTED

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**TRANSMITTAL LETTER TO THE UNITED STATES DESIGNATED/ELECTED OFFICE (DO/EO/US) CONCERNING A SUBMISSION UNDER 35 U.S.C. 371**

<table>
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**TITLE OF INVENTION**

DATA APPLICATION PROVIDING SERVER, BROADCASTING SERVER AND RECEIVER FOR DYNAMICALLY PROCESSING DATA APPLICATION AND DIGITAL BROADCASTING SYSTEM INCLUDING THE SAME

**APPLICANT(S) FOR DO/EO/US**

BAEK, Wonjang; KIM, John; LEE, Seong Baek

Applicant herewith submits to the United States Designated/Elected Office (DO/EO/US) the following items and other information:

1. ☒ This is a **FIRST** submission of items concerning a submission under 35 U.S.C. 371.
2. ☐ This is a **SECOND** or **SUBSEQUENT** submission of items concerning a submission under 35 U.S.C. 371.
3. ☐ This is an express request to begin national examination procedures (35 U.S.C. 371(f)). The submission must include items (5), (6), (9) and (21) indicated below.
4. ☒ The US has been elected (Article 31).
5. ☒ A copy of the International Application as filed (35 U.S.C. 371(c)(2))
   a. ☒ is attached hereto (required only if not communicated by the International Bureau).
   b. ☐ has been communicated by the International Bureau.
   c. ☐ is not required, as the application was filed in the United States Receiving Office (RO/US).
6. ☐ An English language translation of the International Application as filed (35 U.S.C. 371(c)(2)).
   a. ☐ is attached hereto.
   b. ☒ has been previously submitted under 35 U.S.C. 154(d)(4).
7. ☒ Amendments to the claims of the International Application under PCT Article 19 (35 U.S.C. 371(c)(3))
   a. ☒ are attached hereto (required only if not communicated by the International Bureau).
   b. ☐ have been communicated by the International Bureau.
   c. ☐ have not been made; however, the time limit for making such amendments has **NOT** expired.
   d. ☒ have not been made and will not be made.
8. ☐ An English language translation of the amendments to the claims under PCT Article 19 (35 U.S.C. 371(c)(3)).
9. ☒ An oath or declaration of the inventor(s) (35 U.S.C. 371(c)(4)).
10. ☐ An English language translation of the annexes of the International Preliminary Examination Report under PCT Article 36 (35 U.S.C. 371(c)(5)).

**Items 11 to 20 below concern document(s) or information included:**

15. ☐ A substitute specification.
16. ☐ A power of attorney and/or change of address letter.
17. ☐ A computer-readable form of the sequence listing in accordance with PCT Rule 13ter.2 and 37 CFR 1.821-1.825.
**PCT/ISA/210 (International Search Report); PCT/IB/306 (Notification of the Recording of a Change); Transmittal Letter; Postcard for early notification of serial number**

The following fees have been submitted:

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**TOTAL OF 21, 22 AND 23 = $980.00**

- Additional fee for specification and drawings filed in paper over 100 sheets (excluding sequence listing in compliance with 37 CFR 1.821(c) or (e) or computer program listing in an electronic medium) (37 CFR 1.492(j)).
  - The fee is $270 for each additional 50 sheets of paper or fraction thereof.

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Surcharges of $130.00 for any of the search fee, examination fee, or the oath or declaration after the date of commencement of the national stage (37 CFR 1.492(h)).

**CLAIMS**

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**TOTAL OF ABOVE CALCULATIONS = $1,200.00**

- Applicant claims small entity status. See 37 CFR 1.27. Fees above are reduced by 1/2.

**SUBTOTAL = $600.00**

- Processing fee of $130.00 for furnishing the English translation later than 30 months from the earliest claimed priority date (37 CFR 1.492(i)).

**TOTAL NATIONAL FEE = $600.00**

- Fee for recording the enclosed assignment (37 CFR 1.21(n)). The assignment must be accompanied by an appropriate cover sheet (37 CFR 3.28, 3.31). $40.00 per property

**TOTAL FEES ENCLOSED = $640.00**

Amount to be refunded: $

Amount to be charged: $
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

a. ✖ A check in the amount of $640.00 to cover the above fee is enclosed.

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   A duplicate copy of this sheet is enclosed.

c. ✖ The Commissioner is hereby authorized to charge any additional fees which may be required, or credit any overpayment to Deposit Account no. 14-0112. A duplicate copy of this sheet is enclosed.

d. □ Fees are to be charged to a credit card. WARNING: Information on this form may become public. Credit card information should not be included on this form. Provide credit card information and authorization on PTO-2038. The PTO-2038 should only be mailed or faxed to the USPTO. However, when paying the basic national fee, the PTO-2038 may NOT be faxed to the USPTO.

   ADVISORY: If filing by EFS-Web, do NOT attach the PTO-2038 form as a PDF along with your EFS-Web submission. Please be advised that this is not recommended and by doing so your credit card information may be displayed via PAIR. To protect your information, it is recommended paying fees online by using the electronic payment method.

   NOTE: Where an appropriate time limit under 37 CFR 1.495 has not been met, a petition to revive (37 CFR 1.137(a) or (b) must be filed and granted to restore the International Application to pending status.

SEND ALL CORRESPONDENCE TO:

Customer No. 20529

[Signature]

Jerald L. Meyer

41,194

REGISTRATION NUMBER
IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:

Wonjang BAEK, et al.  Conf. No.: Not Yet Assigned
Appl. No.: Not Yet Assigned  Examiner: Not Yet Assigned
Filed: August 13, 2009  Art Unit: Not Yet Assigned
Intl. Filing Date: 14 February 2008

For: DATA APPLICATION PROVIDING SERVER, BROADCASTING SERVER AND RECEIVER FOR DYNAMICALLY PROCESSING DATA APPLICATION AND DIGITAL BROADCASTING SYSTEM INCLUDING THE SAME

TRANSMITTAL LETTER

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Commissioner:

Submitted herewith for filing in the U.S. Patent and Trademark Office is the following:

(1) PTO Form-1390, three (3) pages;
(2) Application Data Sheet, six (6) pages;
(3) International Publication No.: WO 2008/100096 A1, twenty-two (22) pages, including the International Search Report, two (2) pages:
   2 sheets for the Cover Page,
   13 pages of Textual Specification,
   3 pages of 16 Claims, and
   2 sheets of Drawings;
(4) Preliminary Amendment, five (5) pages, to be Examined;

(5) One (1) Executed Declaration, two (2) pages;

(6) One (1) Executed Assignment, two (2) pages, with a Recodreration Cover Sheet, one (1) page, in favor of DREAMER of Burbank, California;

(7) Form PCT/IB/306 (Notification of the Recording of a Change), one (1) page;

(8) Our check no.: 9791 in the amount of $640.00 for the filing fees ($490.00) and excess independent claims fee ($110.00) for a small entity, as well as the recodreration fee ($40.00); and

(9) Early Notification Postcard.

In the event this paper is not timely filed, Applicants petition for an appropriate extension of time. Please charge any fee deficiency or credit any overpayment to Deposit Account No. 14-0112.

Respectfully submitted,

THE NATH LAW GROUP

Jerald L. Meyer, Reg. No. 41,194
Derek Richmond, Reg. No. 45,771
Customer No. 20529

Date: August 13, 2009

THE NATH LAW GROUP
112 S. West Street, Alexandria, Virginia 22314
Tel: (703) 548-6284; Fax: (703) 683-8396
JLM/DR/bd
Application Data Sheet
Application Information

Application Number:: Not Yet Assigned
Filing Date:: August 13, 2009
Application Type:: National Phase
Subject Matter:: Utility
Suggested Classification::
Suggested Group Art Unit::
CD-ROM or CD-R?:: None
Number of CD disks:: 0
Number of copies of CDs:: 0
Sequence submission?:: No
Computer Readable Form (CRF):: No
Number of copies of CRF:: 0
Title:: DATA APPLICATION PROVIDING
SERVER, BROADCASTING SERVER
AND RECEIVER FOR DYNAMICALLY
PROCESSING DATA APPLICATION AND
DIGITAL BROADCASTING SYSTEM
INCLUDING THE SAME

Attorney Docket Number:: 30315U
Request for Early Publication?:: No
Request for Non-Publication?: No
Suggested Drawing Figure:
Total Drawing Sheets: 2
Small Entity?: Yes
Latin name:
Variety denomination name:
Petition included?: No
Petition Type: N/a
Licensed U.S. Govt. Agency: N/a
Contract or Grant Numbers: N/a
Secrecy Order in Parent Appl.? No

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Country of mailing address:: KR
Postal Code of mailing address:: 463-731

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State or Province of Residence::
Country of Residence:: KR
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Guro-gu
City of mailing address:: Seoul
State/Province of mailing address::
Country of mailing address:: KR
Postal Code of mailing address:: 152-720

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Middle Name:: Baek
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State or Province of Residence::
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City of mailing address:: Seoul
State/Province of mailing address::
Country of mailing address:: KR
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Representative Information

Representative Customer Number:: 20529

Domestic Priority Information

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Assignee Information

Assignee name:: DREAMER
Street of mailing address:: 3500 W. Olive Avenue, Suite 990
City of mailing address:: Burbank
State/Province of mailing address:: California
Country of mailing address:: US
Postal Code of mailing address:: 91505

Signature::

Signature::

First Name:: Jerald L. Last Name:: Meyer
Registration No:: 41,104 Date (MM/DD/YY):: 08/13/09
Title: DATA APPLICATION PROVIDING SERVER, BROADCASTING SERVER AND RECEIVER FOR DYNAMICALLY PROCESSING DATA APPLICATION AND DIGITAL BROADCASTING SYSTEM INCLUDING THE SAME

Abstract: A data application providing server, a broadcasting server and a receiver for dynamically processing a data application and a digital broadcasting system including the same are disclosed wherein a data of a minimum quantity required for executing a data application is received and other data is received by a pull method to minimize a time required for receiving and executing the data application, and wherein a change in the data application is facilitated, and a stability of the execution of the data application is maintained and an execution speed is improved through a thread management or a task management.
Description

DATA APPLICATION PROVIDING SERVER, BROADCASTING SERVER AND RECEIVER FOR DYNAMICALLY PROCESSING DATA APPLICATION AND DIGITAL BROADCASTING SYSTEM INCLUDING THE SAME

Technical Field

[1] The present invention relates to a data application providing server, a broadcasting server and a receiver for dynamically processing a data application and a digital broadcasting system including the same, and more particularly to a data application providing server, a broadcasting server and a receiver for dynamically processing a data application and a digital broadcasting system including the same wherein a data of a minimum quantity required for executing a data application is received and other data is received by a pull method to minimize a time required for receiving and executing the data application, and wherein a change in the data application is facilitated, and a stability of the execution of the data application is maintained and an execution speed is improved through a thread management or a task management.

Background Art

[2] An environment of a broadcasting is changing as a technology progresses and a demand of a viewer changes. Recently, an analog broadcasting is switched to a digital broadcasting, and a broadcast medium is diversified from a terrestrial broadcasting to a cable broadcasting, a satellite broadcasting, an IP-TV service using a high speed communication network, a terrestrial DMB and a satellite DMB.

[3] The digital broadcasting is capable of providing additional services in various filed such as sports, movies, home shoppings and musics because a capacity thereof is four to eight times that of the analog broadcasting. A wide variety of choices for the viewer is also provided since various types of the broadcasting such as the cable broadcasting, the satellite broadcasting, a DMB (Digital Multimedia Broadcasting) and the IP-TV service.

[4] Specifically, a single broadcasting channel has a bandwidth of 6, 7 or 8 MHz. In the analog broadcasting a broadcast program signal, i.e. an analog video signal and an audio signal is transmitted via a carrier signal having the bandwidth of 6, 7 or 8 MHz. therefore, only one broadcast program signal is transmitted via the single broadcasting channel.

[5] However, in the digital broadcasting, the analog video signal and the audio signal are converted to a digital video data and a digital audio data, and the digital video data
and the digital audio data are compressed according to an MPEG technology to be transmitted as the broadcast program signal. Therefore, a plurality of broadcast program signals may be multiplexed in the single broadcasting channel to form a plurality of virtual broadcasting channels.

Accordingly, the digital broadcasting is capable of a multi-channel broadcasting by transmitting the plurality of broadcast program signals wherein the digital video data and the digital audio data are multiplexed into the single broadcasting channel contrary to the analog broadcasting wherein only one broadcast program signal is transmitted via the single broadcasting channel.

The digital broadcasting supports multiple resolutions including a HDTV (High Definition Television) supporting an aspect ratio of 16:9 and a high resolution of 1920×1080 or 1280×720, and a SDTV (Standard Definition Television) supporting an aspect ratio of 16:9 or 4:3 and a resolution of 740×480 or 640×480.

Due to the high resolution of the HDTV, a size of the digital video data is large. As a result, only one broadcast program signal may be transmitted per broadcasting channel. In case of the SDTV, four or five broadcast program signals may be transmitted per broadcasting channel since the size of the digital video data is small, thereby allowing the multi-channel broadcasting.

That is, while only one broadcasting is possible per broadcasting channel in the conventional analog broadcasting, multiple broadcastings are transmitted per broadcasting channel for the multi-channel broadcasting by the compression and the multiplexing of the digital data and the viewer selects the broadcasting from the multiple broadcastings.

Addition to the transmission of the conventional broadcast program signal, various data may be broadcasted and an interactivity may be embodied by associating with the communication network in the digital broadcasting environment. The data broadcasting, various data services using the interactivity in particular, is expected to play a major role in propagating the digital broadcasting in view of an easy use by the viewer.

The terrestrial digital broadcasting was initiated in October, 2001 and the satellite digital broadcasting was initiated in March, 2002 in Korea. The cable digital broadcasting and the IP-TV service are also spreading among cable broadcasters and internet service providers. The terrestrial data broadcasting and the satellite data broadcasting were initiated in June, 2002 in Korea. The digital broadcasting for a mobile reception such as a satellite DMB and a terrestrial DMB is also spreading.

Fig. 1 is a block diagram exemplifying a conventional data broadcast system in a digital broadcast.

As shown, the conventional data broadcast system comprises a broadcasting server
110, a content provider server 120, a data provider server 130 and a receiver 140.

The content provider server 120 provides a broadcast content, i.e. the conventional broadcast program to the broadcasting server 110.

The data provider server 130 provides a content for a data broadcasting, i.e. a data content to the broadcasting server 110.

The broadcasting server 110 receives the broadcast content and the data content from the content provider server 120 and the data provider server 130, respectively, multiplexes and converts the same into various broadcasting specification such as ATSC to be transmitted to the receiver 140 through a broadcast network. The broadcast network includes various networks such as a terrestrial broadcast network, a cable broadcast network, a satellite broadcast network, a high speed communication network of the IP-TV service and a DMB network.

In addition, the broadcasting server 110 may receive a feedback signal transmitted from the receiver 140 through a return channel and transmits the feedback signal to the content provider server 120 or the data provider server 130 for the content provider server 120 or the data provider server 130 to carry out a corresponding process. The receiver 140 may also transmit the feedback signal to the content provider server 120 or the data provider server 130 through the return channel. Preferably, the return channel is embodied by a bidirectional communication network.

The return channel refers to a mean for transmitting a feedback of a viewer to the broadcasting server 110, the content provider server 120 or the data provider server 130 and is not limited in a communication method or a communication format.

The receiver 140 receives the broadcast content and the data content from the broadcasting server 110 and provides the contents to the viewer via a signal processing such as an appropriate decoding. For instance, the receiver 140 may be a digital TV or a set-top box in compliance with the terrestrial broadcasting specification such as the ATSC and interactive data broadcasting specification such as DASE in case of the terrestrial digital broadcasting. The receiver 140 may be a set-top box supporting the broadcasting specification such as OpenCable and DVB and a data broadcasting specification suitable for the broadcasting network such as OCAP and MHP in case of the cable broadcasting or the satellite broadcasting. The receiver 140 may be a set-top box or a mobile communication terminal supporting a corresponding data broadcasting specification in case of the IP-TV or the DMB.

