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)-273-2885

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 Faintest 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 07/23/2013
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 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) 273-2885, on the date indicated below.

(Deponent's name)
(Signature)
(Date)

APPLICATION NO. 12/450,067
FILING DATE 09/10/2009
FIRST NAMED INVENTOR Wonjung Baek
ATTORNEY DOCKET NO. 0356.1008
CONFIRMATION NO. 3500

TITLE OF INVENTION: METHOD OF PROVIDING DIGITAL TV APPLICATION

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1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.363).
   - Change of correspondence address (or Change of Correspondence Address form PTOL/SPB/122) attached.
   - "Fee Address" indication (or "Fee Address" Indication form PTOL/SPB/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.

   1. Stein IP, LLC
   2. 
   3. 

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
   SK Planet Co., Ltd.

   (B) RESIDENCE: (CITY and STATE OR COUNTRY)
   Seoul, REPUBLIC OF KOREA

4a. The following fee(s) are submitted:
   - Issue Fee
   - Publication Fee (No small entity discount permitted)
   - Advance Order - 8 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-203B is attached.
   - The Director is hereby authorized to charge the required fee(s), any deficiency, or credit any overpayment, to Deposit Account Number 903333 (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 form 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 micro entity status.

NOTE: Checking this box will be taken to be a notification of loss of entitlement to small or micro entity status, as applicable.

Authorized Signature ____________________________ Date ______

[Signature]

Typed or printed name: Sungyeop Chung

Registration No. 64,130

This collection of information is required by 37 CFR 1.311. The information is required to obtain or retain a benefit by the public which it 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.
**Electronic Patent Application Fee Transmittal**

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### U.S. National Stage under 35 USC 371 Filing Fees

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**Warnings:**

**Information:**

**Total Files Size (in bytes):** 245285

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.
NOTICE OF ALLOWANCE AND FEE(S) DUE

49455
7590
07/23/2013

STEIN IP, LLC
1400 EYE STREET, NW
SUITE 300
WASHINGTON, DC 20005

EXAMINER
PENG, HSIU-NOFEI

ART UNIT
PAPER NUMBER
2426

DATE MAILED: 07/23/2013

APPLICATION NO. FILING DATE FIRST NAMED INVENTOR ATTORNEY DOCKET NO. CONFIRMATION NO.
12/450,067 09/10/2009 Wonjang Baek 0366.1008 3600

TITLE OF INVENTION: METHOD OF PROVIDING DIGITAL TV APPLICATION

APPLN. TYPE ENTITY STATUS ISSUE FEE DUE PUBLICATION FEE DUE PREV. PAID ISSUE FEE TOTAL FEE(S) DUE DATE DUE
nonprovisional SMALL $890 $300 $0 $1190 10/23/2013

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 patentees' 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)-273-2885

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  07/23/2013

STEIN IP, LLC
1400 EYE STREET, NW
SUITE 300
WASHINGTON, DC 20005

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 примечание

(Deponent’s name)

(Signature)

(Date)

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TITLE OF INVENTION: METHOD OF PROVIDING DIGITAL TV APPLICATION

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1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.363).  
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   - (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 credit 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.

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**NOTE:** Checking this box will be taken to be a notification of loss of entitlement to small or micro entity status, as applicable.

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**Authorized Signature**  

______________________________

**Date**

______________________________

**Typed or printed name**  

______________________________

**Registration No.**

______________________________

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

The Patent Term Adjustment to date is 317 day(s). If the issue fee is paid on the date that is three months after the mailing date of this notice and the patent issues on the Tuesday before the date that is 28 weeks (six and a half months) after the mailing date of this notice, the Patent Term Adjustment will be 317 day(s).

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 Customer Service Center of the Office of Patent Publication at 1-(888)-786-0101 or (571)-272-4200.
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

-- 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 04/01/2013.
   - 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 1-4, 6, 8-11, 13 and 14. 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)
2. ☐ Information Disclosure Statements (PTO/SB/08), Paper No./Mail Date _____
3. ☐ Examiner’s Comment Regarding Requirement for Deposit of Biological Material
4. ☐ Interview Summary (PTO-413), Paper No./Mail Date _____

5. ☑ Examiner’s Amendment/Comment
6. ☐ Examiner’s Statement of Reasons for Allowance
7. ☐ Other _____.
DETAILED ACTION

Reason for Allowance

1. The prior art of records considered as a whole fails to anticipate or render limitations of "... a method of dividing and storing a digital broadcasting application into a plurality of execution data; receiving an application requesting event from a client device and extracting and transmitting one of the plurality of execution data to the client device; storing a plurality of control profiles including a plurality of control nodes corresponds to a plurality of scenarios for the application requesting event, wherein extracting one of the plurality of the execution data to the client device is based on one of the plurality of control profiles suitable for the application request event, wherein a first control node included in a first control profile of the plurality of control profiles is associated with a second control node included in a second control profile, the first control node being a low-ranking control node of the first control profile and the second control node being an intermediate-ranking control node of the second control profile" in independent Claim 1 to be obvious.

Claim 9 directed to a different method embodiment specifically for digital television application with similar limitations as recited in claim 1 is also allowed.

2. 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.”

Correspondence Information

3. Any inquiry concerning this communication or earlier communications from the examiner should be directed to FRED PENG whose telephone number is (571)270-1147. The examiner can normally be reached on Monday-Friday 09:30-19:30.
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nasser 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.

/Fred Peng/
Examiner, Art Unit 2426

/NASSER GOODARZI/
Supervisory Patent Examiner, Art Unit 2426
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07/15/2013

Total Claims Allowed: 11

07/16/2013

O.G. Print Claim(s): 1
O.G. Print Figure: FIG.3
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Date: 07/15/2013  
Total Claims Allowed: 11

:NASSER GOODARZI:/  
Supervisory Patent Examiner. Art Unit 2426  
Date: 07/16/2013  
O.G. Print Claim(s): 1  
O.G. Print Figure: FIG.3

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**Claims renumbered in the same order as presented by applicant**: No

**CPA**: No

**T.D.**: No

**R.1.47**: No

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**FRED PENG**
Examiner, Art Unit 2426

(Assistant Examiner)

07/15/2013

**Total Claims Allowed**: 11

**O.G. Print Claim(s)**: 1

**O.G. Print Figure**: FIG.3

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**NASSER GOODARZI**
Supervisory Patent Examiner, Art Unit 2426

(Primary Examiner)

07/16/2013

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U.S. Patent and Trademark Office

Part of Paper No. 20130715
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- **÷** Restricted
- **N** Non-Elected
- **I** Interference
- **A** Appeal
- **O** Objected

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☐ CPA
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☐ R.1.47

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re the Application of:

Wonjang BAEK et al.          Confirmation No. 3600
Application No. 12/450,067      Group Art Unit: 2426
Filed: September 10, 2009     Examiner: Hsiungfei PENG

For: METHOD OF PROVIDING DIGITAL TV APPLICATION

AMENDMENT

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

Sir:

This is in response to the Office Action mailed January 3, 2013, and having an initial period for response set to expire on April 3, 2013.

Reconsideration of the claims is respectfully requested. The following remarks are respectfully submitted.
AMENDMENTS TO THE CLAIMS

Please AMEND claims 1 and 9, and ADD new claims 13 and 14, in accordance with the following:

1. (Currently Amended) A method for providing a digital TV application in an application providing server for providing the digital TV application, the method comprising steps of:
   (a) dividing the digital broadcasting application into a plurality of execution data and storing the plurality of execution data;
   (b) receiving an application requesting event transmitted from a receiver, the receiver executing and providing the digital broadcasting application;
   (c) extracting one of the plurality of execution data to be provided to the receiver, the extracted execution data corresponding to the application requesting event;
   (d) transmitting the execution data extracted in the step (c) to the receiver; and
   (e) storing a plurality of control profiles including a plurality of control nodes corresponding to a plurality of scenarios for the application requesting event,

   wherein the step (c) comprises extracting one of the plurality of the execution data to be provided to the receiver based on one of the plurality of control profiles suitable for the application requesting event, and

   wherein a first control node included in a first control profile of the plurality of control profiles is associated with a second control node included in a second control profile different from the first control profile, the first control node being a low-ranking control node of the first control profile and the second control node being an intermediate-ranking control node of the second control profile.

2. (Original) The method in accordance with claim 1, wherein each of the plurality of the execution data includes at least one of an executable code, a display data and a resource data for an initial screen of the digital TV application.