The data content is generally transmitted in a carousel format such as a DSM-CC data/object carousel. Since a processing capacity or a storage capacity of the receiver 140 is limited, it is virtually impossible for the receiver 140 to store and execute an entirety of the data content therein. Therefore, the receiver 140 receives the data content transmitted periodically through the broadcasting network and provides the
data content as the data broadcasting.

[21] The data application may be configured to display a text data based on a font and may include a control element such as a widget and an image. For instance, the data application may include a button or an icon for selecting a desired data.

[22] The data application is transmitted within a digital broadcast signal. The receiver 140 receives and processes the data application. The receiver 140 transmits the processed data application to a display apparatus (not shown). The display apparatus displays the received data application.

[23] In embodying the data broadcasting, a method wherein the data application itself is transmitted within the digital broadcast signal, and a resource required for executing the data application is transmitted through the return channel may be employed. That is, the resource such as an image data may be received by a communication with an apparatus for storing the resource such as the data provider server 130.

[24] Currently, in the IP-TV service for instance, the data application is transmitted via an IP multicast method. Therefore, an excessive time is required for the data application to load after the viewer selects a data broadcasting channel.

[25] The broadcasting server 110 transmits the data application by dividing the data application into packets similar to a transmission of a broadcasting packet. The receiver 140 receives the packets and combines the packets into the data application. Particularly, a transmission speed of the data application in the IP multicast method is lower than that of a unicast method. In addition, the packets may be lost during the transmission so that the data application cannot be executed.

[26] A video data of a digital broadcast program may be reproduced even when a portion of packets is lost by ignoring the lost packets and using other packets. However, the data application cannot be executed when a portion of the packets thereof is lost. Therefore, the receiver 140 should re-receive an entirety of the data application when an error occurs.

[27] In addition, even after the receiver 140 receives the packets of the data application, the receiver should combine the received packets according to an order thereof. Therefore, a time for combining the packets is additionally required when the data application is executed.

[28] Moreover, even after the packets are combined, the receiver 140 cannot load the data application in a divided fashion but load and execute the entirety of the data application. Therefore, an execution speed is degraded and the resource of the receiver 140 is excessively used.

[29] Further more, even when the receiver 140 receives the resource separately from the data application through the return channel, the receiver 140 should receive the resource via a HTTP communication. Therefore, the receiving speed is degraded.
Due to the above-described drawbacks, 10 to 30 seconds of time is consumed for the receiver 140 to receive and provide the data application to the viewer. Therefore, the conventional method is disadvantageous in that an excessive time is required for the reception and the execution of the data application.

**Disclosure of Invention**

**Technical Problem**

It is an object of the present invention to provide a data application providing server, a broadcasting server and a receiver for dynamically processing a data application and a digital broadcasting system including the same wherein a data of minimum quantity required for executing a data application is received and other data is received by a pull method to minimize a time required for receiving and executing the data application, and wherein a change in the data application is facilitated, and a stability of the execution of the data application is maintained and an execution speed is improved through a thread management or a task management.

**Technical Solution**

In order to achieve above-described object of the present invention, there is provided a digital broadcasting system for dynamically processing a data application, the system comprising: a data application providing server for dynamically dividing and providing a minimum execution data and an additional data included in the data application; a broadcasting server for relaying the minimum execution data received from the data application providing server and carrying out a digital broadcast; and a receiver for transmitting a transmission request for the additional data to the data application providing server, the additional data being generated based on the minimum execution data relayed by the broadcasting server, and for providing the data application including the additional data provided by the data application providing server according to the minimum execution data relayed by the broadcasting server and the transmission request.

There is also provided a broadcasting server for dynamically processing a data application, the server comprising: a minimum execution data storage for storing a minimum execution data received from a data application providing server, the data application providing server dynamically dividing and providing the minimum execution data and an additional data included in the data application; a minimum execution data transmitter for transmitting the minimum execution data stored in the minimum execution data storage through a digital broadcast network to a receiver providing the data application.

Preferably, the minimum execution data includes a download location of the data application providing server for obtaining the additional data.
There is also provided a data application providing server for dynamically processing a data application, the server comprising: a data application divider for dividing the data application into a minimum execution data and an additional data; a minimum execution data transmitter for transmitting the minimum execution data to a broadcasting server for carrying out a digital broadcast such that the broadcasting server broadcasts the minimum execution data; an additional data storage for storing the additional data corresponding to the minimum execution data; and a receiver communication interface for transmitting the additional data to the receiver according to a transmission request of the additional data received from the receiver providing the data application.

Preferably, the receiver communication interface transmits the additional data via a communication based on an asynchronous socket.

Preferably, the data application providing server further comprises a task manager for managing a thread of the data application providing server and scheduling a task.

Preferably, the data application divider dynamically divides the minimum execution data and the additional data to correspond to a change in the data application, and the additional data storage stores the dynamically divided additional data.

Preferably, the additional data storage stores the additional data based on a memory.

There is also provided a receiver for dynamically processing a data application, the receiver comprising: a minimum execution data receiver for receiving a minimum execution data through a digital broadcast network from the broadcasting server carrying out a digital broadcast; a minimum execution data analyzer for analyzing the minimum execution data to extract an execution condition information of the data application and an information on an additional data corresponding to the minimum execution data required for executing the data application; a data application providing server interface for transmitting a transmission request for the additional data to a data application providing server during an execution of the minimum execution data, and for receiving the additional data from the data application providing server; and a data application provider for combining the minimum execution data and the additional data to generate the data application, and executing and providing the generated data application.

Preferably, the data application providing server interface receives the additional data from the data application providing server via a communication based on an asynchronous socket.

Preferably, the receiver further comprises a task manager for managing a thread of the data application providing server and scheduling a task.

Preferably, the minimum execution data includes a download location of the data application providing server for obtaining the additional data.
Preferably, the minimum execution data comprises one of a metadata for the data application and a foundation class data for minimally executing the data application.

**Advantageous Effects**

In accordance with the present invention, a data of a minimum quantity required for executing a data application is received and other data is received by a pull method to minimize a time required for receiving and executing the data application, the change in the data application is facilitated, and the stability of the execution of the data application is maintained and the execution speed is improved through the thread management or the task management.

**Brief Description of the Drawings**

Fig. 1 is a block diagram exemplifying a conventional data broadcast system of a digital broadcast.

Fig. 2 is a block diagram illustrating a digital broadcasting system for dynamically processing a data application in accordance with the present invention.

Fig. 3 is a diagram illustrating a hierarchical structure of a data application providing server of a digital broadcasting system for dynamically processing a data application in accordance with the present invention.

[Description of the reference numerals]

110: broadcasting server 120: content provider server
130: data provider server 140: receiver
200: broadcasting server
210: minimum execution data storage
220: minimum execution data transmitter
300: data application providing server
310: data application divider
330: minimum execution data transmitter
350: additional data storage
370: receiver communication interface 400: receiver
410: minimum execution data receiver
430: minimum execution data analyzer
450: data application providing server interface
470: data application provider

**Best Mode for Carrying Out the Invention**

The present invention will now be described in detail with reference to the accompanied drawings.

Fig. 2 is a block diagram illustrating a digital broadcasting system for dynamically
processing a data application in accordance with the present invention.

[67] Referring to Fig. 2, the digital broadcasting system for dynamically processing the data application in accordance with the present invention comprises a broadcasting server 200, a data application providing server 300 and a receiver 400.

[68] The broadcasting server 200 carries out a digital broadcast. The broadcasting server 200 carries out the digital broadcast using a terrestrial broadcasting network, a cable broadcasting network, a satellite broadcasting network, a communication network similar to an IP-TV or a DMB network.

[69] The broadcasting server 200 in accordance with the present invention receives only a minimum execution data from the data application providing server 300 and relays the minimum execution data to the receiver 400 while carrying out the digital broadcast.

[70] While the conventional broadcasting server transmits an entirety of the data application through the digital broadcast network, the broadcasting server 200 in accordance with the present invention transmits only the minimum execution data.

[71] The data application providing server 300 provides the data application.

[72] The data application providing server 300 dynamically divides the data application into the minimum execution data and an additional data, and transmits the minimum execution data to the broadcasting server 200. The data application providing server 300 receives a transmission request for the additional data transmitted from the receiver 400 corresponding to the minimum execution data that is broadcast by the broadcasting server 200, and transmits the additional data to the receiver 400 to correspond to the transmission request.

[73] The receiver 400 receives and provides the digital broadcast that is broadcast from the broadcasting server 200 and the data application provided by the data application providing server 300.

[74] Specifically, the receiver 400 receives the minimum execution data transmitted from the broadcaster server 200, and analyzes the received minimum execution data to request the additional data to the data application providing server 300. The receiver 400 also receives the additional data form the data application providing server 300 to provide the data application.

[75] In accordance with the digital broadcasting system of the present invention, the data application includes the minimum execution data and the additional data.

[76] The minimum execution data refers to a metadata for the data application or a foundation class data for a minimum execution of the data application.

[77] In addition, the additional data is a data included in the data application exclusive of the minimum execution data. Particularly, the additional data refers to an additional class data or a resource data such as a text or an image required for executing the data
application.

[78] After the data application providing server 300 divides the data application into the minimum execution data and the additional data, the minimum execution data is transmitted to the broadcasting server 200. The broadcasting server 200 transmits only the minimum execution data to the receiver 400.

[79] Thus, in accordance with the present invention, since the data transmitted through the digital broadcast network is the minimum execution data having a small size, a possibility of an error during the transmission may be minimized. Moreover, since the receiver 400 receives only the minimum execution data through the digital broadcast network, a time required for receiving the data application may be minimized. Since the additional data having a large size is transmitted through the return channel having a higher speed than the digital broadcast network, the possibility of the error during the transmission may be minimized, and the time required for the receiver 400 to receive the data application may be minimized.

[80] A detailed description of configurations of the broadcasting server 200, the data application providing server 300 and the receiver 400 is as follows.

[81] Referring to Fig. 2, the broadcasting server 200 includes a minimum execution data storage 210 and a minimum execution data transmitter 220.

[82] The minimum execution data storage 210 receives the minimum execution data from the data application providing server 300 and stores the received minimum execution data.

[83] The minimum execution data transmitter 230 transmits the minimum execution data stored in the minimum execution data storage 210 to the receiver 400 through the digital broadcast network.

[84] The conventional broadcasting server 110 shown in Fig. 1 transmits the data application having the large size resulting in a high possibility of a transmission error and a long transmission time. However, the broadcasting server 200 in accordance with the present invention overcomes the problem of the conventional broadcasting server 110 by transmitting only the minimum execution data.

[85] Still referring to Fig. 2, the data application providing server 300 comprises a data application divider 310, a minimum execution data transmitter 330, an additional data storage 350 and a receiver communication interface 370.

[86] The data application divider 310 divides the data application into the minimum execution data and the additional data.

[87] The division is carried out for an efficient execution of the data application. For instance, the division may be carried out by extracting the metadata for the data application or the foundation class data for the minimum execution of the data application as the minimum execution data and designating the additional class data
required for the execution of the data application or the resource data such as the text or the image as the additional data.

[88] In addition, the division may be carried out dynamically. That is, when a change in the data application occurs frequently, the minimum execution data may be maintained and the additional data, a resource for instance, may be changed.

[89] When the change in the data application occurs frequently, the changed data application should be re-transmitted in accordance with the conventional art. However, in accordance with the present invention, the broadcasting server 200 may transmit an unchanged minimum execution data and the data application providing server 300 may transmit the changed additional data. Therefore, a service expandability, a change facilitation and a management facilitation may be improved in providing the data application.

[90] The minimum execution data transmitter 330 transmits the minimum execution data divided by the data application divider 310 to the broadcasting server 200 such that the broadcasting server 200 may broadcast the minimum execution data.

[91] The additional data storage 350 stores the additional data corresponding to the minimum execution data divided by the data application divider 310.

[92] Preferably, the additional data storage 350 stores the additional data based on a memory. When the additional data is stored based on the memory, the additional data storage 350 may search the stored additional data and provide the searched additional data to the receiver 400 efficiently. Therefore, even when a plurality of the additional data is simultaneously requested from a plurality of the receivers 400, the additional data storage 350 may search the additional data corresponding to each of the requests from the plurality of the receivers 400 and provide the searched additional data to the plurality of the receivers 400, thereby minimizing a system load of the data application providing server 300.

[93] The receiver communication interface 370 receives a transmission request of the additional data from the receiver 400 and transmits the additional data to the receiver 400.

[94] It is preferable that the receiver communication interface 370 transmits the additional data via a communication based on an asynchronous socket.

[95] While the additional data may be received by a conventional HTTP request, it is disadvantageous that a transmission speed thereof is slow.

[96] Therefore, the receiver communication interface 370 may improve the transmission speed of the additional data by carrying out the communication based on the asynchronous socket with the receiver 400.

[97] Although not shown, the data application providing server 300 may further comprise a task manager (not shown) for managing a thread of the data application.
providing server 300 and scheduling a task.

[98] Particularly, when a plurality of the threads or the tasks such as the thread or the task corresponding to the request for the plurality of the additional data from the receiver 400, or the thread or the task for extracting the minimum execution data or the additional data are carried out in the data application providing server 300, the task manager controls a system resource of the data application providing server 300 by managing the threads and carrying out a scheduling of the tasks of the data application providing server 300. Accordingly, a use of the system resource of the data application providing server 300 is maximized.

[99] The task manager adjusts an amount of a processed task by controlling a cue size, distributes a task resource efficiently or processes the task based on a priority.

[100] The data application providing server 300 provides the data application efficiently by a service oriented architecture.

[101] Referring to Fig. 2 again, the receiver 400 comprises a minimum execution data receiver 410, a minimum execution data analyzer 430, a data application providing server interface 450 and a data application provider 470.

[102] The minimum execution data receiver 410 receives the minimum execution data through the digital broadcast network from the broadcasting server 200 that carries out the digital broadcast.

[103] The minimum execution data analyzer 430 analyzes the minimum execution data received by the minimum execution data receiver 410 to extract an execution condition information of the data application and an information on the additional data corresponding to the minimum execution data.

[104] The data application providing server interface 450 transmits the transmission request for the additional data to the data application providing server 300 during the execution of the minimum execution data, and receives the additional data from the data application providing server 300.

[105] It is preferable that the data application providing server interface 450 receives the additional data by carrying out the communication based on the asynchronous socket with the data application providing server 300.

[106] Accordingly, the receiving speed is improved.

[107] The additional data may be received by the conventional HTTP request. However, the conventional HTTP request is disadvantageous in that the transmission speed is low.

[108] Therefore, the data application providing server interface 450 carries out the communication based on the asynchronous socket with the data application providing server 300 to improve the receiving speed.

[109] The data application provider 470 executes and provides the data application
obtained by combining the minimum execution data and the additional data received from the data application providing server interface 450.

Although not shown, the receiver 400 may further comprise a task manager (not shown) for managing a thread for executing the data application and scheduling a task.

Particularly, when a plurality of the threads or the tasks such as the thread or the task for executing the data application, or the thread or the task for executing and decoding the digital broadcast are carried out in the receiver 400, the task manager manages the threads and carries out a scheduling of the tasks. Accordingly, a use of the system resource of the receiver 400 is maximized.

The task manager adjusts an amount of a processed task by controlling a cue size, distributes a task resource efficiently or processes the task based on a priority.

Specifically, the task manager manages an entirety of the threads, the tasks and a resource such as a memory. Accordingly, a performance of the receiver 400 in a network communication and a provision of GUI in the receiver 400 is maximized.

**Mode for the Invention**

Fig. 3 is a diagram illustrating a hierarchical structure of the data application providing server of the digital broadcasting system for dynamically processing the data application in accordance with the present invention.

Fig. 3 is focused on the data application providing server, and the receiver is described in view of a difference between the hierarchical structure of the data application providing server and that of the receiver.

A J2EE at the bottom is a hierarchy for providing an association with a conventional system or providing an expandability of the data application. The J2EE is the hierarchy in the data application providing server. A Java 1.1 hierarchy or a JavaTV hierarchy may exist in the receiver.

Since the data application is mostly created based on a Java, a common data application creation and execution environment is configured via the J2EE, the Java 1.1 or the JavaTV.

A task manager hierarchy carries out a thread management and a scheduling of the tasks.

The task manager hierarchy corresponds to the task manager of the data application providing server or the task manager of the receiver described with reference to Fig. 2.

A network manager hierarchy supports the communication based on the asynchronous socket. The transmission speed is maximized by the asynchronous socket.

The network manager hierarchy may be associated with the management of the thread of the task manager to enable a re-use of a network resource and an im-
provement of a performance.

[122] A method protocol may be embodied in the data application providing server or the receiver similarly, and a communication scheme thereof may be configured to minimize a network load.

[123] A fast file system is for accessing the resource based on the memory and is embodied in the data application providing server. A smart cache system is embodied in the receiver to correspond to the fast file system.

[124] The fast file system carries out an synchronization of the resource stored in the memory such as the additional data and the resource stored in a disk using a transaction. In addition, the fast file system may be configured to be distributed or synchronized in multiple systems.

[125] The smart cache system is configured to obtain, execute and provide various resources such as the class, the image and the text dynamically in the receiver.

[126] A data agent, a logging, a content service and other services are an application hierarchy corresponding to various services of the data application of the digital broadcast.

[127] A hierarchy such as a GUI may be included in the receiver to provide the data application.

[128] While the present invention has been particularly shown and described with reference to the preferred embodiment thereof, it will be understood by those skilled in the art that various changes in form and details may be effected therein without departing from the spirit and scope of the invention as defined by the appended claims.

**Industrial Applicability**

[129] In accordance with the present invention, the data of the minimum quantity required for executing the data application is received and other data is received by the pull method to minimize the time required for receiving and executing the data application, and wherein the change in the data application is facilitated, and the stability of the execution of the data application is maintained and the execution speed is improved through the thread management or the task management.
Claims

[1] A digital broadcasting system for dynamically processing a data application, the system comprising:
a data application providing server for dynamically dividing and providing a
minimum execution data and an additional data included in the data application;
a broadcasting server for relaying the minimum execution data received from the
data application providing server and carrying out a digital broadcast; and
a receiver for transmitting a transmission request for the additional data to the
data application providing server, the transmission request being generated based
on the minimum execution data relayed by the broadcasting server, and for
providing the data application including the additional data provided by the data
application providing server according to the transmission request and the
minimum execution data relayed by the broadcasting server.

[2] The system in accordance with claim 1, wherein the minimum execution data
includes a download location of the data application providing server for
obtaining the additional data.

[3] The system in accordance with claim 1, wherein the minimum execution data
comprises one of a metadata for the data application and a foundation class data
for minimally executing the data application.

[4] A broadcasting server for dynamically processing a data application, the server
comprising:
a minimum execution data storage for storing a minimum execution data
received from a data application providing server, the data application providing
server dynamically dividing and providing the minimum execution data and an
additional data included in the data application;
a minimum execution data transmitter for transmitting the minimum execution
data stored in the minimum execution data storage through a digital broadcast
network to a receiver providing the data application.

[5] The server in accordance with claim 4, wherein the minimum execution data
includes a download location of the data application providing server for
obtaining the additional data.

[6] The server in accordance with claim 4, wherein the minimum execution data
comprises one of a metadata for the data application and a foundation class data
for minimally executing the data application.

[7] A data application providing server for dynamically processing a data application, the server comprising:
a data application divider for dividing the data application into a minimum
execution data and an additional data;
a minimum execution data transmitter for transmitting the minimum execution
data to a broadcasting server for carrying out a digital broadcast such that the
broadcasting server broadcasts the minimum execution data;
an additional data storage for storing the additional data corresponding to the
minimum execution data; and
a receiver communication interface for transmitting the additional data to the
receiver according to a transmission request of the additional data received from
the receiver providing the data application.

[8]
The server in accordance with claim 7, wherein the receiver communication
interface transmits the additional data via a communication based on an
asynchronous socket.

[9]
The server in accordance with claim 7, further comprising a task manager for
managing a thread of the data application providing server and scheduling a task.

[10]
The server in accordance with claim 7, wherein the data application divider
dynamically divides the minimum execution data and the additional data to
correspond to a change in the data application, and the additional data storage
stores the dynamically divided additional data.

[11]
The server in accordance with claim 7, wherein the additional data storage stores
the additional data based on a memory.

[12]
The server in accordance with claim 7, wherein the minimum execution data
comprises one of a metadata for the data application and a foundation class data
for minimally executing the data application.

[13]
A receiver for dynamically processing a data application, the receiver
comprising:
a minimum execution data receiver for receiving a minimum execution data
through a digital broadcast network from the broadcasting server carrying out a
digital broadcast;
a minimum execution data analyzer for analyzing the minimum execution data to
extract an execution condition information of the data application and an
information on an additional data corresponding to the minimum execution data
required for executing the data application;
a data application providing server interface for transmitting a transmission
request for the additional data to a data application providing server during an
execution of the minimum execution data, and for receiving the additional data
from the data application providing server; and
a data application provider for combining the minimum execution data and the
additional data to generate the data application, and executing and providing the
generated the data application.

[14] The receiver in accordance with claim 13, wherein the data application providing server interface receives the additional data from the data application providing server via a communication based on an asynchronous socket.

[15] The receiver in accordance with claim 13, further comprising a task manager for managing a thread of the data application providing server and scheduling a task.

[16] The receiver in accordance with claim 13, wherein the minimum execution data comprises one of a metadata for the data application and a foundation class data for minimally executing the data application.
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A. CLASSIFICATION OF SUBJECT MATTER

H04N 7/08(2006.01)i

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 8 H04N

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Korean Utility models and applications for Utility models since 1975
Japanese Utility models and applications for Utility models since 1975

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)
eKIPASS (KIPO internal): "broadcast, interactive, server, data application, receiver"

C. DOCUMENTS CONSIDERED TO BE RELEVANT

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<th>Relevant to claim No.</th>
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<td>A</td>
<td>KR 1020040067505 A (SAMSUNG ELECTRONICS CO., LTD.) 30 July 2004 See abstract, claims 1-8, figures 2 and 3.</td>
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<td>A</td>
<td>US 6108706 A (BIRDWELL KENNETH J et al.) 22 August 2000 See abstract; column 2, line 50 - column 6, line 31.</td>
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<td>A</td>
<td>WO 01/31846 A2 (KONINlJKJE PHILIPS ELECTRONICS N V) 03 May 2001 See abstract, page 3, line 27 - page 4, line 26.</td>
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☐ Further documents are listed in the continuation of Box C. ☒ See patent family annex.

* Special categories of cited documents:
  "A": document defining the general state of the art which is not considered to be of particular relevance
  "E": earlier application or patent but published on or after the international filing date
  "L": document which may throw doubts on priority claim(s) or which is cited to establish the publication date of citation or other special reason (as specified)
  "O": document referring to an oral disclosure, use, exhibition or other means
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  "&": document member of the same patent family

Date of the actual completion of the international search 30 APRIL 2008 (30.04.2008)

Date of mailing of the international search report 30 APRIL 2008 (30.04.2008)

Name and mailing address of the ISA/KR

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Facsimile No. 82-42-472-7140

Authorized officer
KIM, Heung Soo
Telephone No. 82-42-481-5764
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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:

Wonjang BAEK, et al.  Conf. No.: Not Yet Assigned

Appl. No.: Not Yet Assigned  Examiner: Not Yet Assigned

Filed: August 13, 2009  Art Unit: Not Yet Assigned


Intl. Filing Date: 14 February 2008

For: DATA APPLICATION PROVIDING SERVER, BROADCASTING SERVER AND RECEIVER FOR DYNAMICALLY PROCESSING DATA APPLICATION AND DIGITAL BROADCASTING SYSTEM INCLUDING THE SAME

PRELIMINARY AMENDMENT

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Commissioner:

Prior to examination on the merits and calculating the filing fee for the national phase application under 35 USC 371, filed herewith, please enter the following amendments:

Amendments to the Specification begin on page 2 of this paper.

An Abstract appears on page 3 of this paper.

Remarks begin on page 4 of this paper.

A Conclusion appears on page 5 of this paper.
Amendments to the Specification:

On page 1 of the Specification, please insert the cross-reference to the prior application after the title and before the heading of the first paragraph (Field of the Invention) by adding the following:

-- This is a National Phase Application filed under 35 USC 371 of International Application No. PCT/KR2008/000881, filed on February 14, 2008, which claims foreign priority benefit under 35 USC 119 of Korean Application No. 10-2007-0015394, filed on February 14, 2007, the entire content of each of which is hereby incorporated herein by reference in its entirety. --
ABSTRACT:

Please place the following Abstract on a new last page of the Application.

A data application providing server, a broadcasting server and a receiver for dynamically processing a data application and a digital broadcasting system including the same are disclosed wherein a data of a minimum quantity required for executing a data application is received and other data is received by a pull method to minimize a time required for receiving and executing the data application, and wherein a change in the data application is facilitated, and a stability of the execution of the data application is maintained and an execution speed is improved through a thread management or a task management.
REMARKS

The above amendments have been made to the specification to incorporate by reference to the earlier filed applications.

An Abstract has been newly added and is in proper U.S. form.

Accordingly, the examiner is respectfully requested to enter the above amendment before examination.

Favorable consideration is respectfully requested.
CONCLUSION

The Examiner is welcomed to telephone the undersigned attorney if any questions or comments should arise.

In the event this paper is not timely filed, Applicants hereby petition for an appropriate extension of time. Please charge any fee deficiency or credit any overpayment to Deposit Account No. 14-0112.

Respectfully submitted,

THE NATH LAW GROUP

Jerald L. Meyer
Registration No. 41,194
Derek Richmond
Registration No. 45,771
Customer No. 20529

Date: August 12, 2009
THE NATH LAW GROUP
112 S. West Street
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Tel: (703) 548-6284
Fax: (703) 683-8396
JLM/DR/bd
DECLARATION FOR PATENT APPLICATION

As a below-named inventor(s), I/we hereby declare that:

My/Our residence(s), post office address(es) and citizenship(s) is/are as stated below next to my/our name(s).

I/We believe I/we am/are the original inventor, first and sole (if only one name is listed below) or the original, first and joint inventors (if plural names are listed below) of the subject matter which is claimed, and for which a patent is sought on the invention entitled:
DATA APPLICATION PROVIDING SERVER, BROADCASTING SERVER AND RECEIVER FOR DYNAMICALY PROCESSING DATA APPLICATION AND DIGITAL BROADCASTING SYSTEM INCLUDING THE SAME
the specification of which: (check one)

[X] was filed on 14 February 2008, as Serial No. PCT/KR2008/000881,
and was amended on ______________________ (if applicable).

I/We hereby state that we have reviewed and understand the contents of the above-identified specification, including the claims, as amended by any amendment referred to above.

I/We acknowledge the duty to disclose information which is material to the patentability of this application as defined by 37 CFR § 1.56.

I/We hereby claim foreign priority benefits under 35 U.S.C. § 119 of any foreign application(s) for patent or inventor's certificate listed below, and have also identified below any foreign application for patent or inventor's certificate having a filing date before that of the application on which priority is claimed.

Prior Foreign Applications:

10-2007-0015394 (Application No.) Rep. of Korea (Country) 14/2/2007 (Day/Month/Year Filed) [X] [ ]

[ ] [ ]

[ ] [ ]

I/We hereby appoint the Practitioners associated with the following Customer Number:

Customer Number 20529

Direct Telephone Calls to:
Gary M. Nath
(703) 548-6284

Send Correspondence to:
Customer Number 20529
THE NATH LAW GROUP
112 South West Street
Alexandria, VA 22314
U.S.A.

I/We hereby claim the benefit under 35 U.S.C. § 120 of any United States application(s) listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States application in the manner provided by 35 U.S.C. § 112, first paragraph, I/we acknowledge the duty to disclose material information as defined in 37 CFR § 1.56 which occurred between the filing date of the prior application and the national or PCT international filing date of this application:

(U.S. Application Serial No.) (U.S. Filing Date) (Status--patented, pending, abandoned)

(U.S. Application Serial No.) (U.S. Filing Date) (Status--patented, pending, abandoned)
DECLARATION FOR PATENT APPLICATION

I/we hereby claim the benefit under 35 U.S.C. 119(e) of any United States provisional application(s) listed below:

Application Number(s) ____________________________ Filing Date ____________________________

We hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements are made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under 18 U.S.C. § 1001 and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

Full name of sole or first inventor: BAEK, Wonjang
Inventor's Signature ____________________________ Date: 5/12/09
Country of Citizenship: Republic of Korea

Full name of second inventor: KIM, John
Inventor's Signature ____________________________ Date: 5/12/09
Residence: SK HUB SU B-1416, 650-4, Guro 1-dong, Guro-qu, Seoul 152-720, Republic of Korea
Country of Citizenship: Republic of Korea
Post Office Address: SK HUB SU B-1416, 650-4, Guro 1-dong, Guro-qu, Seoul 152-720, Republic of Korea

Full name of third inventor: LEE, Seong Baek
Inventor's Signature ____________________________ Date: 5/12/09
Residence: Mokdong Apts. 704-1403, Mok 1-dong, Yangcheon-qu, Seoul 158-757, Republic of Korea
Country of Citizenship: Republic of Korea
Post Office Address: Mokdong Apts. 704-1403, Mok 1-dong, Yangcheon-qu, Seoul 158-757, Republic of Korea
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Title: DATA APPLICATION PROVIDING SERVER, BROADCASTING SERVER AND RECEIVER FOR DYNAMICALLY PROCESSING DATA APPLICATION AND DIGITAL BROADCASTING SYSTEM INCLUDING THE SAME

Abstract: A data application providing server, a broadcasting server and a receiver for dynamically processing a data application and a digital broadcasting system including the same are disclosed wherein a data of a minimum quantity required for executing a data application is received and other data is received by a pull method to minimize a time required for receiving and executing the data application, and wherein a change in the data application is facilitated, and a stability of the execution of the data application is maintained and an execution speed is improved through a thread management or a task management.
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Description
DATA APPLICATION PROVIDING SERVER, BROADCASTING SERVER AND RECEIVER FOR DYNAMICALLY PROCESSING DATA APPLICATION AND DIGITAL BROADCASTING SYSTEM INCLUDING THE SAME

Technical Field

[1] The present invention relates to a data application providing server, a broadcasting server and a receiver for dynamically processing a data application and a digital broadcasting system including the same, and more particularly to a data application providing server, a broadcasting server and a receiver for dynamically processing a data application and a digital broadcasting system including the same wherein a data of a minimum quantity required for executing a data application is received and other data is received by a pull method to minimize a time required for receiving and executing the data application, and wherein a change in the data application is facilitated, and a stability of the execution of the data application is maintained and an execution speed is improved through a thread management or a task management.

Background Art

[2] An environment of a broadcasting is changing as a technology progresses and a demand of a viewer changes. Recently, an analog broadcasting is switched to a digital broadcasting, and a broadcast medium is diversified from a terrestrial broadcasting to a cable broadcasting, a satellite broadcasting, an IP-TV service using a high speed communication network, a terrestrial DMB and a satellite DMB.

[3] The digital broadcasting is capable of providing additional services in various filed such as sports, movies, home shopings and musics because a capacity thereof is four to eight times that of the analog broadcasting. A wide variety of choices for the viewer is also provided since various types of the broadcasting such as the cable broadcasting, the satellite broadcasting, a DMB (Digital Multimedia Broadcasting) and the IP-TV service.

[4] Specifically, a single broadcasting channel has a bandwidth of 6, 7 or 8 MHz. In the analog broadcasting a broadcast program signal, i.e., an analog video signal and an audio signal is transmitted via a carrier signal having the bandwidth of 6, 7 or 8 MHz. therefore, only one broadcast program signal is transmitted via the single broadcasting channel.

[5] However, in the digital broadcasting, the analog video signal and the audio signal are converted to a digital video data and a digital audio data, and the digital video data
and the digital audio data are compressed according to an MPEG technology to be transmitted as the broadcast program signal. Therefore, a plurality of broadcast program signals may be multiplexed in the single broadcasting channel to form a plurality of virtual broadcasting channels.