3. (Original) The method in accordance with claim 1, wherein the step (b) comprises: (b-1) receiving the application requesting event including at least one of a channel identification information for a channel, a device identification information for the receiver, a user identification information for a user of the receiver, and an identification information for the
4. (Original) The method in accordance with claim 3, wherein the step (c) comprises (c-1) extracting one of the plurality of the execution data to be provided to the receiver based on at least one of the channel identification information, the device identification information, the user identification information and the identification information for the execution data.

5. (Cancelled)

6. (Previously Presented) The method in accordance with claim 1, wherein the control node includes an identification information for one of the plurality of the execution data to be provided to the receiver.

7. (Cancelled)

8. (Previously Presented) The method in accordance with claim 1, wherein each of the plurality of the control profile or each of the plurality of the control node is represented by an identifier, and the association is represented in a form of a link to the identifier.

9. (Currently Amended) A method for providing a digital TV application in a receiver for receiving providing the digital TV application, the method comprising steps of:
   (a) generating an application requesting event for requesting an execution data, the execution data classified according to a scene of the digital TV application for executing the digital TV application;
   (b) transmitting the application requesting event to the application providing server for providing the digital broadcasting application;
   (c) receiving the execution data corresponding to the application requesting event transmitted from the application providing server;
   (d) executing the execution data to provide the digital TV application;
   (e) storing a plurality of control profiles including a plurality of control nodes corresponding to a plurality of scenarios for the application requesting event; and
   (f) extracting the execution data to be provided to the receiver based on one of the plurality of control profiles suitable for the application requesting event,
   wherein a first control node included in a first control profile of the plurality of control
profiles is associated with a second control node included in a second control profile different from the first control profile, the first control node being a low-ranking control node of the first control profile and the second control node being an intermediate-ranking control node of the second control profile.

10. (Original) The method in accordance with claim 9, wherein the step (a) comprises: (a-1) generating the application requesting event including at least one of a channel identification information of a current channel, a user input information within the current channel, a device identification information of the receiver, a user identification information of a user of the receiver, and an identification information of the execution data.

11. (Original) The method in accordance with claim 9, wherein the execution data includes at least one of an executable code, a display data and a resource data for the scene of the digital TV application.

12. (Cancelled)

13. (New) The method in accordance with claim 1, wherein an event corresponding to the first control node occurs, a scene-to-scene jumping to the second control node is implemented.

14. (New) The method in accordance with claim 9, wherein an event corresponding to the first control node occurs, a scene-to-scene jumping to the second control node is implemented.
REMARKS

In accordance with the foregoing, claims 1 and 9 have been amended, and new claims 13 and 14 have been added. Support for the amended features of claims 1 and 9 can be found at least in paragraphs [143]-[150] of the specification as originally filed. Support for the features recited in new claims 13 and 14 can be found at least in paragraph [152] of the specification as originally filed.

Upon entry of this amendment, claims 1-4, 6, 8-11, 13 and 14 are pending and under consideration. No new matter within the meaning of 35 U.S.C. §132 is presented in this Amendment.

REJECTIONS UNDER 35 U.S.C. § 103:

Claims 1-4, 6 and 8-11 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent Application Publication No. 2005/0028206 to Cameron et al. (hereinafter, "Cameron") in view of U.S. Patent No. 7,941,564 to Gebhardt et al. (hereinafter, "Gebhardt").

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).

Assuming arguendo Cameron and Gebhardt can be combined and a reasonable expectation of success exists, the combined references still do not disclose all of the features recited in claim 1. Claim 1, as amended, recites inter alia:

wherein a first control node included in a first control profile of the plurality of control profiles is associated with a second control node included in a second control profile different from the first control profile, the first control node being
a low-ranking control node of the first control profile and the second control node being an intermediate-ranking control node of the second control profile. (Emphasis added)

The Examiner effectively concedes that these claim features are not taught in Cameron. See the Office Action, page 3, paragraph 2. While contending that the secondary prior art, Gebhardt, cures such deficiencies of Cameron, the Examiner states, on page 3, paragraph 3, the following:

In an analogous art, Gebhardt equally discloses a first control node (a link corresponding to a scenario in a segment) included in a first control profile (such as interactivity control profile for the previous segment of a broadcast program) of the plurality of control profiles is associatable with a second control node (another link) included in a second control profile (such as interactivity control profile for the current segment of the broadcast program) different from the first control profile (e.g., see Col 5 line 43 – Col 6 line 3).

As can be understood from the above, the Office Action characterizes that the "a link corresponding to a scenario in a segment" of Gebhardt as allegedly teaching the "first control node" recited in claim 1;

the "interactive control profile for the previous segment of a broadcast program" of Gebhardt as allegedly teaching the "first control profile" recited in claim 1;

the "another link" of Gebhardt as allegedly teaching the "second control node" recited in claim 1; and

the "interactivity control profile for the current segment of the broadcast program" of Gebhardt as allegedly teaching the "second control profile" recited in claim 1.

Without prejudice, Applicant respectfully points out that Gebhardt fails to teach or suggest that the "a link corresponding to a scenario in a segment" (allegedly the "first control node") may be a lower-ranking control node of the "interactive control profile for the previous segment of a broadcast program" (allegedly the "first control profile"), or that the "another link" (allegedly the "second control node") may be an intermediate-ranking control node of the "interactivity control profile for the current segment of the broadcast program" (allegedly the "second control profile").

Furthermore, Gebhardt also fails to teach or suggest that the "a link corresponding to a
scenario in a segment” (allegedly the “first control node”) is associated with the “another link” (allegedly the “second control profile”).

Therefore, it is clear that alleged combination of the prior art does not teach at least “wherein a first control node included in a first control profile of the plurality of control profiles is associated with a second control node included in a second control profile different from the first control profile, the first control node being a low-ranking control node of the first control profile and the second control node being an intermediate-ranking control node of the second control profile,” as recited in claim 1. Accordingly, it is respectfully submitted that claim 1 is allowable over Cameron and Gebhardt, whether taken alone or in combination.

Independent claim 9 recites the features similar to those of claim 1 as discussed above, and is thus allowable for at least this reason. Claims 2-4, 6, 8, 10 and 11 depend from claim 1 or 9, and are thus allowable for at least this reason. New claims 13 and 14 are deemed allowable at least because they depend from allowable claims 1 and 9, respectively.

In view of the foregoing, it is respectfully requested that the rejection of claims 1-4, 6 and 8-11 under 35 U.S.C. § 103(a) 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: 4/11/13

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
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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.
REPLY/AMENDMENT FEE TRANSMITTAL

Attorney Docket No. 0366.1008
Application Number 12/450,067
Filing Date September 10, 2009
First Named Inventor Wonjae BAEEK
Group Art Unit 2425

AMOUNT ENCLOSED $0.00 Examiner Name Hsiungfei PENG

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Since an Official Action set an original due date of April 3, 2013, petition is hereby made for an extension to cover the date this reply is filed for which the requisite fee is enclosed (1 month ($200)); (2 months ($600)); (3 months ($1,400)); (4 months ($2,200)); (5 months ($3,000)); Notice of Appeal is enclosed (37 CFR 41.20(b)(1): $800.00) $0.00 Information Disclosure Statement is enclosed and fee is required (37 CFR 1.17(p): $180.00) $0.00 Total of above calculations = $0.00 Reduction by 50% for filing by small entity (37 CFR 1.27) - $0.00 Reduction by 75% for filing by micro entity (37 CFR 1.29) - $ Total of above calculations = $0.00 Statutory Disclaimer is enclosed (37 CFR 1.20(d): $160.00) $0.00 TOTAL FEES DUE = $0.00

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.
☒ Payment authorized and made via EFS-Web.
☐ 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 IP, LLC

☐ 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 U.S.C. § 120 (e.g., continuations/divisions/CIPs under 37 CFR 1.53(b) and/or continuations/divisions/CPAs under 37 CFR 1.53(d)) to maintain pendency hereof or of any such related application.

SUBMITTED BY: STEIN IP, LLC

Typed Name Sungyeop Chung Reg. No. 64,130
Signature
Date April 1, 2013
## APPLICATION AS FILED – PART I

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## APPLICATION AS AMENDED – PART II

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

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** Application Size Fee (37 CFR 1.16(a))

TOTAL ADD'L FEE | 0

* Application Size Fee (37 CFR 1.16(a))

** Application Size Fee (37 CFR 1.16(a))

TOTAL ADD'L FEE | 0

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** Application Size Fee (37 CFR 1.16(a))

TOTAL ADD'L FEE | 0

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* Application Size Fee (37 CFR 1.16(a))

** Application Size Fee (37 CFR 1.16(a))

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* Application Size Fee (37 CFR 1.16(a))

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* Application Size Fee (37 CFR 1.16(a))

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TOTAL ADD'L FEE | 0

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TOTAL ADD'L FEE | 0

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The "Highest Number Previously Paid For" (Total or Independent) is the highest number found in the appropriate box in column 1.
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. 12/450,067
Applicant(s) BAEK ET AL.
Examiner FRED PENG
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) ☑ Responsive to communication(s) filed on 04 September 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) 1-4, 6 and 8-11 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) 1-4, 6 and 8-11 is/are rejected.
8) ☐ Claim(s) ____ is/are objected to.
9) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

* If any claims have been determined allowable, 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.

Application Papers

10) ☐ The specification is objected to by the Examiner.
11) ☑ The drawing(s) filed on 10 September 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).

Priority under 35 U.S.C. § 119

12) ☑ 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) ☐ Information Disclosure Statement(s) (PTO/SB/08)
   Paper No(s)/Mail Date ______.
3) ☐ Interview Summary (PTO-413)
   Paper No(s)/Mail Date ______.
4) ☐ Other: ______.
DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 09/04/2012 has been entered.

Status of Claims

2. Claims 1-4, 6 and 8-11 are pending in this 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 through 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, Cameron discloses a method for providing a digital TV application in an application providing server for providing the digital TV application, the method comprising steps of dividing the digital broadcasting application into a plurality of execution data and storing the plurality of execution data (e.g., see FIG.3; Para 36 lines 7-15; Para 41; Para 48; a web server and corresponding database including home page data and corresponding link data for additional self-service for digital broadcasting application); receiving an application requesting
event transmitted from a receiver, the receiver executing and providing the digital broadcasting application (e.g., see Para 64; when a web browser application requesting for a home page for more information when viewing a broadcast program); extracting one of the plurality of execution data to be provided to the receiver, the extracted execution data corresponding to the application requesting event (e.g., see Para 64; the web server then extracting the home page for transmission); and transmitting the execution data extracted to the receiver (e.g., see Para 64 lines 17-19; the web server then transmitting the home page); storing a plurality of control profiles including a plurality of control nodes corresponding to a plurality of scenarios for the application requesting event (e.g., see Para 64 lines 7 to last – last; each broadcast program including a control profile including a plurality of control nodes such as hotlinks corresponding to a plurality of scenarios in the broadcast program), wherein extracting one of the plurality of the execution data to be provided to the receiver based on one of the plurality of control profiles suitable for the application requesting event (e.g., see Para 64 lines 7 to last – last; extracting a web page corresponding to the scenario in the broadcast program).

Cameron is silent about a first control node included in a first control profile of the plurality of control profiles is associatable with a second control node included in a second control profile different from the first control profile.

In an analogous art, Gebhardt equally discloses a first control node (a link corresponding to a scenario in a segment) included in a first control profile (such as interactivity control profile for the previous segment of a broadcast program) of the plurality of control profiles is associatable with a second control node (another link) included in a second control profile (such as interactivity control profile for the current segment of the broadcast program) different from the first control profile (e.g., see Col 5 line 43 – Col 6 line 3).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Cameron’s system to include a first control node included in a first control profile of the plurality of control profiles is associatable with a second control node included in a second control profile, as taught by Gebhardt to take advantage of the available
sharing data for processing, thus avoid additional time for access and improve database efficiency.

Regarding Claims 2 and 11, Cameron further discloses each of the plurality of the execution data includes at least one of an executable code, a display data and a resource data for an initial screen of the digital TV application (e.g., see Para 48; the HTML home page includes at least one of an executable code, a display data and a resource data for an initial screen of the digital TV application).

Regarding Claims 3 and 10, Cameron further discloses receiving the application requesting event including at least one of a channel identification information for a channel, a device identification information for the receiver, a user identification information for a user of the receiver, and an identification information for the execution data (e.g., see Para 64; such as a channel number or an URL).

Regarding Claim 4, Cameron further discloses extracting one of the plurality of the execution data to be provided to the receiver based on at least one of the channel identification information, the device identification information, the user identification information and the identification information for the execution data (e.g., see Para 64; such as channel number or URL).

Regarding Claim 6, Cameron further discloses the control node includes an identification information for one of the plurality of the execution data to be provided to the receiver (e.g., see Para 64; the hotlink or URL is an identification information).

Regarding Claim 8, Cameron further discloses each of the plurality of the control profile or each of the plurality of the control node is represented by an identifier, and the association is
represented in a form of a link to the identifier (a hotlink such as URL is an identifier, and the
association is represented in a form of a link to the identifier).

Regarding Claim 9, Cameron discloses a method for providing a digital TV application in
a receiver for receiving providing the digital TV application, the method comprising steps of
generating an application requesting event for requesting an execution data, the execution data
classified according to a scene of the digital TV application for executing the digital TV application
(e.g., see Para 64 lines 13-19; request a web page for information related to the subject matter
currently being viewed); transmitting the application requesting event to the application providing
server for providing the digital broadcasting application (e.g., see Para 64 lines 13-19; then
transmitting the hotlink address or an URL to the web server); receiving the execution data
responding to the application requesting event transmitted from the application providing
server (e.g., see Para 64 lines 13-19; receiving corresponding web page); and executing the
execution data to provide the digital TV application (e.g., see Para 64 lines 13-19; then display
the web page on the screen).

The amended limitation of “storing a plurality of control profiles including a plurality of
control nodes corresponding to a plurality of scenarios for the application requesting event; and
extracting the execution data to be provided to the receiver based on one of the plurality of
control profiles suitable for the application requesting event, wherein a first control node included
in a first control profile of the plurality of control profiles is associatable with a second control node
included in a second control profile different from the first control profile” is similar to the amended
limitation in claim 1, thus is rejected based on the same grounds as set forth in claim 1.

Response to Arguments

4. Applicant’s arguments filed 09/04/2012 have been fully considered but they are not persuasive.

In reference to Applicant’s arguments
However, other than providing HTML pages or linking to external webpages, there is no disclosure of an overall application, or that the individual HTML pages are executable elements of a larger application as would be understood by one skilled in the art. In the instant case, one skilled in the art would not confuse HTML pages with a digital broadcasting application having execution data, and there is no evidence that such a usage is consistent with either the specification or the understanding of one skilled in the art. Compare Dictionary.com, (Application defined for computers as "a computer program used for a particular type of job or problem: Your new computer comes preloaded with applications") (last visited June 5, 2012) with Dictionary.com, (Website defined as "a connected group of pages on the World Wide Web regarded as a single entity, usually maintained by one person or organization and devoted to a single topic or several closely related topics") (last visited June 5, 2012). Further, there is no evidence that one skilled in the art would consider HTML pages as being executable. As such, it is respectfully submitted that, even given its broadest reasonable interpretation, the combination does not disclose or suggest the "digital broadcasting application" or "the plurality of execution data" as recited in claim 1.

**Examiner’s response**

The Examiner respectfully disagrees. As one of ordinary skill in the art would understand that a web browser combined with television broadcasting application (such as interactive program guide, IPG) together can be popularly used as interactive television applications to access various websites or application servers for products promotion or services selection. Thus, when the television interactive application using a web browser access a website or interactive program guide for program schedule during the broadcasting of a television program, the webpage encoded as a HTML format or schedule guide data will be recognized and executed by the web browser or IPG as execution data.

**In reference to Applicant’s arguments**

However, there is no suggestion that the self-service or on-demand video obtained through the HTML pages are accessed from the channels containing the hotlink or URL within the
IPG program itself. As such, Cameron et al. does not disclose "dividing the digital broadcasting application into a plurality of execution data and storing the plurality of execution data", "extracting one of the plurality of execution data to be provided to the receiver, the extracted execution data corresponding to the application requesting event" and "storing a plurality of control profiles including a plurality of control nodes corresponding to a plurality of scenarios for the application requesting event".

**Examiner’s response**

The Examiner disagrees. The self-service or on-demand video can be obtained through the interactive program guide (IPG) which is considered as part of interactive television application and includes a plurality of execution data such as program guide data including program titles, times and channel numbers etc. and storing the plurality of program guide data for later access and selection by the user (e.g., see Para 52). Alternatively, the HTML pages can be obtained via the URLs by the web browser application while watching a broadcasting program which storing a plurality of control profiles (such as program schedule control for each segment and corresponding commercials) including a plurality of control nodes (such as links) corresponding to a plurality of scenarios for the application requesting event (e.g., see Para 64).