[6] Accordingly, the digital broadcasting is capable of a multi-channel broadcasting by transmitting the plurality of broadcast program signals wherein the digital video data and the digital audio data are multiplexed into the single broadcasting channel contrary to the analog broadcasting wherein only one broadcast program signal is transmitted via the single broadcasting channel.

[7] The digital broadcasting supports multiple resolutions including a HDTV (High Definition Television) supporting an aspect ratio of 16:9 and a high resolution of 1920×1080 or 1280×720, and a SDTV (Standard Definition Television) supporting an aspect ratio of 16:9 or 4:3 and a resolution of 740×480 or 640×480.

[8] Due to the high resolution of the HDTV, a size of the digital video data is large. As a result, only one broadcast program signal may be transmitted per broadcasting channel. In case of the SDTV, four or five broadcast program signals may be transmitted per broadcasting channel since the size of the digital video data is small, thereby allowing the multi-channel broadcasting.

[9] That is, while only one broadcasting is possible per broadcasting channel in the conventional analog broadcasting, multiple broadcastings are transmitted per broadcasting channel for the multi-channel broadcasting by the compression and the multiplexing of the digital data and the viewer selects the broadcasting from the multiple broadcastings.

[10] Addition to the transmission of the conventional broadcast program signal, various data may be broadcasted and an interactivity may be embodied by associating with the communication network in the digital broadcasting environment. The data broadcasting, various data services using the interactivity in particular, is expected to play a major role in propagating the digital broadcasting in view of an easy use by the viewer.

[11] The terrestrial digital broadcasting was initiated in October, 2001 and the satellite digital broadcasting was initiated in March, 2002 in Korea. The cable digital broadcasting and the IP-TV service are also spreading among cable broadcasters and internet service providers. The terrestrial data broadcasting and the satellite data broadcasting were initiated in June, 2002 in Korea. The digital broadcasting for a mobile reception such as a satellite DMB and a terrestrial DMB is also spreading.

[12] Fig. 1 is a block diagram exemplifying a conventional data broadcast system in a digital broadcast.

[13] As shown, the conventional data broadcast system comprises a broadcasting server
110, a content provider server 120, a data provider server 130 and a receiver 140.

[14] The content provider server 120 provides a broadcast content, i.e. the conventional broadcast program to the broadcasting server 110.

[15] The data provider server 130 provides a content for a data broadcasting, i.e. a data content to the broadcasting server 110.

[16] The broadcasting server 110 receives the broadcast content and the data content from the content provider server 120 and the data provider server 130, respectively, multiplexes and converts the same into various broadcasting specification such as ATSC to be transmitted to the receiver 140 through a broadcast network. The broadcast network includes various networks such as a terrestrial broadcast network, a cable broadcast network, a satellite broadcast network, a high speed communication network of the IP-TV service and a DMB network.

[17] In addition, the broadcasting server 110 may receive a feedback signal transmitted from the receiver 140 through a return channel and transmits the feedback signal to the content provider server 120 or the data provider server 130 for the content provider server 120 or the data provider server 130 to carry out a corresponding process. The receiver 140 may also transmit the feedback signal to the content provider server 120 or the data provider server 130 through the return channel. Preferably, the return channel is embodied by a bidirectional communication network.

[18] The return channel refers to a mean for transmitting a feedback of a viewer to the broadcasting server 110, the content provider server 120 or the data provider server 130 and is not limited in a communication method or a communication format.

[19] The receiver 140 receives the broadcast content and the data content from the broadcasting server 110 and provides the contents to the viewer via a signal processing such as an appropriate decoding. For instance, the receiver 140 may be a digital TV or a set-top box in compliance with the terrestrial broadcasting specification such as the ATSC and interactive data broadcasting specification such as DASE in case of the terrestrial digital broadcasting. The receiver 140 may be a set-top box supporting the broadcasting specification such as OpenCable and DVB and a data broadcasting specification suitable for the broadcasting network such as OCAP and MHP in case of the cable broadcasting or the satellite broadcasting. The receiver 140 may be a set-top box or a mobile communication terminal supporting a corresponding data broadcasting specification in case of the IP-TV or the DMB.

[20] The data content is generally transmitted in a carousel format such as a DSM-CC data/object carousel. Since a processing capacity or a storage capacity of the receiver 140 is limited, it is virtually impossible for the receiver 140 to store and execute an entirety of the data content therein. Therefore, the receiver 140 receives the data content transmitted periodically through the broadcasting network and provides the
data content as the data broadcasting.

[21] The data application may be configured to display a text data based on a font and may include a control element such as a widget and an image. For instance, the data application may include a button or an icon for selecting a desired data.

[22] The data application is transmitted within a digital broadcast signal. The receiver 140 receives and processes the data application. The receiver 140 transmits the processed data application to a display apparatus (not shown). The display apparatus displays the received data application.

[23] In embodying the data broadcasting, a method wherein the data application itself is transmitted within the digital broadcast signal, and a resource required for executing the data application is transmitted through the return channel may be employed. That is, the resource such as an image data may be received by a communication with an apparatus for storing the resource such as the data provider server 130.

[24] Currently, in the IP-TV service for instance, the data application is transmitted via an IP multicast method. Therefore, an excessive time is required for the data application to load after the viewer selects a data broadcasting channel.

[25] The broadcasting server 110 transmits the data application by dividing the data application into packets similar to a transmission of a broadcasting packet. The receiver 140 receives the packets and combines the packets into the data application. Particularly, a transmission speed of the data application in the IP multicast method is lower than that of a unicast method. In addition, the packets may be lost during the transmission so that the data application cannot be executed.

[26] A video data of a digital broadcast program may be reproduced even when a portion of packets is lost by ignoring the lost packets and using other packets. However, the data application cannot be executed when a portion of the packets thereof is lost. Therefore, the receiver 140 should re-receive an entirety of the data application when an error occurs.

[27] In addition, even after the receiver 140 receives the packets of the data application, the receiver should combine the received packets according to an order thereof. Therefore, a time for combining the packets is additionally required when the data application is executed.

[28] Moreover, even after the packets are combined, the receiver 140 cannot load the data application in a divided fashion but load and execute the entirety of the data application. Therefore, an execution speed is degraded and the resource of the receiver 140 is excessively used.

[29] Further more, even when the receiver 140 receives the resource separately from the data application through the return channel, the receiver 140 should receive the resource via a HTTP communication. Therefore, the receiving speed is degraded.
Due to the above-described drawbacks, 10 to 30 seconds of time is consumed for the receiver 140 to receive and provide the data application to the viewer. Therefore, the conventional method is disadvantageous in that an excessive time is required for the reception and the execution of the data application.

**Disclosure of Invention**

**Technical Problem**

It is an object of the present invention to provide a data application providing server, a broadcasting server and a receiver for dynamically processing a data application and a digital broadcasting system including the same wherein a data of minimum quantity required for executing a data application is received and other data is received by a pull method to minimize a time required for receiving and executing the data application, and wherein a change in the data application is facilitated, and a stability of the execution of the data application is maintained and an execution speed is improved through a thread management or a task management.

**Technical Solution**

In order to achieve above-described object of the present invention, there is provided a digital broadcasting system for dynamically processing a data application, the system comprising: a data application providing server for dynamically dividing and providing a minimum execution data and an additional data included in the data application; a broadcasting server for relaying the minimum execution data received from the data application providing server and carrying out a digital broadcast; and a receiver for transmitting a transmission request for the additional data to the data application providing server, the additional data being generated based on the minimum execution data relayed by the broadcasting server, and for providing the data application including the additional data provided by the data application providing server according to the minimum execution data relayed by the broadcasting server and the transmission request.

There is also provided a broadcasting server for dynamically processing a data application, the server comprising: a minimum execution data storage for storing a minimum execution data received from a data application providing server, the data application providing server dynamically dividing and providing the minimum execution data and an additional data included in the data application; a minimum execution data transmitter for transmitting the minimum execution data stored in the minimum execution data storage through a digital broadcast network to a receiver providing the data application.

Preferably, the minimum execution data includes a download location of the data application providing server for obtaining the additional data.
There is also provided a data application providing server for dynamically processing a data application, the server comprising: a data application divider for dividing the data application into a minimum execution data and an additional data; a minimum execution data transmitter for transmitting the minimum execution data to a broadcasting server for carrying out a digital broadcast such that the broadcasting server broadcasts the minimum execution data; an additional data storage for storing the additional data corresponding to the minimum execution data; and a receiver communication interface for transmitting the additional data to the receiver according to a transmission request of the additional data received from the receiver providing the data application.

Preferably, the receiver communication interface transmits the additional data via a communication based on an asynchronous socket.

Preferably, the data application providing server further comprises a task manager for managing a thread of the data application providing server and scheduling a task.

Preferably, the data application divider dynamically divides the minimum execution data and the additional data to correspond to a change in the data application, and the additional data storage stores the dynamically divided additional data.

Preferably, the additional data storage stores the additional data based on a memory.

There is also provided a receiver for dynamically processing a data application, the receiver comprising: a minimum execution data receiver for receiving a minimum execution data through a digital broadcast network from the broadcasting server carrying out a digital broadcast; a minimum execution data analyzer for analyzing the minimum execution data to extract an execution condition information of the data application and an information on an additional data corresponding to the minimum execution data required for executing the data application; a data application providing server interface for transmitting a transmission request for the additional data to a data application providing server during an execution of the minimum execution data, and for receiving the additional data from the data application providing server; and a data application provider for combining the minimum execution data and the additional data to generate the data application, and executing and providing the generated the data application.

Preferably, the data application providing server interface receives the additional data from the data application providing server via a communication based on an asynchronous socket.

Preferably, the receiver further comprises a task manager for managing a thread of the data application providing server and scheduling a task.

Preferably, the minimum execution data includes a download location of the data application providing server for obtaining the additional data.
Preferably, the minimum execution data comprises one of a metadata for the data application and a foundation class data for minimally executing the data application.

**Advantageous Effects**

In accordance with the present invention, a data of a minimum quantity required for executing a data application is received and other data is received by a pull method to minimize a time required for receiving and executing the data application, the change in the data application is facilitated, and the stability of the execution of the data application is maintained and the execution speed is improved through the thread management or the task management.

**Brief Description of the Drawings**

Fig. 1 is a block diagram exemplifying a conventional data broadcast system of a digital broadcast.

Fig. 2 is a block diagram illustrating a digital broadcasting system for dynamically processing a data application in accordance with the present invention.

Fig. 3 is a diagram illustrating a hierarchical structure of a data application providing server of a digital broadcasting system for dynamically processing a data application in accordance with the present invention.

[Description of the reference numerals]

110: broadcasting server 120: content provider server
130: data provider server 140: receiver
200: broadcasting server
210: minimum execution data storage
220: minimum execution data transmitter
300: data application providing server
310: data application divider
330: minimum execution data transmitter
350: additional data storage
370: receiver communication interface 400: receiver
410: minimum execution data receiver
430: minimum execution data analyzer
450: data application providing server interface
470: data application provider

**Best Mode for Carrying Out the Invention**

The present invention will now be described in detail with reference to the accompanied drawings.

Fig. 2 is a block diagram illustrating a digital broadcasting system for dynamically
processing a data application in accordance with the present invention.

Referring to Fig. 2, the digital broadcasting system for dynamically processing the data application in accordance with the present invention comprises a broadcasting server 200, a data application providing server 300 and a receiver 400.

The broadcasting server 200 carries out a digital broadcast. The broadcasting server 200 carries out the digital broadcast using a terrestrial broadcasting network, a cable broadcasting network, a satellite broadcasting network, a communication network similar to an IP-TV or a DMB network.

The broadcasting server 200 in accordance with the present invention receives only a minimum execution data from the data application providing server 300 and relays the minimum execution data to the receiver 400 while carrying out the digital broadcast.

While the conventional broadcasting server transmits an entirety of the data application through the digital broadcast network, the broadcasting server 200 in accordance with the present invention transmits only the minimum execution data.

The data application providing server 300 provides the data application.

The data application providing server 300 dynamically divides the data application into the minimum execution data and an additional data, and transmits the minimum execution data to the broadcasting server 200. The data application providing server 300 receives a transmission request for the additional data transmitted from the receiver 400 corresponding to the minimum execution data that is broadcast by the broadcasting server 200, and transmits the additional data to the receiver 400 to correspond to the transmission request.

The receiver 400 receives and provides the digital broadcast that is broadcast from the broadcasting server 200 and the data application provided by the data application providing server 300.

Specifically, the receiver 400 receives the minimum execution data transmitted from the broadcaster server 200, and analyzes the received minimum execution data to request the additional data to the data application providing server 300. The receiver 400 also receives the additional data form the data application providing server 300 to provide the data application.

In accordance with the digital broadcasting system of the present invention, the data application includes the minimum execution data and the additional data.

The minimum execution data refers to a metadata for the data application or a foundation class data for a minimum execution of the data application.

In addition, the additional data is a data included in the data application exclusive of the minimum execution data. Particularly, the additional data refers to an additional class data or a resource data such as a text or an image required for executing the data
application.

[78] After the data application providing server 300 divides the data application into the minimum execution data and the additional data, the minimum execution data is transmitted to the broadcasting server 200. The broadcasting server 200 transmits only the minimum execution data to the receiver 400.

[79] Thus, in accordance with the present invention, since the data transmitted through the digital broadcast network is the minimum execution data having a small size, a possibility of an error during the transmission may be minimized. Moreover, since the receiver 400 receives only the minimum execution data through the digital broadcast network, a time required for receiving the data application may be minimized. Since the additional data having a large size is transmitted through the return channel having a higher speed than the digital broadcast network, the possibility of the error during the transmission may be minimized, and the time required for the receiver 400 to receive the data application may be minimized.

[80] A detailed description of configurations of the broadcasting server 200, the data application providing server 300 and the receiver 400 is as follows.

[81] Referring to Fig. 2, the broadcasting server 200 includes a minimum execution data storage 210 and a minimum execution data transmitter 220.

[82] The minimum execution data storage 210 receives the minimum execution data from the data application providing server 300 and stores the received minimum execution data.

[83] The minimum execution data transmitter 230 transmits the minimum execution data stored in the minimum execution data storage 210 to the receiver 400 through the digital broadcast network.

[84] The conventional broadcasting server 110 shown in Fig. 1 transmits the data application having the large size resulting in a high possibility of a transmission error and a long transmission time. However, the broadcasting server 200 in accordance with the present invention overcomes the problem of the conventional broadcasting server 110 by transmitting only the minimum execution data.

[85] Still referring to Fig. 2, the data application providing server 300 comprises a data application divider 310, a minimum execution data transmitter 330, an additional data storage 350 and a receiver communication interface 370.

[86] The data application divider 310 divides the data application into the minimum execution data and the additional data.

[87] The division is carried out for an efficient execution of the data application. For instance, the division may be carried out by extracting the metadata for the data application or the foundation class data for the minimum execution of the data application as the minimum execution data and designating the additional class data
required for the execution of the data application or the resource data such as the text or the image as the additional data.

In addition, the division may be carried out dynamically. That is, when a change in the data application occurs frequently, the minimum execution data may be maintained and the additional data, a resource for instance, may be changed.

When the change in the data application occurs frequently, the changed data application should be re-transmitted in accordance with the conventional art. However, in accordance with the present invention, the broadcasting server 200 may transmit an unchanged minimum execution data and the data application providing server 300 may transmit the changed additional data. Therefore, a service expandability, a change facilitation and a management facilitation may be improved in providing the data application.

The minimum execution data transmitter 330 transmits the minimum execution data divided by the data application divider 310 to the broadcasting server 200 such that the broadcasting server 200 may broadcast the minimum execution data.

The additional data storage 350 stores the additional data corresponding to the minimum execution data divided by the data application divider 310.

Preferably, the additional data storage 350 stores the additional data based on a memory. When the additional data is stored based on the memory, the additional data storage 350 may search the stored additional data and provide the searched additional data to the receiver 400 efficiently. Therefore, even when a plurality of the additional data is simultaneously requested from a plurality of the receivers 400, the additional data storage 350 may search the additional data corresponding to each of the requests from the plurality of the receivers 400 and provide the searched additional data to the plurality of the receivers 400, thereby minimizing a system load of the data application providing server 300.