**In reference to Applicant’s arguments**

Also, Cameron et al. discloses that the URLs refer to websites, such as www.imaqictv.com. Thus, where a hotlink is selected, the reference will be to a webpage as opposed to another element of the IPG program or the HTML pages provided from the DVTM 40. However, such external websites are not stored with the server which transmitted the HTML pages.

**Examiner’s response**

In response to applicant’s argument that the references fail to show certain features of applicant’s invention, it is noted that the features upon which applicant relies (i.e., external websites are not stored with the server) are not recited in the rejected claim(s). Although the
claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

*In reference to Applicant’s arguments*

There is no suggestion that any preload or atomic command is used to access an interactive program in another program on another channel, or that the interactive program for a given show is linked between segments since the interactive programs are not terminated between show segments.

*Examiner’s response*

The Examiner disagrees. The link between the current segment and the previous segment would be inherent so that the interactive program for current playing segment would recognize the already available data carried over from the previous segment, thus can quickly access the readily available data without reloading.

**Conclusion**

5. Claims 1-4, 6 and 8-11 are rejected.

**Correspondence Information**

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to FRED PENG whose telephone number is (571)270-1147. The examiner can normally be reached on Monday-Friday 09:30-19:30.

   If attempts to reach the examiner by telephone are unsuccessful, the examiner’s supervisor, Nasser 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.

/Fred Peng/

Examiner, Art Unit 2426
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**EAST Search History (Interference)**

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REQUEST FOR CONTINUED EXAMINATION (RCE) TRANSMITTAL
(INCLUDING FILING FEE AND/OR PETITION FOR EXTENSION OF TIME FEE)

Subsection (b) of 35 U.S.C. §132, effective May 29, 2000 provides for continued examination of a utility or plant application filed on or after June 8, 1985. See The American Inventors Protection Act of 1999 (AIPA)

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

   Attorney Docket No.: 0366.1008

First Named Inventor: Wonjang BAEK
Application No.: 12/450,067
Filing Date: September 10, 2009
Title of Invention: METHOD OF PROVIDING DIGITAL TV APPLICATION

This is a Request for Continued Examination (RCE) under 37 C.F.R. §1.114 of the above-identified application.

1. Submission required under 37 C.F.R. §1.114 (Box a or b must be completed)
   a. ☑ Previously submitted
      i. ☑ Consider the amendment(s)/reply under 37 C.F.R. § 1.116 previously filed on September 4, 2012
         (Any unentered amendment(s) referred to above will be entered).
      ii. ☐ Consider the arguments in the Appeal Brief or Reply Brief previously filed on __
      iii. ☐ Other
   b. ☐ Enclosed
      i. ☐ Amendment/Reply
      ii. ☐ Affidavit(s)/Declaration(s)
      iii. ☐ Information Disclosure Statement (IDS)
      iv. ☐ Other

2. Miscellaneous
   a. ☐ Suspension of action on the above-identified application is requested under 37 C.F.R. §103(c) for a period of months. (Period of suspension shall not exceed 3 months; Fee under 37 C.F.R. §1.17(f) required).
   b. ☐ Other
Since an Official Action set an original due date of September 28, 2012, petition is hereby made for an extension of time to cover the date this RCE 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)):

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Suspension Fee ($130.00)

Total of above Calculations = $930.00

Reduction by 50% for filing by small entity (Note 37 C.F.R. 1.9, 1.27, 1.28).

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

TOTAL FEES DUE = $930.00

4. ☒ Small entity status:
   b. ☐ A Verified Statement Claiming Small Entity Status was previously filed and such status is still proper and desired.
   c. ☒ is no longer claimed.

5. ☐ Other:

6. METHOD OF PAYMENT

☐ A check in the amount of $930.00 is enclosed.
☒ Credit Card Payment Form PTO-2038 (attached).
☐ Charge "TOTAL FEES DUE" to Deposit Account No. 503333. (A duplicate copy of this form is enclosed.)

7. GENERAL AUTHORIZATION

☒ The Commissioner is hereby authorized to credit any overpayment or charge any additional fees under 37 C.F.R. 1.16 (filing fees) or 37 C.F.R. 1.17 (processing fees) during the prosecution of this application and of any related application(s) claiming benefit hereof pursuant to 35 U.S.C. §120 to maintain pendency hereof and of any such related application to:
   Deposit Account No. 503333.

8. CORRESPONDENCE ADDRESS

STEIN MCEWEN, LLP
49,455
PATENT TRADEMARK OFFICE

9. SIGNATURE OF ATTORNEY OR AGENT REQUIRED

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**Warnings:**

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.

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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.
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
**Advisory Action Before the Filing of an Appeal Brief**

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

**THE REPLY FILED 04 September 2012 FAILS TO PLACE THIS APPLICATION IN CONDITION FOR ALLOWANCE.**

1. The reply was filed after a final rejection, but prior to or on the same day as filing a Notice of Appeal. 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. The reply must be filed within one of the following time periods:
   - a) The period for reply expires 3 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.

   Examiner Note: If box 1 is checked, check either box (a) or (b). ONLY CHECK BOX (b) WHEN THE FIRST REPLY WAS FILED WITHIN TWO MONTHS OF THE FINAL REJECTION. 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) 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 examined patent term adjustment. See 37 CFR 1.764(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 amendment(s) 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): ___.

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.

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

**AFFIDAVIT OR OTHER EVIDENCE**

8. The affidavit or other evidence filed after a 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 a 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: _____.

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

13. Other: _____.

/Nasser Moazzami/  
Supervisory Patent Examiner, Art Unit 2426  
/Fred Peng/  
Examiner, Art Unit 2426
The amendment such as “…associatable with a second control node included in a second control profile different from the first control profile” in claim 1 raises new issue and require further consideration/search.
IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re the Application of:
Wonjang Baek et al.

Application No. 12/450,067

Confirmation No. 3600

Filed: September 10, 2009

For: METHOD OF PROVIDING DIGITAL TV APPLICATION

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

Mail Stop AF

Sir:

This is in response to the Final Office Action mailed June 28, 2012, and having a period for response set to expire on September 28, 2012.

Reconsideration of the claims is respectfully requested. The following remarks are respectfully submitted.
IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re the Application of:

Wonjang Baek et al.

Application No. 12/450,067

Confirmation No. 3600

Filed: September 10, 2009

Group Art Unit: 2426

Examiner: Peng HSIUNGFEI

For: METHOD OF PROVIDING DIGITAL TV APPLICATION

RESPONSE AND REQUEST FOR RECONSIDERATION UNDER 37 C.F.R. §1.116

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

Mail Stop AF

Sir:

This is in response to the Final Office Action mailed June 28, 2012, and having a period for response set to expire on September 28, 2012.

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

Please AMEND claims 1, 6, 8, and 9 in accordance with the following:

1. (Currently Amended) A method for providing a digital TV application in an application providing server for providing the digital TV application, the method comprising steps of:
   (a) dividing the digital broadcasting application into a plurality of execution data and storing the plurality of execution data;
   (b) receiving an application requesting event transmitted from a receiver, the receiver executing and providing the digital broadcasting application;
   (c) extracting one of the plurality of execution data to be provided to the receiver, the extracted execution data corresponding to the application requesting event;
   (d) transmitting the execution data extracted in the step (c) to the receiver; and
   (e) storing a plurality of control profiles including a plurality of control nodes corresponding to a plurality of scenarios for the application requesting event,

   wherein the step (c) comprises (c-2)-extracting one of the plurality of the execution data to be provided to the receiver based on one of the plurality of control profiles suitable for the application requesting event, and

   wherein a first control node included in a first control profile of the plurality of control profiles is associatable with a second control node included in a second control profile different from the first control node profile.

2. (Original) The method in accordance with claim 1, wherein each of the plurality of the execution data includes at least one of an executable code, a display data and a resource data for an initial screen of the digital TV application.

3. (Original) The method in accordance with claim 1, wherein the step (b) comprises: (b-1) receiving the application requesting event including at least one of a channel identification information for a channel, a device identification information for the receiver, a user identification information for a user of the receiver, and an identification information for the execution data.

4. (Original) The method in accordance with claim 3, wherein the step (c) comprises (c-1) extracting one of the plurality of the execution data to be provided to the receiver based on at least one of the channel identification information, the device identification
information, the user identification information and the identification information for the execution data.