The receiver communication interface 370 receives a transmission request of the additional data from the receiver 400 and transmits the additional data to the receiver 400.

It is preferable that the receiver communication interface 370 transmits the additional data via a communication based on an asynchronous socket.

While the additional data may be received by a conventional HTTP request, it is disadvantageous that a transmission speed thereof is slow.

Therefore, the receiver communication interface 370 may improve the transmission speed of the additional data by carrying out the communication based on the asynchronous socket with the receiver 400.

Although not shown, the data application providing server 300 may further comprise a task manager (not shown) for managing a thread of the data application
providing server 300 and scheduling a task.

[98] Particularly, when a plurality of the threads or the tasks such as the thread or the task corresponding to the request for the plurality of the additional data from the receiver 400, or the thread or the task for extracting the minimum execution data or the additional data are carried out in the data application providing server 300, the task manager controls a system resource of the data application providing server 300 by managing the threads and carrying out a scheduling of the tasks of the data application providing server 300. Accordingly, a use of the system resource of the data application providing server 300 is maximized.

[99] The task manager adjusts an amount of a processed task by controlling a cue size, distributes a task resource efficiently or processes the task based on a priority.

[100] The data application providing server 300 provides the data application efficiently by a service oriented architecture.

[101] Referring to Fig. 2 again, the receiver 410 comprises a minimum execution data receiver 410, a minimum execution data analyzer 430, a data application providing server interface 450 and a data application provider 470.

[102] The minimum execution data receiver 410 receives the minimum execution data through the digital broadcast network from the broadcasting server 200 that carries out the digital broadcast.

[103] The minimum execution data analyzer 430 analyzing the minimum execution data received by the minimum execution data receiver 410 to extract an execution condition information of the data application and an information on the additional data corresponding to the minimum execution data.

[104] The data application providing server interface 450 transmits the transmission request for the additional data to the data application providing server 300 during the execution of the minimum execution data, and receives the additional data from the data application providing server 300.

[105] It is preferable that the data application providing server interface 450 receives the additional data by carrying out the communication based on the asynchronous socket with the data application providing server 300.

[106] Accordingly, the receiving speed is improved.

[107] The additional data may be received by the conventional HTTP request. However, the conventional HTTP request is disadvantageous in that the transmission speed is low.

[108] Therefore, the data application providing server interface 450 carries out the communication based on the asynchronous socket with the data application providing server 300 to improve the receiving speed.

[109] The data application provider 470 executes and provides the data application
obtained by combining the minimum execution data and the additional data received from the data application providing server interface 450.

[110] Although not shown, the receiver 400 may further comprise a task manager (not shown) for managing a thread for executing the data application and scheduling a task.

[111] Particularly, when a plurality of the threads or the tasks such as the thread or the task for executing the data application, or the thread or the task for executing and decoding the digital broadcast are carried out in the receiver 400, the task manager manages the threads and carries out a scheduling of the tasks. Accordingly, a use of the system resource of the receiver 400 is maximized.

[112] The task manager adjusts an amount of a processed task by controlling a cue size, distributes a task resource efficiently or processes the task based on a priority.

[113] Specifically, the task manager manages an entirety of the threads, the tasks and a resource such as a memory. Accordingly, a performance of the receiver 400 in a network communication and a provision of GUI in the receiver 400 is maximized.

Mode for the Invention

[114] Fig. 3 is a diagram illustrating a hierarchical structure of the data application providing server of the digital broadcasting system for dynamically processing the data application in accordance with the present invention.

[115] Fig. 3 is focused on the data application providing server, and the receiver is described in view of a difference between the hierarchical structure of the data application providing server and that of the receiver.

[116] A J2EE at the bottom is a hierarchy for providing an association with a conventional system or providing an expandability of the data application. The J2EE is the hierarchy in the data application providing server. A Java 1.1 hierarchy or a JavaTV hierarchy may exist in the receiver.

[117] Since the data application is mostly created based on a Java, a common data application creation and execution environment is configured via the J2EE, the Java 1.1 or the JavaTV.

[118] A task manager hierarchy carries out a thread management and a scheduling of the tasks.

[119] The task manager hierarchy corresponds to the task manager of the data application providing server or the task manager of the receiver described with reference to Fig. 2.

[120] A network manager hierarchy supports the communication based on the asynchronous socket. The transmission speed is maximized by the asynchronous socket.

[121] The network manager hierarchy may be associated with the management of the thread of the task manager to enable a re-use of a network resource and an im-
provement of a performance.

[122] A method protocol may be embodied in the data application providing server or the receiver similarly, and a communication scheme thereof may be configured to minimize a network load.

[123] A fast file system is for accessing the resource based on the memory and is embodied in the data application providing server. A smart cache system is embodied in the receiver to correspond to the fast file system.

[124] The fast file system carries out an synchronization of the resource stored in the memory such as the additional data and the resource stored in a disk using a transaction. In addition, the fast file system may be configured to be distributed or synchronized in multiple systems.

[125] The smart cache system is configured to obtain, execute and provide various resources such as the class, the image and the text dynamically in the receiver.

[126] A data agent, a logging, a content service and other services are an application hierarchy corresponding to various services of the data application of the digital broadcast.

[127] A hierarchy such as a GUI may be included in the receiver to provide the data application.

[128] While the present invention has been particularly shown and described with reference to the preferred embodiment thereof, it will be understood by those skilled in the art that various changes in form and details may be effected therein without departing from the spirit and scope of the invention as defined by the appended claims.

**Industrial Applicability**

[129] In accordance with the present invention, the data of the minimum quantity required for executing the data application is received and other data is received by the pull method to minimize the time required for receiving and executing the data application, and wherein the change in the data application is facilitated, and the stability of the execution of the data application is maintained and the execution speed is improved through the thread management or the task management.
Claims

[1] A digital broadcasting system for dynamically processing a data application, the system comprising:
   a data application providing server for dynamically dividing and providing a minimum execution data and an additional data included in the data application;
   a broadcasting server for relaying the minimum execution data received from the data application providing server and carrying out a digital broadcast; and
   a receiver for transmitting a transmission request for the additional data to the data application providing server, the transmission request being generated based on the minimum execution data relayed by the broadcasting server, and for providing the data application including the additional data provided by the data application providing server according to the transmission request and the minimum execution data relayed by the broadcasting server.

[2] The system in accordance with claim 1, wherein the minimum execution data includes a download location of the data application providing server for obtaining the additional data.

[3] The system in accordance with claim 1, wherein the minimum execution data comprises one of a metadata for the data application and a foundation class data for minimally executing the data application.

[4] A broadcasting server for dynamically processing a data application, the server comprising:
   a minimum execution data storage for storing a minimum execution data received from a data application providing server, the data application providing server dynamically dividing and providing the minimum execution data and an additional data included in the data application;
   a minimum execution data transmitter for transmitting the minimum execution data stored in the minimum execution data storage through a digital broadcast network to a receiver providing the data application.

[5] The server in accordance with claim 4, wherein the minimum execution data includes a download location of the data application providing server for obtaining the additional data.

[6] The server in accordance with claim 4, wherein the minimum execution data comprises one of a metadata for the data application and a foundation class data for minimally executing the data application.

[7] A data application providing server for dynamically processing a data application, the server comprising:
   a data application divider for dividing the data application into a minimum
execution data and an additional data;

a minimum execution data transmitter for transmitting the minimum execution data to a broadcasting server for carrying out a digital broadcast such that the broadcasting server broadcasts the minimum execution data;

an additional data storage for storing the additional data corresponding to the minimum execution data; and

a receiver communication interface for transmitting the additional data to the receiver according to a transmission request of the additional data received from the receiver providing the data application.

The server in accordance with claim 7, wherein the receiver communication interface transmits the additional data via a communication based on an asynchronous socket.

The server in accordance with claim 7, further comprising a task manager for managing a thread of the data application providing server and scheduling a task.

The server in accordance with claim 7, wherein the data application divider dynamically divides the minimum execution data and the additional data to correspond to a change in the data application, and the additional data storage stores the dynamically divided additional data.

The server in accordance with claim 7, wherein the additional data storage stores the additional data based on a memory.

The server in accordance with claim 7, wherein the minimum execution data comprises one of a metadata for the data application and a foundation class data for minimally executing the data application.

A receiver for dynamically processing a data application, the receiver comprising:

a minimum execution data receiver for receiving a minimum execution data through a digital broadcast network from the broadcasting server carrying out a digital broadcast;

a minimum execution data analyzer for analyzing the minimum execution data to extract an execution condition information of the data application and an information on an additional data corresponding to the minimum execution data required for executing the data application;

a data application providing server interface for transmitting a transmission request for the additional data to a data application providing server during an execution of the minimum execution data, and for receiving the additional data from the data application providing server; and

a data application provider for combining the minimum execution data and the additional data to generate the data application, and executing and providing the
generated the data application.

[14] The receiver in accordance with claim 13, wherein the data application providing server interface receives the additional data from the data application providing server via a communication based on an asynchronous socket.

[15] The receiver in accordance with claim 13, further comprising a task manager for managing a thread of the data application providing server and scheduling a task.

[16] The receiver in accordance with claim 13, wherein the minimum execution data comprises one of a metadata for the data application and a foundation class data for minimally executing the data application.
<table>
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<th>CONTENT SERVICE</th>
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Applicant(s): DREAMER CO., LTD.
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【수신처】 특허청장
【참조번호】 0008
【제출일자】 2007.02.14
【발명의 국문명칭】 데이터 어플리케이션의 동적 실행을 위한 디지털 방송 시스템
【발명의 영문명칭】 DIGITAL BROADCASTING SYSTEM FOR PROCESSING DATA APPLICATION DYNAMICALLY
【출원인】
【명칭】 주식회사 드리머
【출원인코드】 1-2001-005355-0
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【대리인코드】 9-2007-100021-5
【지정된변리사】 김경욱, 박준용, 서일경, 이광현, 이창범
【포괄위임등록번호】 2007-012723-5
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【국적】KR
【심사청구】청구
【취지】특허법 제42조의 규정에 의한 출원, 특허법 제60조의 규정에 의한 심사청구를 합니다.

대리인 특허법인 지명 (인)

【수수료】
【기본출원료】0 면 38,000 원
【가산출원료】36 면 0 원
【우선권주장료】0 건 0 원
【심사청구료】17 항 653,000 원
【합계】691,000 원
【감면사유】소기업 (70%감면)
【감면후 수수료】207,300 원
【첨부서류】
1. 중소기업기본법 제2조의 규정에 따른 소기업에 해당할을
증명하는 서류_1통
본 발명은 디지털 방송을 수행하는 방송 사업자 서버와 데이터 어플리케이션을 제공하는 데이터 어플리케이션 제공 서버의 상기 디지털 방송과 상기 데이터 어플리케이션을 수신하여 제공하는 수신기를 포함하는 디지털 방송 시스템으로서, 상기 방송 사업자 서버는 상기 데이터 어플리케이션 제공 서버로부터 최소 실행 데이터 및 추가 데이터로 분리된 상기 데이터 어플리케이션 중에서 상기 최소 실행 데이터만을 수신하고 수신한 상기 최소 실행 데이터를 상기 수신기에게 전송하는 것이고, 상기 데이터 어플리케이션 제공 서버는 상기 데이터 어플리케이션을 동적으로 상기 최소 실행 데이터 및 상기 추가 데이터로 분리하여 상기 최소 실행 데이터를 상기 방송 사업자 서버로 전송하고 상기 최소 실행 데이터에 대응하여 상기 수신기로부터 전송되는 상기 추가 데이터에 대한 전송 요청을 수신하여 상기 추가 데이터를 상기 수신기에게 전송하는 것이고, 상기 수신기는 상기 방송 사업자 서버로부터 상기 최소 실행 데이터를 수신하고 이를 분석하여 상기 데이터 어플리케이션 제공 서버에게로 상기 추가 데이터의 전송을 요청하며 상기 추가 데이터를 수신하여 상기 데이터 어플리케이션을 제공하는 것인 디지털 방송 데이터 어플리케이션의 동작 실행을 위한 디지털 방송 시스템에 관한 것이다.

본 발명에 따르면, 데이터 어플리케이션 구동에 필요한 최소한의 데이터만을 수신하고 기타 다른 데이터는 필요한 시점에 필요로 할 방식으로 획득하여 데이터 어플리케이션의 수신 및 실행에 필요한 시간을 최소화할 수 있으며 데이터 어플리케이션
의 변경이 용이하며 스페드 또는 테스크 관리를 통하여 테이터 어플리케이션 실행
의 안정성을 확보하고 실행 속도를 향상시킬 수 있다.

【대표도】

도 2

【색인어】

디지털 방송, 테이터 어플리케이션, 최소 실행 테이터, 추가 테이터, 동적

분리
【명세서】

【발명의 명칭】

데이터 아플리케이션의 동적 실행을 위한 디지털 방송 시스템(DIGITAL BROADCASTING SYSTEM FOR PROCESSING DATA APPLICATION DYNAMICALLY)

【도면의 간단한 설명】

<1> 도 1은 종래의 디지털 방송에 있어서 데이터 방송 시스템의 예시적인 구성을 나타내는 도면이다.

<2> 도 2는 본 발명에 따른 데이터 아플리케이션의 동적 실행을 위한 디지털 방송 시스템의 예시적인 블록도.

<3> 도 3은 본 발명에 따른 데이터 아플리케이션의 동적 실행을 위한 디지털 방송 시스템의 데이터 아플리케이션 제공 서버 측의 계층 구조를 예시적으로 나타내는 도면.

<4> <도면의 주요부분에 대한 부호의 설명>

<5> 110: 방송 사업자 서버  120: 컨텐츠 제공자 서버
<6> 130: 데이터 제공자 서버  140: 수신기
<7> 200: 방송 사업자 서버  210: 최소 실행 데이터 저장부
<8> 220: 최소 실행 데이터 전송부  300: 데이터 아플리케이션 제공 서버
<9> 310: 데이터 아플리케이션 분리부  330: 최소 실행 데이터 전송부
<10> 350: 추가 데이터 저장부  370: 수신기 통신 인터페이스부

39-6
400: 수신기 410: 최소 실행 데이터 수신부
430: 최소 실행 데이터 분석부
450: 데이터 어플리케이션 제공 서버 인터페이스부
470: 데이터 어플러케이션 제공부

【발명의 상세한 설명】
【발명의 목적】
【발명이 속하는 기술분야 및 그 분야의 종래기술】
본 발명은 데이터 어플리케이션의 동적 실행을 위한 디지털 방송 시스템에
관한 것으로, 더욱 구체적으로는 데이터 어플리케이션 구동에 필요한 최소한의 데
이터만을 수신하고 기타 다른 데이터는 필요한 시점에 몫 방식으로 획득하여 데이터
어플리케이션의 수신 및 실행에 필요한 시간을 최소화할 수 있으며 데이터 어플리케이
션 실행의 안정성을 확보하고 실행 속도를 향상시킬 수 있는 데이터 어플리케이션
의 동적 실행을 위한 디지털 방송 시스템에 관한 것이다.
기술의 발전과 시청자의 수요변화에 따라 방송 환경이 변화하고 있다. 아날로그 방송에서 디지털 방송으로 전환되고, 지상파 위주에서 케이블 방송과 위성 방송, 그리고 초고속 통신 네트워크를 이용한 소위 IP-포트 서비스, 지상파 및 위성
DMB 서비스 등으로 방송 배체가 다양화되고 있는 상황이다.
디지털 방송은 종래의 아날로그 방송 방식에 비해 용량을 4~8배로 늘릴 수
있어 스포츠, 영화, 흥소평, 음악 등 다양한 분야의 부가 서비스를 제공할 수 있게 되었고, 지상파 방송을 비롯하여 케이블 방송, 위성 방송, DMB 방송, IP-TV, DMB 등의 다양한 방송 형태가 제공됨에 따라 시청자의 선택 폭이 넓어지게 된다.

 좀 더 상세히 설명하면 지상파 방송의 1개의 방송 채널은 6, 7 혹은 8MHz의 대역폭을 가지고 있으며, 종래의 아날로그 방식의 지상파 방송에서는 이러한 6, 7 혹은 8MHz의 대역폭에 방송 프로그램 신호, 즉 아날로그 비디오 신호와 오디오 신호를 함께 실어 전송하므로 1개의 방송 채널에 하나의 방송 신호만을 전송할 수 있었다.

그러나 디지털 방송의 경우 아날로그 비디오 및 오디오 신호를 디지털 데이터로 변환하고, 변환된 디지털 비디오 및 오디오 데이터를 MPEG 기술 등으로 압축하여 방송 프로그램 신호로서 전송함으로써, 1개의 방송 채널에 여러 개의 방송 프로그램 신호를 다중화하여 여러 개의 가상의 방송 채널을 구성할 수 있다. 따라서 종래의 아날로그 방식으로는 하나의 방송 채널로 하나의 방송 프로그램 신호만 전송할 수 있었던 것에 반해, 디지털 방식은 하나의 채널에 디지털 비디오 및 오디오 데이터를 다중화하여 여러 개의 방송 프로그램 신호를 전송할 수 있는 다채널 방송이 가능한 장점이 있다.

여기서 디지털 방송은 여러 가지 해상도를 지원하는데, 화면 비가 16:9이고, 해상도가 1920×1080 또는 1280×720의 고화질의 해상도를 지원하는 HD(High Definition)TV 방식과, 화면비가 4:3 또는 16:9이고, 해상도가 720×480 또는 640×480인 SD(Standard Definition)TV 방식이 있다.
이 경우 HDTV는 해상도가 높기 때문에 디지털 비디오 데이터의 크기가 커지게 되어 결과적으로 방송 프로그램 신호의 데이터 양이 커져서 기존의 1개의 방송 채널에 하나의 방송 프로그램 신호의 전송만이 가능하고, SDTV는 HDTV보다 해상도가 떨어지기 때문에 그만큼 디지털 비디오 데이터의 크기도 작아지게 되어 결과적으로 방송 프로그램 신호가 작아져서 1개의 방송 채널에 4~5개 정도의 방송 프로그램 신호를 다중화하여 다채널 방송을 할 수 있게 된다.

즉, 종래에는 1개의 방송 채널에서 1개의 방송만 할 수 있었던 반해, 디지털 데이터의 압축, 다중화 기술에 따라 1개의 채널에 여러 개의 방송을 동시에 전송하여 다채널 방송을 하고, 시청자는 이러한 다채널 방송 중에서 원하는 방송을 선택하여 시청할 수 있어서 더욱 다양한 방송을 시청할 수 있게 되는 것이다.

또한 이러한 디지털 방송 환경 하에서는 종래의 단순한 방송 프로그램 신호의 전송뿐만이 아니라 다양한 데이터 어플리케이션의 전송이 가능하며 또한 통신 네트워크와의 연동으로 양방향성(interactivity)의 구현도 가능하다. 이러한 데이터 어플리케이션을 이용한 다양한 데이터 서비스들은 시청자가 간편하게 이용할 수 있다는 점에서 디지털 방송 보급에 중요한 역할을 할 수 있을 것으로 예상되고 있다.

국내 방송 산업에서도 2001년 10월에 지상파 방송이, 2002년 3월에 위성 방송이 디지털 본방송을 개시하였으며, 케이블 방송의 디지털화 전환과 IP-TV 서비스의 제공도 각 케이블 SO 또는 통신사 별로 확산되고 있는 상황이다. 또한 2002년 6월에는 지상파와 위성 모두 데이터 방송 시험방송을 실시하는 등 본격적인 양방향
디지털 방송 환경으로 변화하고 있는 상태이다. 또한 위성 DMB 및 지상파 DMB 등의 이동 수신이 가능한 디지털 방송 역시 보급이 확산되고 있는 상황이다.

도 1은 종래의 디지털 방송에 있어서 데이터 방송 시스템의 예시적인 구성도 나타내는 도면이다.

도시화됨에 따라 종래의 방송 시스템은 방송 사업자 서비스(110)와, 컨텐츠 제공자(Contents provider, CP) 서비스(120)와, 데이터 제공자(Data provider, DP) 서비스(130)와, 수신기(140)를 포함한다.

컨텐츠 제공자 서비스(120)는 방송 컨텐츠, 즉 종래의 방송 프로그램을 제작하여 방송 사업자 서비스(110)에게 제공한다.

데이터 제공자 서비스(130)는 데이터 방송을 위한 컨텐츠, 즉 데이터 어플리케이션을 방송 사업자 서비스(110)에게 제공한다.

방송 사업자 서비스(110)는 컨텐츠 제공자 서비스(120)와 데이터 제공자 서비스(130)로부터 방송 컨텐츠와 데이터 어플리케이션을 수신하고 이를 다중화하고 ATSC 등의 다양한 방송 규격으로 변환하여 방송망을 통하여 수신기(140)에게로 전송한다. 여기서 "방송망"은 지상파 방송망, 케이블 방송망, 위성 방송망, IPTV의 초고속 통신 네트워크 또는 DMB 방송망 등 다양한 방송 네트워크를 의미한다.

또한 방송 사업자 서비스(110)는 수신기(140)로부터 전송되는 피드백 신호를 리턴 채널을 통하여 수신하여 이를 컨텐츠 제공자 서비스(120) 또는 데이터 제공자 서비스(130)에게로 전송하여 해당 처리를 수행하도록 한다. 또한 리턴 채널을 통하여 수신기(140)에서 직접 피드백 신호를 컨텐츠 제공자 서비스(120) 또는 데이터 제공자
서비스(130)에게 전송하는 구성도 가능할 것이다. 여기서 "리턴 채널"은 시청자의 피드백을 방송 사업자 서비스(110) 또는 컨텐츠 제공자 서비스(120) 또는 데이터 제공자 서비스(130)에게로 전송할 수 있는 수단을 의미하며 통신 방식이나 형태에 제한을 두지 않는다.

수신기(140)는 방송 사업자 서비스(110)로부터 전송되는 방송 컨텐츠와 데이터 어플리케이션을 수신하여 적절한 디코딩 등의 신호 처리를 수행하여 시청자에게 제공하는 단말이다. 수신기(140)는 예컨대 지상파 디지털 방송의 경우 ATSC 등의 지상파 방송 규격을 만족하며 DASE 등의 양방향 데이터 방송 규격을 지원하는 디지털 TV 또는 셋탑박스일 수 있다. 또는 케이블 방송 또는 위성 방송의 경우 OpenCable 또는 DVB 등의 방송 규격과 각 방송망에 적합한 데이터 방송 규격, 예컨대 OCAP 또는 MHP 등을 지원하는 셋탑박스일 수 있다. 또한 IP-TV 또는 DMB 방송의 경우 수신기(140)는 해당 데이터 방송 규격을 지원하는 셋탑박스 또는 이동통신 단말기일 수도 있다.

현재 디지털 방송을 수신하여 제공하는 수신기(140)는 예컨데 셋탑박스 형태 또는 디지털 방송을 수신하는 TV 또는 디스플레이 장치 형태로 구현될 수 있다. 셋탑박스 형태인 경우에는 별도의 디스플레이 장치가 연결되어 방송을 제공하게 된다. 또한 예컨데 수신기(140)는 DMB 등의 경우에는 이동통신 단말기 또는 DMB 수신기의 형태로 구현될 수 있으며, 또한 PC 상에서 디지털 방송 수신을 수행하는 경우도 가능하다. 이 경우에는 PC에 연결된 모니터 상에서 디지털 방송이 제공될 수 있다.
데이터 어플리케이션은 일반적으로 DSM-CC 데이터/ 객체 카루션(Data/Object Carousel) 등의 규격을 통하여 전송된다. 즉 수신기(140) 내의 처리 용량이나 저장 용량 상의 제한에 의해서 데이터 방송 컨텐츠를 모두 수신기(140) 내에서 저장하고 실행하는 것은 현실적으로 어려우며, 따라서 방송망을 통하여 주기적으로 전송되는 데이터 어플리케이션을 수신하여 데이터 방송을 수행하는 것이다.

데이터 어플리케이션은 에코테 폰트를 기초로 텍스트 데이터를 디스플레이하도록 구성되거나 응용 프로그램의 각 구성 요소인 워드, 이미지 등을 포함할 수 있다. 에코테 데이터 어플리케이션에서 원하는 데이터의 선택을 위한 버튼이나 이미지 아이콘 등을 포함한다.

데이터 어플리케이션은 디지털 방송 신호 내에서 전송된다. 이러한 데이터 어플리케이션은 수신기(140)에서 우선 데이터 어플리케이션을 수신하고 이를 신호 처리하여 수신기(140)에 대응하는 디스플레이 장치에서 디스플레이된다. 또한 데이터 어플리케이션 자체는 디지털 방송 신호 내에서 전송되고 데이터 어플리케이션의 실행에 필요한 리소스, 에코테 이미지 데이터의 경우 HTTP 형태로 데이터 제공자 서버(130) 등의 리소스를 저장하는 장치와의 통신 연결을 통하여 별도의 리턴 채널을 통하여 수신하도록 구성될 수도 있다.

데이터 어플리케이션의 전송의 경우 현재 IP-TV 서비스를 예로 들면 IP 멀티 캐스트 방식으로 데이터 어플리케이션이 전송되기 때문에 데이터 방송 채널을 선택한 후 실제 데이터 어플리케이션을 로딩하기까지 많은 시간이 소요되는 단점이 있다.
즉 방송 사업자 서버(110) 측에서는 데이터 어플리케이션을 전송하는 경우 기존의 방송용 패킷의 전송과 마찬가지로 데이터 어플리케이션을 고정 패킷 크기로 분할하여 전송하고 수신기(140) 측에서 이를 다시 결합하여 데이터 어플리케이션을 수신하게 된다. 이러한 경우 유니캐스트 방식보다 데이터 어플리케이션 전송 속도가 감소하며 또한 중간에 패킷이 유실되어 데이터 어플리케이션 실행이 불가능한 경우가 발생하게 된다.

즉 디지털 방송 프로그램 등의 동영상 데이터의 경우 일부 패킷이 유실되는 경우에도 실시간 연속성으로 인하여 해당 패킷의 오류는 무시하고 다른 패킷들을 이용하여 동영상 실행이 가능하지만 데이터 어플리케이션의 경우에는 이러한 패킷 유실의 경우 실행 자체가 불가능하다. 따라서 오류가 발생하는 경우 다시 처음부터 데이터 어플리케이션을 수신하여 실행시켜야 한다.

또한 수신기(140) 측에서 데이터 어플리케이션 패킷을 수신하는 경우에는 각 패킷의 순서를 수신기(140) 내에서 다시 조합하여야 하므로 패킷 조합에 따른 시간이 추가적으로 소요된다.

또한 패킷 조합이 완료된 이후에도 데이터 어플리케이션을 분할하여 로딩하지 못하고 전체 데이터 어플리케이션을 로딩하여 실행하여야 하므로 실행 속도가 느리지고 수신기(140) 자원을 과다하게 사용하게 된다.

따라서 수신기(140) 측에서 데이터 어플리케이션 실행에 대해서 안정성이 확보되지 못하는 문제점이 있다.

또한 수신기(140) 측에서 데이터 어플리케이션과 별도로 리소스를 리턴 채널
을 통하여 수신하는 경우에도 HTTP 형태를 통하여 리소스를 수신하게 되므로 전송 속도가 낮아지는 단점이 있다.

이러한 문제점들로 인하여 수신기(140)에서 데이터 어플리케이션을 수신하여 실행하고 이를 시청자에게 제공하기까지의 시간은 대략 10~30초 정도가 소요된다. 그러나 이러한 종류의 데이터 어플리케이션 실행에 과도한 시간이 소요되는 것은 사용자에게 많은 불편함을 가져오게 된다.

【발명이 이루고자 하는 기술적 과제】

본 발명의 목적은 데이터 어플리케이션 구동에 필요한 최소한의 데이터만을 수신하고 기타 다른 데이터는 필요한 시점에 폼 방식으로 흐르게하여 데이터 어플리케이션의 수신 및 실행에 필요한 시간을 최소화할 수 있으며 데이터 어플리케이션의 변경이 용이하며 스프레드 또는 테스크 관리를 통하여 데이터 어플리케이션 실행의 안정성을 확보하고 실행 속도를 향상시킬 수 있는 데이터 어플리케이션의 동적 실행을 위한 디지털 방송 시스템을 제공하는 데 있다.

본 발명의 다른 목적은 상기 데이터 어플리케이션의 동적 실행을 위한 디지털 방송 시스템을 구성하는 방송 사업자 서버와 데이터 어플리케이션 제공 서버와 수신기를 제공하는데 있다.

【발명의 구성】

상기 기술적 과제를 달성하기 위하여, 본 발명은 디지털 방송을 수행하는 방송 사업자 서버와 데이터 어플리케이션을 제공하는 데이터 어플리케이션 제공 서버와 상기 디지털 방송과 상기 데이터 어플리케이션을 수신하여 제공하는 수신기를
포함하는 디지털 방송 시스템으로서, 상기 방송 사업자 서버는 상기 데이터 어플리케이션 제공 서버로부터 최소 실행 데이터 및 추가 데이터로 분리된 상기 데이터 어플리케이션 중에서 상기 최소 실행 데이터만을 수신하고 수신한 상기 최소 실행 데이터를 상기 수신기에게 전송하는 것이고, 상기 데이터 어플리케이션 제공 서버는 상기 데이터 어플리케이션을 동적으로 상기 최소 실행 데이터 및 상기 추가 데이터로 분리하여 상기 최소 실행 데이터를 상기 방송 사업자 서버로 전송하고 상기 최소 실행 데이터에 대응하여 상기 수신기로부터 전송되는 상기 추가 데이터에 대한 전송 요청을 수신하여 상기 추가 데이터를 상기 수신기에게 전송하는 것이고, 상기 수신기는 상기 방송 사업자 서버로부터 상기 최소 실행 데이터를 수신하고 이를 분석하여 상기 데이터 어플리케이션 제공 서버에게로 상기 추가 데이터의 전송을 요청하며 상기 추가 데이터를 수신하여 상기 데이터 어플리케이션을 제공하는 것인 디지털 방송 데이터 어플리케이션의 동적 실행을 위한 디지털 방송 시스템을 제공한다.

본 발명에 따른 디지털 방송 데이터 어플리케이션의 동적 실행을 위한 디지털 방송 시스템에 있어서, 상기 최소 실행 데이터는 상기 추가 데이터를 획득하기 위한 상기 데이터 어플리케이션 제공 서버의 위치 정보를 포함할 수 있다.

또한 본 발명에 따른 디지털 방송 데이터 어플리케이션의 동적 실행을 위한 디지털 방송 시스템에 있어서, 상기 최소 실행 데이터는 상기 데이터 어플리케이션 에 대한 메타데이터 또는 상기 데이터 어플리케이션의 최소 실행을 위한 기반 클레스 데이터일 수 있다.

본 발명에 따른 디지털 방송 데이터 어플리케이션의 동적 실행을 위한 방송 사업자 서버에 있어서, 상기 최소 실행 데이터는 상기 추가 데이터를 획득하기 위한 상기 데이터 어플리케이션 제공 서버의 위치 정보를 포함할 수 있다.

또한 본 발명에 따른 디지털 방송 데이터 어플리케이션의 동적 실행을 위한 방송 사업자 서버에 있어서, 상기 최소 실행 데이터는 상기 데이터 어플리케이션 제공 서버로부터 상기 최소 실행 데이터를 수신하여 저장할 수 있다.