5. (Cancelled)

6. (Currently Amended) The method in accordance with claim 1, wherein the control node includes an identification information for one of the plurality of the execution data to be provided to the receiver.

7. (Cancelled)

8. (Currently Amended) The method in accordance with claim 7, wherein each of the plurality of the control profile or each of the plurality of the control node is represented by an identifier, and the association is represented in a form of a link to the identifier.

9. (Currently Amended) A method for providing a digital TV application in a receiver for receiving providing the digital TV application, the method comprising steps of:
   (a) generating an application requesting event for requesting an execution data, the execution data classified according to a scene of the digital TV application for executing the digital TV application;
   (b) transmitting the application requesting event to the application providing server for providing the digital broadcasting application;
   (c) receiving the execution data corresponding to the application requesting event transmitted from the application providing server;
   (d) executing the execution data to provide the digital TV application;
   (e) storing a plurality of control profiles including a plurality of control nodes corresponding to a plurality of scenarios for the application requesting event; and
   (f) extracting the execution data to be provided to the receiver based on one of the plurality of control profiles suitable for the application requesting event,

wherein a first control node included in a first control profile of the plurality of control profiles is associatable with a second control node included in a second control profile different from the first control profile node.

10. (Original) The method in accordance with claim 9, wherein the step (a) comprises: (a-1) generating the application requesting event including at least one of a channel
identification information of a current channel, a user input information within the current
channel, a device identification information of the receiver, a user identification information of a
user of the receiver, and an identification information of the execution data.

11. (Original) The method in accordance with claim 9, wherein the execution
data includes at least one of an executable code, a display data and a resource data for the
scene of the digital TV application.

12. (Cancelled)
REMARKS

In accordance with the foregoing, claims 1, 6, 8, and 9 have been amended without narrowing the scope thereof, and claims 1-4, 6, and 8-11 are pending and under consideration. No new matter is presented in this Amendment.

ENTRY OF AMENDMENT UNDER 37 C.F.R. §1.116:

Applicants request entry of this Rule 116 Response because the amendments of claims 1, 6, 8, and 9 should not entail any further search by the Examiner since no new features are being added or no new issues are being raised; and the amendments do not significantly alter the scope of the claims and place the application at least into a better form for purposes of appeal. No new features or new issues are being raised.

The Manual of Patent Examining Procedures sets forth in Section 714.12 that "[a]ny amendment that will place the application either in condition for allowance or in better form for appeal may be entered." Moreover, Section 714.13 sets forth that "the Proposed Amendment should be given sufficient consideration to determine whether the claims are in condition for allowance and/or whether the issues on appeal are simplified." The Manual of Patent Examining Procedures further articulates that the reason for any non entry should be explained expressly in the Advisory Action.

REJECTIONS UNDER 35 U.S.C. §103:

On pages 2-5 of the Office Action, the Examiner rejects claims 1-4, 6, and 8-11 under 35 U.S.C. §103(a) in view of Cameron et al. (U.S. Publication No. 2005/0028206) and Gebhardt et al. (U.S. Patent No. 7,941,564). The rejection is respectfully traversed and reconsideration is requested.

As a point of clarification, claim 1 has been amended to correct a typographical error so to now read that "a first control node included in a first control profile of the plurality of control profiles is associatable with a second control node included in a second control profile different from the first control profile," and claim 9 has been amended to now read "wherein a first control node included in a first control profile of the plurality of control profiles is associatable with a second control node included in a second control profile different from the first control profile." It respectfully submitted that such a correction would have been understood from the context of
claims 1 and 9 as previously presented, and that entry of such amendment does not affect the understanding of the claim and is thus appropriate under 37 CFR 1.116.

By way of review, Cameron et al. discloses a system which includes an Interactive Program Guide (IPG) program on a computer or a TV and allows a subscriber to select multimedia signals. (Abstract). A DTVM 40 acts as the system manager and includes a web server which generates HTML pages and a server which provides data for the IPG program. (Paragraphs 0030, 0038, 0041, 0048, 0056, 0057). The HTML pages are used by the subscriber to provide self services, as well as order pay-per-view programming. (Paragraphs 0048, 0050). Further, in order to allow browsing on the internet, the IPG provides URL links to webpages on IPG channels, which when activated, take the user to a specified webpage using a browser. (Paragraph 0064). However, other than providing HTML pages or linking to external webpages, there is no disclosure of an overall application, or that the individual HTML pages are executable elements of a larger application as would be understood by one skilled in the art.

As a general proposition, in order to find that a combination discloses a claim, the combination must disclose each element of the claim. In interpreting the references included in the combination, the Examiner is to broadly interpret the claim, but must do so within the bounds of reason. In re Morris, 44 USPQ2d 1023, 1027-28 (Fed. Cir. 1997), MPEP 2111. Thus, while the Examiner is to avoid reading limitations from the specification into the claims, the Examiner should not interpret claim limitations so broadly as to contradict or otherwise render a limitation meaningless as would be understood by those of ordinary skill in the art. See, In re Cotright, 49 USPQ2d 1464, 1467 (Fed. Cir. 1999), In re Zletz, 13 USPQ2d 1320, 1322 (Fed. Cir. 1999), MPEP 2111.01.

In the instant case, one skilled in the art would not confuse HTML pages with a digital broadcasting application having execution data, and there is no evidence that such a usage is consistent with either the specification or the understanding of one skilled in the art. Compare Dictionary.com, (Application defined for computers as "a computer program used for a particular type of job or problem: Your new computer comes preloaded with applications") (last visited June 5, 2012) with Dictionary.com, (Website defined as "a connected group of pages on the World Wide Web regarded as a single entity, usually maintained by one person or organization and devoted to a single topic or several closely related topics") (last visited June 5, 2012). Further, there is no evidence that one skilled in the art would consider HTML pages as being executable. As such, it is respectfully submitted that, even given its broadest reasonable interpretation, the combination does not disclose or suggest the "digital broadcasting
"application" or "the plurality of execution data" as recited in claim 1.

Further, even assuming arguendo that the HTML pages from the DVTM 40 correspond to the recited execution data divided from the digital broadcasting application, the Examiner asserts that the hotlinks of Cameron et al. disclose the control nodes of the control profiles of claim 1. By way of review, in paragraph 0064, Cameron et al. discloses that the IPG can use URLs in channels of the displayed guide. In this way, the subscriber can switch from a TV mode to a Web mode by clicking on the URL in the displayed IPG. In addition, Cameron et al. discloses that the system can include a hotlink to a URL so as to allow the subscriber to obtain a webpage either while watching a program or when a program on the IPG is highlighted. However, there is no suggestion that the self service or on demand video obtained through the HTML pages are accessed from the channels containing the hotlink or URL within the IPG program itself. As such, Cameron et al. does not disclose "dividing the digital broadcasting application into a plurality of execution data and storing the plurality of execution data", "extracting one of the plurality of execution data to be provided to the receiver, the extracted execution data corresponding to the application requesting event" and "storing a plurality of control profiles including a plurality of control nodes corresponding to a plurality of scenarios for the application requesting event".

Also, Cameron et al. discloses that the URLs refer to websites, such as www.imagictv.com. Thus, where a hotlink is selected, the reference will be to a webpage as opposed to another element of the IPG program or the HTML pages provided from the DVTM 40. However, such external websites are not stored with the server which transmitted the HTML pages. In contrast, claim 1 recites, among other features, "dividing the digital broadcasting application into a plurality of execution data and storing the plurality of execution data", "storing a plurality of control profiles including a plurality of control nodes corresponding to a plurality of scenarios for the application requesting event" and "extracting one of the plurality of the execution data to be provided to the receiver based on one of the plurality of control profiles suitable for the application requesting event."

Since Gebhardt et al. is not relied upon to cure the above-noted deficiencies, it is respectfully submitted that the combination does not disclose or suggest the features of claim 1.

For at least similar reasons, it is respectfully submitted that the combination does not disclose or suggest the features of claim 9.

On page 3 of the Office Action, the Examiner acknowledges that Cameron et al. does
not disclose "a first control node included in a first control profile of the plurality of control profiles is associateable with a second control node included in a second control profile different from the first control node" as previously recited in claim 1, and instead relies upon col. 5, lines 4 to col. 6, line 3 of Gebhardt et al. to disclose such a feature.

By way of review, Gebhardt et al. discloses an automation server which allows interactive applications to be used during segments of a television program, but to be discontinued at breaks between the segments when commercials are aired. (Abstract). As shown in FIG. 12, show A is broken into segments A.1 and A.2 so as to allow Ad X to be displayed. Show A has an interactive program, and Ad. X has its own interactive program X. Segments A.1 and A.2 and Ad. X are mapped in a common event manager 504, and each have a corresponding state machine 512. Thus, while the interactive program for show A is running in segment A.1, when Ad. X is to begin, the program for show A is suspended while the program for Ad. X is begun. When the segment A.2 begins, the program for show A is taken out of suspension and the interactive program for Ad. X is cancelled. In this way, the user is able to preserve their interactivity for the show A while allowing advertisements, and the system is not required to reload the same program for show A when advertisements are inserted. (Col. 34, line 12 to Col. 35, line 48). There is no suggestion that any preload or atomic command is used to access an interactive program in another program on another channel, or that the interactive program for a given show is linked between segments since the interactive programs are not terminated between show segments.

In contrast, claim 1 recites, among other features, that "a first control node included in a first control profile of the plurality of control profiles is associateable with a second control node included in a second control profile different from the first control profile." Since Cameron et al. is not relied upon to cure the above noted deficiency, it is respectfully submitted that the combination does not disclose the features of claim 1.

For at least similar reasons, it is respectfully submitted that the combination does not disclose or suggest the features of claim 9.

Claims 2-4, 6, 8, 10 and 11 are deemed patentable due at least to their depending from corresponding claims 1 and 9.

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: Sept. 4, 2012

By: James G. McEwen
Registration No. 41983

1400 Eye St., N.W.
Suite 300
Washington, D.C. 20005
Telephone: (202) 216-9505
Facsimile: (202) 216-9510
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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.
**PATENT APPLICATION FEE DETERMINATION RECORD**

**Application asFiled – Part I**

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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).

**Total**

**Application as Amended – Part II**

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**Total Add'l Fee**

**Legal Instrument Examiner:**

/VIKKI GRAY/

* 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.
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<th>ATTORNEY DOCKET NO.</th>
<th>CONFIRMATION NO.</th>
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</tbody>
</table>

49455 7890 06/28/2012
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. 12/450,067
Applicant(s) BAEK ET AL.
Examiner FRED PENG
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) □ Responsive to communication(s) filed on 05 June 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) 1-4, 6 and 8-11 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) 1-4, 6 and 8-11 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 09/10/09 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)
   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. This Office Action is in response to the Petition for review for previous defective Final Action entered 06/05/2012.

Status of Claims

2. Claims 1-4, 6, and 8-11 are pending in this 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 through 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 negatived by the manner in which the invention was made.


Regarding Claim 1, Cameron discloses a method for providing a digital TV application in an application providing server for providing the digital TV application, the method comprising steps of:

(a) dividing the digital broadcasting application into a plurality of execution data and storing the plurality of execution data (e.g., see FIG.3; Para 36 lines 7-15; Para 41; Para 48; a web server and corresponding database including home page data and corresponding link data for additional self-service for digital broadcasting application);

(b) receiving an application requesting event transmitted from a receiver, the receiver executing and providing the digital broadcasting application (e.g., see Para 64; when a web
browser application requesting for a home page for more information when viewing a broadcast program;

(c) extracting one of the plurality of execution data to be provided to the receiver, the extracted execution data corresponding to the application requesting event (e.g., see Para 64; the web server then extracting the home page for transmission); and

(d) transmitting the execution data extracted in the step (c) to the receiver (e.g., see Para 64 lines 17-19; the web server then transmitting the home page);

(e) storing a plurality of control profiles including a plurality of control nodes corresponding to a plurality of scenarios for the application requesting event (e.g., see Para 64 lines 7 to last – last; each broadcast program including a control profile including a plurality of control nodes such as hotlinks corresponding to a plurality of scenarios in the broadcast program), wherein the step (c) comprises (c-2) extracting one of the plurality of the execution data to be provided to the receiver based on one of the plurality of control profiles suitable for the application requesting event (e.g., see Para 64 lines 7 to last – last; extracting a web page corresponding to the scenario in the broadcast program).

Cameron is silent about a first control node included in a first control profile of the plurality of control profiles is associatable with a second control node included in a second control profile different from the first control node.

In an analogous art, Gebhardt equally discloses a first control node (a link corresponding to a scenario in a segment) included in a first control profile (the previous segment of the broadcast program) of the plurality of control profiles is associatable with a second control node (another link) included in a second control profile (the current segment of the broadcast program) different from the first control node (e.g., see Col 5 line 43 – Col 6 line 3).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Cameron’s system to include a first control node included in a first control profile of the plurality of control profiles is associatable with a second control node included in a second control profile, as taught by Gebhardt to take advantage of the available
sharing data for processing, thus avoid additional time for access and improve database efficiency.

Regarding Claims 2 and 11, Cameron further discloses each of the plurality of the execution data includes at least one of an executable code, a display data and a resource data for an initial screen of the digital TV application (e.g., see Para 48; the HTML home page includes at least one of an executable code, a display data and a resource data for an initial screen of the digital TV application).

Regarding Claims 3 and 10, Cameron further discloses receiving the application requesting event including at least one of a channel identification information for a channel, a device identification information for the receiver, a user identification information for a user of the receiver, and an identification information for the execution data (e.g., see Para 64; such as a channel number or an URL).

Regarding Claim 4, Cameron further discloses extracting one of the plurality of the execution data to be provided to the receiver based on at least one of the channel identification information, the device identification information, the user identification information and the identification information for the execution data (e.g., see Para 64; such as channel number or URL).

Regarding Claim 6, Cameron further the control node includes an identification information for one of the plurality of the execution data to be provided to the receiver (e.g., see Para 64; the hotlink or URL is an identification information).

Regarding Claim 8, Cameron further discloses each of the plurality of the control profile or each of the plurality of the control node is represented by an identifier, and the association is
represented in a form of a link to the identifier (a hotlink such as URL is an identifier, and the association is represented in a form of a link to the identifier).

Regarding Claim 9, Cameron discloses a method for providing a digital TV application in a receiver for receiving providing the digital TV application, the method comprising steps of:

(a) generating an application requesting event for requesting an execution data, the execution data classified according to a scene of the digital TV application for executing the digital TV application (e.g., see Para 64 lines 13-19; request a web page for information related to the subject matter currently being viewed);

(b) transmitting the application requesting event to the application providing server for providing the digital broadcasting application (e.g., see Para 64 lines 13-19; then transmitting the hotlink address or an URL to the web server);

(c) receiving the execution data corresponding to the application requesting event transmitted from the application providing server (e.g., see Para 64 lines 13-19; receiving corresponding web page); and

(d) executing the execution data to provide the digital TV application (e.g., see Para 64 lines 13-19; then display the web page on the screen).

The amended limitation of “storing a plurality of control profiles including a plurality of control nodes corresponding to a plurality of scenarios for the application requesting event; and extracting the execution data to be provided to the receiver based on one of the plurality of control profiles suitable for the application requesting event, wherein a first control node included in a first control profile of the plurality of control profiles is associatable with a second control node included in a second control profile different from the first control node” is similar to the amended limitation in claim 1, thus is rejected based on the same grounds as in claim 1.

Response to Arguments
4. Applicant's arguments with respect to claims 1-4, 6, and 8-11 have been considered but are moot in view of the new ground(s) of rejection.

**Conclusion**

5. Claims 1-4, 6, and 8-11 are rejected.

6. 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.

**Correspondence Information**

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to FRED PENG whose telephone number is (571)270-1147. The examiner can normally be reached on Monday-Friday 09:30-19:30.

   If attempts to reach the examiner by telephone are unsuccessful, the examiner’s supervisor, Nasser 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.

/Fred Peng/
Examiner, Art Unit 2426

/Nasser Moazzami/
Supervisory Patent Examiner, Art Unit 2426
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<th>APPLICATION NO.</th>
<th>FILING DATE</th>
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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@smiplaw.com
James G. McEwen  
STEIN MCEWEN, LLP  
1400 EYE STREET, NW  
SUITE 300  
WASHINGTON DC 20005  

In re Application of: BAEK, Wonjung, et. al.  
Application No. 12/450,067  
Filed: September 10, 2009  
Docket No. 0366.1008  
Title: METHOD OF PROVIDING DIGITAL TV APPLICATION  

DECISION ON PETITION UNDER 37 C.F.R. § 1.181

This is a decision on petition filed June 05, 2012 under 37 CFR § 1.181 to invoke Supervisory Authority of the Commissioner to seeks relief from Examiner’s action in relation to the Final Office Action (hereafter referred to as the Final Action) mailed May 18, 2012, namely, requesting the withdrawal of the finality thereof.