또한 본 발명에 따른 디지털 방송 데이터 어플리케이션의 동적 실행을 위한 방송 사업자 서버에 있어서, 상기 최소 실행 데이터는 상기 데이터 어플리케이션에 대한 메타데이터 또는 상기 데이터 어플리케이션의 최소 실행을 위한 기반 클래스 데이터일 수 있다.
또한 본 발명은 디지털 방송을 수행하는 방송 사업자 서버와 데이터 어플리케이션을 제공하는 데이터 어플리케이션 제공 서버와 상기 디지털 방송과 상기 데이터 어플리케이션을 수신하여 제공하는 수신기를 포함하는 디지털 방송 시스템에서의 데이터 어플리케이션의 동작 실행을 위한 데이터 어플리케이션 제공 서버로서, 상기 데이터 어플리케이션을 최소 실행 데이터와 추가 데이터로 분리하는 데이터 어플리케이션 분리부와, 상기 최소 실행 데이터를 상기 방송 사업자 서버로 전송하여 상기 방송 사업자 서버가 상기 최소 실행 데이터를 방송하도록 제어하는 최소 실행 데이터 전송부와, 상기 최소 실행 데이터에 대응하는 상기 추가 데이터의 전송 요청을 수신하고 상기 전송 요청에 대응하여 상기 추가 데이터를 상기 수신기에 전송하는 수신기 통신 인터페이스부를 포함하는 것인 데이터 어플리케이션의 동작 실행을 위한 데이터 어플리케이션 제공 서버를 제공한다.

본 발명에 따른 디지털 방송 데이터 어플리케이션의 동작 실행을 위한 데이터 어플리케이션 제공 서버에 있어서, 상기 수신기 통신 인터페이스부는 비동기 소켓 기반으로 상기 수신기와의 통신 연결을 설정한 후 상기 추가 데이터를 전송할 수 있다.

또한 본 발명에 따른 디지털 방송 데이터 어플리케이션의 동작 실행을 위한 데이터 어플리케이션 제공 서버에 있어서, 상기 데이터 어플리케이션 제공 서버 내부의 스테드 관리 및 테스크 사이의 스케줄링을 수행하는 테스크 관리부를 더 포함할 수 있다.
또한 본 발명에 따른 디지털 방송 데이터 어플리케이션의 동적 실행을 위한 데이터 어플리케이션 제공 서버에 있어서, 상기 데이터 어플리케이션 분리부는 상기 데이터 어플리케이션의 변경에 대응하여 동적으로 상기 최소 실행 데이터와 상기 추가 데이터를 분리하는 것이고, 상기 추가 데이터 저장부는 동적으로 분리되는 상기 추가 데이터를 저장할 수 있다.

또한 본 발명에 따른 디지털 방송 데이터 어플리케이션의 동적 실행을 위한 데이터 어플리케이션 제공 서버에 있어서, 상기 추가 데이터 저장부는 메모리 기반으로 상기 추가 데이터를 저장할 수 있다.

또한 본 발명에 따른 디지털 방송 데이터 어플리케이션의 동적 실행을 위한 데이터 어플리케이션 제공 서버에 있어서, 상기 최소 실행 데이터는 상기 데이터 어플리케이션에 대한 메타데이터 또는 상기 데이터 어플리케이션의 최소 실행을 위한 기반 클래스 데이터일 수 있다.

또한 본 발명은 디지털 방송을 수행하는 방송 사업자 서버와 데이터 어플리케이션을 제공하는 데이터 어플리케이션 제공 서버와 상기 디지털 방송과 상기 데이터 어플리케이션을 수신하여 제공하는 수신기를 포함하는 디지털 방송 시스템에서의 데이터 어플리케이션의 동적 실행을 위한 수신기로서, 상기 방송 사업자 서버로부터 디지털 방송망을 통하여 전송되는 데이터 어플리케이션의 최소 실행 데이터를 수신하는 최소 실행 데이터 수신부와, 상기 최소 실행 데이터를 분석하여 상기 데이터 어플리케이션의 실행 조건과 상기 최소 실행 데이터에 대응하는 상기 데이터 어플리케이션의 실행에 필요한 추가 데이터에 대한 정보를 추출하는 최소 실행
데이터 분석부와, 상기 최소 실행 데이터의 실행 도중에 상기 데이터 어플리케이션 제공 서버에 상기 추가 데이터에 대한 전송을 요청하고 상기 데이터 어플리케이션 제공 서버로부터 상기 추가 데이터를 수신하는 데이터 어플리케이션 제공 서버 인터페이스부와, 상기 최소 실행 데이터와 상기 추가 데이터를 결합하여 상기 데이터 어플리케이션을 수행하여 제공하는 데이터 어플리케이션 제공부를 포함하는 데이터 어플리케이션의 동적 실행을 위한 수신기를 제공한다.

본 발명에 따른 디지털 방송 데이터 어플리케이션의 동적 실행을 위한 수신기에 있어서, 상기 데이터 어플리케이션 제공 서버 인터페이스부는 비동기 소켓 기반으로 상기 데이터 어플리케이션 제공 서버 인터페이스부와의 통신 연결을 설정한 후 상기 추가 데이터를 수신할 수 있다.

또한 본 발명에 따른 디지털 방송 데이터 어플리케이션의 동적 실행을 위한 수신기에 있어서, 상기 데이터 어플리케이션의 실행을 위한 스레드 관리 및 태스크 사이의 스케줄링을 수행하는 태스크 관리부를 더 포함할 수 있다.

또한 본 발명에 따른 디지털 방송 데이터 어플리케이션의 동적 실행을 위한 수신기에 있어서, 상기 최소 실행 데이터는 상기 데이터 어플리케이션에 대한 메타 데이터 또는 상기 데이터 어플리케이션의 최소 실행을 위한 기반 클래스 데이터일 수 있다.

이하, 본 발명의 데이터 어플리케이션의 동적 실행을 위한 디지털 방송 시스템의 설계에를 첨부한 도면을 참조로 보다 구체적으로 설명한다.

도 2는 본 발명에 따른 데이터 어플리케이션의 동적 실행을 위한 디지털 방
송 시스템의 예시적인 물리도이다.

도시화의 본 발병에 따른 데이터 어플리케이션의 동적 실행을 위한 디지털 방송 시스템은 방송 사업자 서버(200)와, 데이터 어플리케이션 제공 서버(300)와, 수신기(400)를 포함한다.

방송 사업자 서버(200)는 디지털 방송을 수행하는 장치이다. 에코네트 지상파, 케이블 또는 위성 방송망을 이용하거나, IP-TV와 같이 통신 네트워크를 이용하거나 DMB 방송망을 이용하여 디지털 방송을 수행한다.

본 발병에 따른 테이터 어플리케이션의 동적 실행을 위한 디지털 방송 시스템의 방송 사업자 서버(200)는 이러한 디지털 방송 수행 이외에도 데이터 어플리케이션 제공 서버(300)로부터 최소 실행 데이터 및 추가 데이터로 분리된 데이터 어플리케이션 중에서 최소 실행 데이터만을 수신하고, 수신한 상기 실행 데이터를 수신기(400)에게 전송하는 역할을 수행한다.

중대의 경우 방송 사업자 서버는 데이터 어플리케이션 전체를 디지털 방송망을 통하여 전송하나 이러한 경우 전송한 문제점들이 발생하므로 이러한 문제점을 개선하기 위하여 최소 실행 데이터만을 전송하도록 구성된다.

데이터 어플리케이션 제공 서버(300)는 데이터 어플리케이션을 제공한다.

데이터 어플리케이션 제공 서버(300)는 데이터 어플리케이션을 동적으로 최소 실행 데이터 및 추가 데이터로 분리하고, 최소 실행 데이터를 방송 사업자 서버(200)에게 전송하며, 방송 사업자 서버(200)에서 방송한 최소 실행 데이터에 대응하여 수신기(400)로부터 전송되는 추가 데이터에 대한 전송 요청을 수신하여 수신하기
가 데이터를 수신기(400)에게로 전송한다.

수신기(400)는 방송 사업자 서버(200)로부터 방송되는 디지털 방송과 데이터 이플러케이션 제공 서버(300)로부터 전송되는 데이터 이플러케이션을 수신하여 제공한다.

즉 수신기(400)는 방송 사업자 서버(200)로부터 방송되는 최소 실행 데이터를 수신하고 이를 분석하여 데이터 이플러케이션 제공 서버(300)에게로 추가 데이터의 전송을 요청하며 데이터 이플러케이션 제공 서버(300)로부터 추가 데이터를 수신하여 데이터 이플러케이션을 제공한다.

본 발명에 따른 데이터 이플러케이션의 동적 실행을 위한 디지털 방송 시스템에 있어서 데이터 이플러케이션은 최소 실행 데이터 및 추가 데이터로 분리된다.

최소 실행 데이터는 데이터 이플러케이션에 대한 메타데이터 또는 상기 데이터 이플러케이션의 최소 실행을 위한 기반 클래스 데이터를 의미한다.

또한 추가 데이터는 최소 실행 데이터를 제외한 나머지 데이터 이플러케이션의 데이터로서, 데이터 이플러케이션의 실행에 필요한 추가 클래스 데이터 또는 텍스트나 이미지 등의 리소스 데이터를 의미한다.

이러한 분리를 통하여 데이터 크기가 작은 최소 실행 데이터는 방송 사업자 서버(200)에서 수신기(400) 측으로 전송하여 디지털 방송망을 통한 데이터 전송을 최소화하여 데이터 이플러케이션 전송 동종의 오류 가능성을 최소화하며 데이터 이플러케이션 수신 시간을 최소화할 수 있다. 또한 데이터 크기가 큰 추가 데이터는 데이터 이플러케이션 제공 서버(300)에서 수신기(400) 측으로 전송하며, 이 경우
보다 높은 통신 속도를 제공하는 리턴 채널을 통하여 전송함으로써 통신 오류 가능성을 최소화하고 데이터 어플리케이션 수신 시간을 최소화할 수 있다.

이러한 방송 사업자 서버(200)와, 데이터 어플리케이션 제공 서버(300)와, 수신기(400)의 상세 구성에 대하여 좀 더 상세히 설명하면 다음과 같다.

도 2를 참조하면 방송 사업자 서버(200)는 최소 실행 데이터 저장부(210)와, 최소 실행 데이터 전송부(230)를 포함한다.

최소 실행 데이터 저장부(210)는 데이터 어플리케이션 제공 서버(300)로부터 최소 실행 데이터 및 추가 데이터로 분리된 데이터 어플리케이션 중에서 상기 최소 실행 데이터만을 저장한다.

최소 실행 데이터 전송부(230)는 최소 실행 데이터 저장부(210)에 저장된 최소 실행 데이터를 디지털 방송망을 통하여 수신기(400)에게로 전송한다.

이러한 구성을 통하여 중개 방송 사업자 서버(200)에서 데이터 크기가 큰 데이터 어플리케이션을 전송하는 것에 의해서 전송 오류의 가능성이 높아지고 전송 속도 역시 증가하게 되는 단점을 개선할 수 있다.

도 2를 참조하면 데이터 어플리케이션 제공 서버(300)는 데이터 어플리케이션 분리부(310)와, 최소 실행 데이터 전송부(330)와, 추가 데이터 저장부(350)와, 수신기 통신 인터페이스부(370)를 포함한다.

데이터 어플리케이션 분리부(310)는 데이터 어플리케이션을 최소 실행 데이터와 추가 데이터로 분리한다.

이러한 분리는 데이터 어플리케이션의 효율적인 실행을 위해서 수행되며, 예
컨테이너 아플리케이션에 대한 메타데이터 또는 상기 데이터 아플리케이션의 최소 실행을 위한 기반 클래스 데이터를 최소 실행 데이터로 주출하고, 나머지 데이터 아플리케이션의 실행에 필요한 추가 클래스 데이터 또는 텍스트나 이미지 등의 리소스 데이터를 추가 데이터로 지정하는 것에 의해서 수행된다.

이런 데이터의 경우 항목마다 서비스 사례(200)에서부터 이러한 변경된 데이터 아플리케이션을 다시 전송하여야 하지만, 본 발명에 따른 경우 서비스 사례(200)는 동일한 최소 실행 데이터를 전송할 수 있고, 데이터 아플리케이션 제공 서비스(300)에서 변경된 추가 데이터를 제공할 수 있어서 데이터 아플리케이션 제공에 있어서 서비스 확장성이나 변경 효율성, 또는 관리 용이성을 높일 수 있다.

최소 실행 데이터 전송부(330)는 데이터 아플리케이션 분리부(310)에서 분리한 최소 실행 데이터를 방송 사업자 서버(200)로 전송하여 방송 사업자 서버(200)가 최소 실행 데이터를 방송하도록 제어한다.

추가 데이터 저장부(350)는 데이터 아플리케이션 분리부(310)에서 분리한 최소 실행 데이터에 대응하는 추가 데이터를 저장한다.

비밀직하게는 추가 데이터 저장부(350)는 추가 데이터를 메모리 기반으로 저장한다. 이러한 메모리 기반 저장은 저장된 추가 데이터를 검색하여 수신기(400) 즉으로 제공하는 경우 효율적일 수 있으며, 특히 다수의 수신기(400)로부터 다수의
추가 데이터 요청이 수신되는 경우에도 사용자 부하 처리를 수행할 수 있는 장점이 있다.

수신기 통신 인터페이스부(370)는 수신기(400)로부터의 추가 데이터의 전송 요청을 수신하고 수신한 전송 요청에 대응하여 추가 데이터를 수신기(400)에 전송한다.

이 경우 수신기 통신 인터페이스부(370)는 바람직하게는 비동기 소켓 기반으로 수신기(400)와의 통신 연결을 설정한 후 추가 데이터를 전송할 수 있다.

즉 종래의 경우 http 요청 등을 통하여 데이터 전송이 수행될 수 있지만 이러한 http 요청을 통한 통신의 경우에는 속도가 느린 단점이 있다.

따라서 별도의 비동기 소켓 기반으로 수신기(400)와의 통신 연결을 설정함으로써 추가 데이터의 전송 속도를 높일 수 있다.

또한 도시되지 않았지만 데이터 어플리케이션 제공 서버(300)는 데이터 어플리케이션 제공 서버(300) 내부의 스플래드 관리 및 테스크 사이의 스케줄링을 수행하는 테스크 관리부(도시되지 않음)를 더 포함할 수 있다.

테스크 관리부(도시되지 않음)는 특히 다수의 수신기(400)로부터 다수의 추가 데이터 요청이 수신되는 경우 또는 최소 실행 데이터 또는 추가 데이터 등의 생성이 있어서 데이터 어플리케이션 제공 서버(300)의 스플래드 관리 및 테스크 사이의 스케줄링을 통하여 데이터 어플리케이션 제공 서버(300)의 리소스를 최대 성능으로 동작할 수 있도록 제어한다.

즉 큐 사이즈를 조정하여 테스크 처리량을 조절하거나, 테스크 자원의 효율
적인 분배 또는 우선 순위를 기반으로 테스크를 처리한다.

이 경우 서비스 지향 구조(Service Oriented Architecture)를 통하여 실제 데이터 어플리케이션 서비스 제공을 효율적으로 수행할 수 있다.

도 2를 참조하면 수신기(400)는 최소 실행 데이터 수신부(410)와, 최소 실행 데이터 분석부(430)와, 데이터 어플리케이션 제공 서버 인터페이스부(450)와, 데이터 어플리케이션 제공부(470)를 포함한다.

최소 실행 데이터 수신부(410)는 방송 사업자 서비(200)로부터 디지털 방송 방정한 후 추가 데이터를 수신할 수 있다.

즉 종래의 경우 http 요청에 대한 대응 등을 통하여 데이터 수신이 수행될 수 있지만 이러한 http 요청을 통한 통신의 경우에는 속도가 느린 단점이 있다.
따라서 별도의 비동기 채널 기반으로 데이터 어플리케이션 제공 서버(300)와의 통신 연결을 설정함으로써 추가 데이터의 수신 속도를 높일 수 있다.

데이타 어플리케이션 제공부(470)는 최소 실행 데이터에 데이터 어플리케이션 제공 서버 인터페이스부(450)에서 수신한 추가 데이터를 결합하여 데이터 어플리케이션을 실행하여 제공한다.

또한 도시되지 않은 시스템(400)는 데이터 어플리케이션의 실행을 위한 스래드 관리 및 태스크 사이의 스케줄링을 수행하는 태스크 관리부(도시되지 않음)를 더 포함할 수 있다.

태스크 관리부(도시되지 않음)는 특히 수신기(400) 내에서 예컨대 데이터 어플리케이션 실행과 디지털 방송 디코딩 및 실행 등의 다수의 스래드 또는 태스크가 수행되는 경우 스래드 관리 및 태스크 사이의 스케줄링을 통하여 수신기(400)의 리소스를 최대 성능으로 동작할 수 있도록 제어한다.

즉 큐 사이즈를 조정하여 태스크 처리량을 조절하거나, 태스크 자원의 효율적인 분배 또는 우선 순위를 기반으로 태스크를 처리한다.

예컨대 태스크 관리부(도시되지 않음)는 수신기(400) 내의 전체 스래드 또는 태스크 또는 메모리 등의 리소스를 관리하여 특히 네트워크 통신 또는 GUI 제공 등에 있어서 성능을 극대화하도록 구성된다.

도 3은 본 발명에 따른 데이터 어플리케이션의 동작 실행을 위한 디지털 방송 시스템의 데이터 어플리케이션 제공 서버 측의 계층 구조를 예시적으로 나타내는 도면이다.
도 3에서는 데이터 어플리케이션 제공 서버에 대해서도시되며, 수신기에 대해서는 데이터 어플리케이션 제공 서버의 계층 구조와의 차이점을 위주로 설명한다.

최하단의 J2EE는 표준 기반으로 기존 시스템과의 연계 또는 데이터 어플리케이션의 확장성을 제공하기 위한 계층이다. J2EE는 데이터 어플리케이션 제공 서버 층의 계층이며, 수신기 측에서는 Java 1.1 또는 JavaTV 계층이 존재할 수 있다.

데이터 어플리케이션은 Java를 기반으로 제작되는 경우가 대부분이므로, J2EE 또는 Java 1.1 또는 JavaTV를 통하여 공동된 데이터 어플리케이션 제작 및 실행 환경을 구성을 하게 된다.

테스크 관리자 계층은 스레드 관리 및 테스크 간의 스케줄링을 담당한다.

도 2를 참조로 설명한 데이터 어플리케이션 제공 서버의 테스크 관리부 또는 수신기의 테스크 관리부에 대응한다.

네트워크 관리자 계층은 비동기 소켓 기반으로 데이터 통신을 지원하는 계층이다. 이 경우 소켓을 생성하여 데이터 전송 성능을 극대화할 수 있다.

또한 에밀리 테스크 관리자의 스레드 관리와 연계하여 네트워크 자원의 재활용 및 성능 개선이 가능하다.

메소드 프로토콜은 데이터 어플리케이션 제공 서버 또는 수신기에서 동일하게 구현될 수 있으며, 네트워크 부하를 최소화하도록 통신 방식을 설정할 수 있다.

패스트 파일 시스템(Fast File System)은 메모리 기반으로 리소스에 접근하기 위한 방식으로서 데이터 어플리케이션 제공 서버 측에서 구현된다. 수신기의 정
우 이에 대응하여 스마트 캐시 시스템(Smart Cache System)이 구현된다.

패스트 파일 시스템은 특히 트랜잭션 기능을 통하여 메모리에 저장된 리소스, 예컨대 전송한 추가 데이터 둘과 디스크 등의 저장 장치에 저장된 리소스의 동기화를 수행하며, 다수의 시스템에서 분산하여 구성하거나 동기화가 가능하도록 구성될 수 있다.

스마트 캐시 시스템은 수신기 측에서 동적으로 다양한 리소스(클래스, 이미지, 텍스트) 등을 획득하고 실행하여 제공 가능하도록 구성된다.

기타 데이터 에이전트, 로깅, 컨텐츠 서비스, 기타 서비스 등의 제공은 디지털 방송의 데이터 어플리케이션의 다양한 서비스들에 대응하는 응용 계층이다.

또한 수신기측에서는 예컨대 GUI 등의 계층이 존재하여 데이터 어플리케이션을 시청자에게 제공할 수 있다.

비록 본 발명의 구성이 구체적으로 설명되었지만 이는 단지 본 발명을 예시적으로 설명한 것에 불과한 것으로, 본 발명이 속하는 기술분야에서 통상의 지식을 가진 자라면 본 발명의 본질적인 특성을 생각할 수 있는 범위 내에서 다양한 변형이 가능할 것이다.

따라서 본 명세서에 기술된 실시예들은 본 발명을 한정하기 위한 것이 아니라 설명하기 위한 것이고, 이러한 실시예에 의하여 본 발명의 사상과 범위가 한정되는 것은 아니다. 본 발명의 범위는 아래의 청구법위에 의해 해석되어야 하며, 그와 동등한 범위 내에 있는 모든 기술은 본 발명의 권리범위에 포함되는 것으로 해석되어야 할 것이다.
【발명의 효과】

이상 설명한 바와 같이, 본 발명에 따르면 데이터 어플리케이션 구동에 필요한 최소한의 데이터만을 수신하고 기타 다른 데이터는 필요한 시점에 폴 방식으로 획득하여 데이터 어플리케이션의 수신 및 실행에 필요한 시간을 최소화할 수 있으며 데이터 어플리케이션의 변경이 용이하며 스페드 또는 테스크 관리를 통하여 데이터 어플리케이션 실행의 안정성을 확보하고 실행 속도를 향상시킬 수 있다.
[특허청구범위]

【청구항 1】

디지털 방송을 수행하는 방송 사업자 서버와 테이터 어플리케이션을 제공하는 데이터 어플리케이션 제공 서버와 상기 디지털 방송과 상기 데이터 어플리케이션을 수신하여 제공하는 수신기를 포함하는 디지털 방송 시스템으로서,

상기 방송 사업자 서버는 상기 데이터 어플리케이션 제공 서버로부터 최소 실행 테이터 및 추가 데이터로 분리된 상기 데이터 어플리케이션 중에서 상기 최소 실행 데이터만을 수신하고 수신한 상기 최소 실행 데이터를 상기 수신기에계로 전송하는 것이고,

상기 데이터 어플리케이션 제공 서버는 상기 데이터 어플리케이션을 동작으로 상기 최소 실행 데이터 및 상기 추가 데이터로 분리하여 상기 최소 실행 데이터를 상기 방송 사업자 서버로 전송하고 상기 최소 실행 데이터에 대응하여 상기 수신기로부터 전송되는 상기 추가 데이터에 대한 전송 요청을 수신하여 상기 추가 데이터를 상기 수신기에계로 전송하는 것이고,

상기 수신기는 상기 방송 사업자 서버로부터 상기 최소 실행 데이터를 수신하고 이를 분석하여 상기 데이터 어플리케이션 제공 서버에게로 상기 추가 데이터의 전송을 요청하며 상기 추가 데이터를 수신하여 상기 데이터 어플리케이션을 제공하는 것인 디지털 방송 대화 어플리케이션의 동작 실행을 위한 디지털 방송 시스템.

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【청구항 2】

제1항에 있어서,

상기 최소 실행 데이티는 상기 추가 데이티를 획득하기 위한 상기 데이티 어플리케이션 제공 서버의 위치 정보를 포함하는 것이 디지털 방송 데이티 어플리케이션의 동적 실행을 위한 디지털 방송 시스템.

【청구항 3】

제1항에 있어서,

상기 최소 실행 데이티는 상기 데이티 어플리케이션에 대한 메타데이터 또는 상기 데이티 어플리케이션의 최소 실행을 위한 기반 클래스 데이티인 것인 디지털 방송 데이티 어플리케이션의 동적 실행을 위한 디지털 방송 시스템.

【청구항 4】

디지털 방송을 수행하는 방송 사업자 서버와 데이티 어플리케이션을 제공하는 데이티 어플리케이션 제공 서버와 상기 디지털 방송과 상기 데이티 어플리케이션을 수신하여 제공하는 수신기를 포함하는 디지털 방송 시스템에서의 데이티 어플리케이션의 동적 실행을 위한 방송 사업자 서버로서,

상기 데이티 어플리케이션 제공 서버로부터 최소 실행 데이티 및 추가 데이티로 분리된 상기 데이티 어플리케이션 중에서 상기 최소 실행 데이티만을 수신하여 저장하는 최소 실행 데이티 저장부와.

상기 최소 실행 데이티 저장부에 저장된 상기 최소 실행 데이티를 디지털 방
송망을 통하여 상기 수신기에게로 전송하는 최소 실행 데이터 전송부

를 포함하는 디지털 방송 데이터 어플리케이션의 동적 실행을 위한 방송 사업자 서버.

【청구항 5】

제4항에 있어서,

상기 최소 실행 데이터는 상기 추가 데이터를 획득하기 위한 상기 데이터 어플리케이션 제공 서버의 위치 정보를 포함하는 것인 디지털 방송 데이터 어플리케이션의 동적 실행을 위한 방송 사업자 서버.

【청구항 6】

제4항에 있어서,

상기 최소 실행 데이터 저장부는 상기 데이터 어플리케이션 제공 서버로부터 상기 최소 실행 데이터를 수신하여 저장하는 것인 디지털 방송 데이터 어플리케이션의 동적 실행을 위한 방송 사업자 서버.

【청구항 7】

제4항에 있어서,

상기 최소 실행 데이터는 상기 데이터 어플리케이션에 대한 메타데이터 또는 상기 데이터 어플리케이션의 최소 실행을 위한 기본 클래스 데이터인 것인 디지털 방송 데이터 어플리케이션의 동적 실행을 위한 방송 사업자 서버.
【청구항 8】

디지털 방송을 수행하는 방송 사업자 서버와 데이터 어플리케이션을 제공하는 데이터 어플리케이션 제공 서버와 상기 디지털 방송과 상기 데이터 어플리케이션을 수신하여 제공하는 수신기를 포함하는 디지털 방송 시스템에서의 데이터 어플리케이션의 동작 실행을 위한 데이터 어플리케이션 제공 서버로서,

상기 데이터 어플리케이션을 최소 실행 데이터와 추가 데이터로 분리하는 데이터 어플리케이션 분리부와,

상기 최소 실행 데이터를 상기 방송 사업자 서버로 전송하여 상기 방송 사업자 서버가 상기 최소 실행 데이터를 방송하도록 제어하는 최소 실행 데이터 전송부와,

상기 최소 실행 데이터에 대응하는 상기 추가 데이터를 저장하는 추가 데이터 저장부와,

상기 수신기로부터의 상기 추가 데이터의 전송 요청을 수신하고 상기 전송 요청에 대응하여 상기 추가 데이터를 상기 수신기에 전송하는 수신기 통신 인터페이스부

를 포함하는 것인 데이터 어플리케이션의 동작 실행을 위한 데이터 어플리케이션 제공 서버.

【청구항 9】

제8항에 있어서.
상기 수신기 통신 인터페이스부는 비동기 소켓 기반으로 상기 수신기와의 통신 연결을 설정한 후 상기 추가 데이터를 전송하는 것인 데이터 어플리케이션의 동적 실행을 위한 데이터 어플리케이션 제공 서비스.

【청구항 10】

제8항에 있어서,

상기 데이터 어플리케이션 제공 서비스 내부의 스크립트 관리 및 테스크 사이의 스크줄링을 수행하는 테스크 관리부

볼 더 포함하는 데이터 어플리케이션의 동적 실행을 위한 데이터 어플리케이션 제공 서비스.

【청구항 11】

제8항에 있어서,

상기 데이터 어플리케이션 분리부는 상기 데이터 어플리케이션의 변경에 대응하여 동적으로 상기 최소 실행 데이터와 상기 추가 데이터를 분리하는 것이고,

상기 추가 데이터 저장부는 동적으로 분리되는 상기 추가 데이터를 저장하는 것인 데이터 어플리케이션의 동적 실행을 위한 데이터 어플리케이션 제공 서비스.

【청구항 12】

제8항에 있어서,

상기 추가 데이터 저장부는 메모리 기반으로 상기 추가 데이터를 저장하는 것인 데이터 어플리케이션의 동적 실행을 위한 데이터 어플리케이션 제공 서비스.
【청구항 13】

제8항에 있어서,

상기 최소 실행 데이터는 상기 데이터 어플리케이션에 대한 메타데이터 또는
상기 데이터 어플리케이션의 최소 실행을 위한 기반 클래스 데이터인 것인 데이터
어플리케이션의 동작 실행을 위한 데이터 어플리케이션 제공 서버.

【청구항 14】

디지털 방송을 수행하는 방송 사업자 서버와 데이터 어플리케이션을 제공하
는 데이터 어플리케이션 제공 서버와 상기 디지털 방송과 상기 데이터 어플리케이
션을 수신하여 제공하는 수신기를 포함하는 디지털 방송 시스템에서의 데이터 어플
리케이션의 동작 실행을 위한 수신기로서.

상기 방송 사업자 서버로부터 디지털 방송망을 통하여 전송되는 데이터 어플
리케이션의 최소 실행 데이터를 수신하는 최소 실행 데이터 수신부와.

상기 최소 실행 데이터를 분석하여 상기 데이터 어플리케이션의 실행 조건과
상기 최소 실행 데이터에 대응하는 상기 데이터 어플리케이션의 실행에 필요한 주
가 데이터에 대한 정보를 추출하는 최소 실행 데이터 분석부와.

상기 최소 실행 데이터의 실행 도중에 상기 데이터 어플리케이션 제공 서버
에 상기 추가 데이터에 대한 전송을 요청하고 상기 데이터 어플리케이션 제공 서버
로부터 상기 추가 데이터를 수신하는 데이터 어플리케이션 제공 서버 인터페이스부
와.
상기 최소 실행 데이터와 상기 추가 데이터를 결합하여 상기 데이터 어플리케이션을 실행하여 제공하는 데이터 어플리케이션 제공부

를 포함하는 데이터 어플리케이션의 동적 실행을 위한 수신기.

【청구항 15】

제14항에 있어서,

상기 데이터 어플리케이션 제공 서버 인터페이스부는 비동기 소켓 기반으로 상기 데이터 어플리케이션 제공 서버 인터페이스부와의 통신 연결을 설정한 후 상기 추가 데이터를 수신하는 것을 데이터 어플리케이션의 동적 실행을 위한 수신기.

【청구항 16】

제14항에 있어서,

상기 데이터 어플리케이션의 실행을 위한 스레드 관리 및 테스크 사이의 스케줄링을 수행하는 테스크 관리부

를 더 포함하는 데이터 어플리케이션의 동적 실행을 위한 수신기.

【청구항 17】

제14항에 있어서,

상기 최소 실행 데이터는 상기 데이터 어플리케이션에 대한 메타데이터 또는 상기 데이터 어플리케이션의 최소 실행을 위한 기반 클래스 데이터인 것인 데이터 어플리케이션의 동적 실행을 위한 수신기.
【도면】

【도 1】
### [도 3]

<table>
<thead>
<tr>
<th>데이터</th>
<th>로깅</th>
<th>컨텐츠 서비스</th>
<th>기타 서비스</th>
</tr>
</thead>
<tbody>
<tr>
<td>에소드 프로토콜</td>
<td>패스트 파일 시스템</td>
<td>네트워크 관리자</td>
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J2EE
**PATENT APPLICATION FEE DETERMINATION RECORD**

**Application or Docket Number**
12/449,565

**Filing Date**
08/13/2009

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**APPLICATION AS FILED – PART I**

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| BASIC FEE | MINUS 20 | 20 | N/A | N/A |

| TEXAS FEE | MINUS 3 | 3 | N/A | N/A |

**EXAMINATION FEE**

- TOTAL CLAIMS
- INDEPENDENT CLAIMS

**APPLICATION SIZE FEE**

- If the specification and drawings exceed 100 sheets of paper, the application size fee due is $250 ($125 for small entity) for each additional 50 sheets of fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(h).

**MULTIPLE DEPENDENT CLAIM PRESENT**

- If the difference in column 1 is less than zero, enter "0" in column 2.

**APPLICATION AS AMENDED – PART II**

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**Application Size Fee (37 CFR 1.16(s))**

**FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(g))**

**AMENDMENT**

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| CLAIMS     | HIGHEST NUMBER | PRESENT EXTRA |
| REMAINING  | PREVIOUSLY     |               |
| AFTER     | PAID FOR      |               |
| AMENDMENT |                |               |

**Application Size Fee (37 CFR 1.16(s))**

**FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(g))**

**TOTAL ADD'L FEE**

**LEGAL INSTRUMENT EXAMINER:**

JAMES MASON

This collection of information is required by 37 CFR 1.16. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.141. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

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