This petition is GRANTED.

The designation of the above mentioned Final Action for which Petitioner seeks relief has been fully considered. The Final Action included new grounds of rejection under 35 U.S.C. §103(a) over Cameron et al (US 2005/0028206) in view of Gebhardt et al (US 7,941,564). The citation of the Gebhardt et al. (i.e. “Par 31”) reference is incorrect and would affect applicant’s ability to reply to the Office action, since the Gebhardt et al. reference is a patent, and citations on a patent reference are typically in the form of column and lines, which provide a clear indication as to where the passage can be found. This error was called to the attention of the Office within 1 month of the mail date of the action, thereby, the Office will restart the previously set period for reply to run from the date the error is corrected (see MPEP §710.06), as requested to do so by applicant by virtue of the above-mentioned petition.

For the reason(s) above-mentioned this petition is hereby granted.

Any inquiry regarding this decision should be directed the undersigned whose telephone number is (571) 272-3902. If attempts to reach the undersigned by telephone are unsuccessful, Chris Grant, Quality Assurance Specialist, can be reached at (571) 272-7294.

/Beatriz Prieto/  
Beatriz Prieto, Quality Assurance Specialist  
Technology Center 2400
IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re the Application of:

Wonjae Baek et al.

Application No. 12/450,067 Group Art Unit: 2426

Confirmation No. 3600

Filed: September 10, 2009 Examiner: Peng HSIUNGFEI

For: METHOD OF PROVIDING DIGITAL TV APPLICATION

REQUEST FOR WITHDRAWAL OF DEFECTIVE FINAL OFFICE ACTION AND ISSUANCE OF NEW OFFICE ACTION UNDER MPEP 710.06

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

Sir:

In the Office Action of May 18, 2012, the Examiner rejects claims 1-4, 6, and 8-11 under 35 U.S.C. §103(a) in view of Cameron et al. (U.S. Publication No. 2005/0028206) and Gebhardt et al. (U.S. Patent No. 7,941,564). However, while the Examiner indicates that "Para 31) of Gebhardt et al. cures features not disclosed in Cameron et al., as Gebhardt et al. is an issued patent, there are no paragraphs in Gebhardt et al. Further, the Examiner's analysis does not otherwise indicate a Figure or other indicia which allow applicants to identify this passage, and no reference numerals or terminology is used which allows for identification.

Moreover, while the undersigned attempted to obtain clarification from the Examiner, the Examiner would not discuss the situation except in a formal interview, which given the status of the instant application, would likely require applicants to obtain extensions of time. Thus, no clarifying response has been received.

As set forth in MPEP 710.06, "[w]here the citation of a reference is incorrect or an Office action contains some other error that affects applicant's ability to reply to the Office action and this error is called to the attention of the Office within 1 month of the mail date of the action, the Office will restart the previously set period for reply to run from the date the error is corrected, if requested to do so by applicant." Since there is an error in the citation which affects the applicants' ability to adequately respond to the Examiner's rejection of at least these claims, applicants request a new office action with a restarted reply date as per MPEP 710.06 in order to allow applicants to properly respond to all of the Examiner's concerns.
If the Examiner has any remaining issues to be addressed, it is believed that prosecution can be expedited by the Examiner contacting the undersigned attorney for a telephone interview to discuss resolution of such issues.

Respectfully submitted,

STEIN MCEWEN LLP

By:

James G. McEwen
Registration No. 41,983

1400 Eye Street, NW
Suite 300
Washington, D.C. 20005
Telephone: (202) 216-9505
Facsimile: (202) 216-9510

Date: June 5, 2012
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. 12/450,067
Applicant(s) BAEK ET AL.

Examiner FRED PENG
Art Unit 2426

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 24 February 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) 1-4, 6 and 8-11 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) 1-4, 6 and 8-11 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 10 September 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)
   Paper No(s)/Mail Date _____.
4) ☑ Interview Summary (PTO-413)
   Paper No(s)/Mail Date _____.
5) ☑ Notice of Informal Patent Application
6) ☑ Other: _____.

U.S. Patent and Trademark Office
PTOL-326 (Rev. 03-11) Office Action Summary Part of Paper No./Mail Date 20120511
DETAILED ACTION

1. This Office Action is in response to an AMENDMENT entered 02/24/2012.

Status of Claims

2. Claims 1-4, 6, and 8-11 are pending in this 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 through 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, Cameron discloses a method for providing a digital TV application in an application providing server for providing the digital TV application, the method comprising steps of:

   (a) dividing the digital broadcasting application into a plurality of execution data and storing the plurality of execution data (e.g., see FIG.3; Para 36 lines 7-15; Para 41; Para 48; a web server and corresponding database including home page data and corresponding link data for additional self-service for digital broadcasting application);

   (b) receiving an application requesting event transmitted from a receiver, the receiver executing and providing the digital broadcasting application (e.g., see Para 64; when a web browser application requesting for a home page for more information when viewing a broadcast program);
(c) extracting one of the plurality of execution data to be provided to the receiver, the
extracted execution data corresponding to the application requesting event (e.g., see Para 64; the
web server then extracting the home page for transmission); and

(d) transmitting the execution data extracted in the step (c) to the receiver (e.g., see Para
64 lines 17-19; the web server then transmitting the home page);

(e) storing a plurality of control profiles including a plurality of control nodes

Corresponding to a plurality of scenarios for the application requesting event (e.g., see Para 64
lines 7 to last – last; each broadcast program including a control profile including a plurality of
control nodes such as hotlinks corresponding to a plurality of scenarios in the broadcast
program), wherein the step (c) comprises (c-2) extracting one of the plurality of the execution data
to be provided to the receiver based on one of the plurality of control profiles suitable for the
application requesting event (e.g., see Para 64 lines 7 to last – last; extracting a web page

Corresponding to the scenario in the broadcast program).

Cameron is silent about a first control node included in a first control profile of the plurality
of control profiles is associatable with a second control node included in a second control profile
different from the first control node.

In an analogous art, Gebhardt equally discloses a first control node (a link corresponding
to a scenario in a segment) included in a first control profile (the previous segment of the
broadcast program) of the plurality of control profiles is associatable with a second control node
(another link) included in a second control profile (the current segment of the broadcast program)
different from the first control node (e.g., see Para 31).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the
invention was made to modify Cameron’s system to include a first control node included in a first
control profile of the plurality of control profiles is associatable with a second control node
included in a second control profile, as taught by Gebhardt to take advantage of the available
sharing data for processing, thus avoid additional time for access and improve database

Efficiency.
Regarding Claims 2 and 11, Cameron further discloses each of the plurality of the execution data includes at least one of an executable code, a display data and a resource data for an initial screen of the digital TV application (e.g., see Para 48; the HTML home page includes at least one of an executable code, a display data and a resource data for an initial screen of the digital TV application).

Regarding Claims 3 and 10, Cameron further discloses receiving the application requesting event including at least one of a channel identification information for a channel, a device identification information for the receiver, a user identification information for a user of the receiver, and an identification information for the execution data (e.g., see Para 64; such as a channel number or an URL).

Regarding Claim 4, Cameron further discloses extracting one of the plurality of the execution data to be provided to the receiver based on at least one of the channel identification information, the device identification information, the user identification information and the identification information for the execution data (e.g., see Para 64; such as channel number or URL).

Regarding Claim 6, Cameron further the control node includes an identification information for one of the plurality of the execution data to be provided to the receiver (e.g., see Para 64; the hotlink or URL is an identification information).

Regarding Claim 8, Cameron further discloses each of the plurality of the control profile or each of the plurality of the control node is represented by an identifier, and the association is represented in a form of a link to the identifier (a hotlink such as URL is an identifier, and the association is represented in a form of a link to the identifier).
Regarding Claim 9, Cameron discloses a method for providing a digital TV application in a receiver for receiving providing the digital TV application, the method comprising steps of:

(a) generating an application requesting event for requesting an execution data, the execution data classified according to a scene of the digital TV application for executing the digital TV application (e.g., see Para 64 lines 13-19; request a web page for information related to the subject matter currently being viewed);

(b) transmitting the application requesting event to the application providing server for providing the digital broadcasting application (e.g., see Para 64 lines 13-19; then transmitting the hotlink address or an URL to the web server);

(c) receiving the execution data corresponding to the application requesting event transmitted from the application providing server (e.g., see Para 64 lines 13-19; receiving corresponding web page); and

(d) executing the execution data to provide the digital TV application (e.g., see Para 64 lines 13-19; then display the web page on the screen).

The amended limitation of “storing a plurality of control profiles including a plurality of control nodes corresponding to a plurality of scenarios for the application requesting event; and extracting the execution data to be provided to the receiver based on one of the plurality of control profiles suitable for the application requesting event, wherein a first control node included in a first control profile of the plurality of control profiles is associatable with a second control node included in a second control profile different from the first control node” is similar to the amended limitation in claim 1, thus is rejected based on the same grounds as in claim 1.

Response to Arguments

4. Applicant's arguments with respect to claims 1-4, 6, and 8-11 have been considered but are moot in view of the new ground(s) of rejection.
Conclusion

5. Claims 1-4, 6, and 8-11 are rejected.

6. 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.

Correspondence Information

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to FRED PENG whose telephone number is (571)270-1147. The examiner can normally be reached on Monday-Friday 09:30-19:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nasser 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.

/Fred Peng/
Examiner, Art Unit 2426

/Nasser Moazzami/
Supervisory Patent Examiner, Art Unit 2426
# Notice of References Cited

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## U.S. PATENT DOCUMENTS

## FOREIGN PATENT DOCUMENTS

## NON-PATENT DOCUMENTS

*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.

U.S. Patent and Trademark Office
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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re the Application of:

Wonjang BAEK et al.

Application No. 12/450,067

Confirmation No. 3600

Filed: October 24, 2011

Examiner: Fred H. Peng

For: METHOD OF PROVIDING DIGITAL TV APPLICATION

AMENDMENT

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

Sir:

This is in response to the Office Action mailed October 24, 2011, and having a period for response set to expire on January 24, 2012.

A petition for a 1-month extension of time is made herein and the appropriate fee is enclosed, extending the due date to February 24, 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 CANCEL claims 5 and 7 and AMEND claims 1 and 9 in accordance with the following:

1. (Currently amended) A method for providing a digital TV application in an application providing server for providing the digital TV application, the method comprising steps of:
   (a) dividing the digital broadcasting application into a plurality of execution data and storing the plurality of execution data;
   (b) receiving an application requesting event transmitted from a receiver, the receiver executing and providing the digital broadcasting application;
   (c) extracting one of the plurality of execution data to be provided to the receiver, the extracted execution data corresponding to the application requesting event; and
   (d) transmitting the execution data extracted in the step (c) to the receiver; and
   (e) storing a plurality of control profiles including a plurality of control nodes corresponding to a plurality of scenarios for the application requesting event,
   wherein the step (c) comprises (c-2) extracting one of the plurality of the execution data to be provided to the receiver based on one of the plurality of control profiles suitable for the application requesting event,
   wherein a first control node included in a first control profile of the plurality of control profiles is associatable with a second control node included in a second control profile different from the first control node.

2. (Original) The method in accordance with claim 1, wherein each of the plurality of the execution data includes at least one of an executable code, a display data and a resource data for an initial screen of the digital TV application.

3. (Original) The method in accordance with claim 1, wherein the step (b)
comprises: (b-1) receiving the application requesting event including at least one of a channel
identification information for a channel, a device identification information for the receiver, a user
identification information for a user of the receiver, and an identification information for the
execution data.

4. (Original) The method in accordance with claim 3, wherein the step (c)
comprises (c-1) extracting one of the plurality of the execution data to be provided to the receiver
based on at least one of the channel identification information, the device identification
information, the user identification information and the identification information for the execution
data.

5. (Cancelled)

6. (Original) The method in accordance with claim 5, wherein the control node
includes an identification information for one of the plurality of the execution data to be provided
to the receiver.

7. (Cancelled)

8. (Original) The method in accordance with claim 7, wherein each of the
plurality of the control profile or each of the plurality of the control node is represented by an
identifier, and the association is represented in a form of a link to the identifier.

9. (Currently amended) A method for providing a digital TV application in a receiver
for receiving providing the digital TV application, the method comprising steps of:

(a) generating an application requesting event for requesting an execution data, the
execution data classified according to a scene of the digital TV application for executing the
digital TV application;

(b) transmitting the application requesting event to the application providing server for
providing the digital broadcasting application;

(c) receiving the execution data corresponding to the application requesting event
transmitted from the application providing server; and

(d) executing the execution data to provide the digital TV application;

(e) storing a plurality of control profiles including a plurality of control nodes
corresponding to a plurality of scenarios for the application requesting event; and

(f) extracting the execution data to be provided to the receiver based on one of the plurality of control profiles suitable for the application requesting event,

wherein a first control node included in a first control profile of the plurality of control profiles is associatable with a second control node included in a second control profile different from the first control node.

10. (Original) The method in accordance with claim 9, wherein the step (a) comprises: (a-1) generating the application requesting event including at least one of a channel identification information of a current channel, a user input information within the current channel, a device identification information of the receiver, a user identification information of a user of the receiver, and an identification information of the execution data.

11. (Original) The method in accordance with claim 9, wherein the execution data includes at least one of an executable code, a display data and a resource data for the scene of the digital TV application.

12. (Cancelled)
REMARKS

In accordance with the foregoing, claims 1 and 9 have been amended, claims 5 and 7 have been cancelled without prejudice or disclaimer, and claims 1-4, 6, and 8-11 are pending and under consideration. Claim 1 has been amended to incorporate the features of claims 5 and 7 with modifications. Claim 9 has been amended in a similar way to claim 1. No new matter is presented in this Amendment.

DOUBLE PATENTING REJECTION(S):

Claims 1-4 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 7-9, 11 and 13 of copending Application Serial No. 12/450,066.

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 1-11 are rejected under 35 U.S.C. §102(b) as being anticipated by Cameron et al. (U.S. Publication No. 2005/0028206). Applicants respectfully traverse this rejection.


Claim 1, as amended, recites, inter alia:

wherein a first control node included in a first control profile of the plurality of
control profiles is associatable with a second control node included in a second control profile different from the first control node (emphasis added)

This claim feature corresponds to original claim 9, which reads "wherein a first control node included in a first control profile of the plurality of control profiles is associated with one of: the execution data corresponding the first control node; a second control profile of the plurality of control profiles different from the first control profile; and a second control node included in the second control profile different from the first control node" (emphasis added). Due to the selective language "one of" recited in original claim 9, the Office Action discusses only the association with "the execution data corresponding the first control node," with no consideration of the association with "a second control node included in the second control profile different from the first control node." As recited above, however, claim 1 has incorporated the features of claim 9 with modification to read "...is associatable with a second control node included in a second control profile different from the first control node." This feature of claim 1 is not addressed by the Office Action, nor is taught or suggested in Cameron et al.

In an embodiment described on page 24, lines 2-8 of the instant application, with reference to Fig. 4, a low-making control node 135a of the control profile 130a for channel A may be associated with an intermediate-ranking control node 135b of the control profile 130b for channel B. The execution of the digital TV application while watching channel A may be switched to a screen provided by executing the digital TV application for channel B based on the user input. This is referred to as a scene-to-scene jumping in the instant application. It is clear that Cameron et al. does not even consider about this scene-to-scene jumping between the control nodes in different profiles.

Accordingly, it is noted that Cameron et al. fails to teach at least that "a first control node included in a first control profile of the plurality of control profiles is associatable with a second control node included in a second control profile different from the first control node" as recited in claim 1. Since Cameron et al. does not disclose each and every feature recited in claim 1, it is respectfully submitted that claim 1 is not anticipated by, and is allowable over the cited prior art. Claim 9 recites a feature similar to this allowable feature of claim 1, and is thus allowable for at least this reason. Claims 2-4, 6, 8, 10, and 11 depend directly or indirectly from claim 1 or claim 9, and are thus allowable for at least this reason. Claims 5 and 7 have been canceled without prejudice or disclaimer, thereby rendering the rejection thereof moot.
In view of the foregoing, withdrawal of the rejection of claims 1-4, 6, and 8-11 under 35 U.S.C. §102(b) is thus respectfully requested.

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: 2/24/12

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
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## U.S. National Stage under 35 USC 371 Filing Fees

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**Electronic Acknowledgement Receipt**

| **EFS ID:** | 12151509 |
| **Application Number:** | 12450067 |
| **International Application Number:** | |
| **Confirmation Number:** | 3600 |

**Title of Invention:** METHOD OF PROVIDING DIGITAL TV APPLICATION

| **First Named Inventor/Applicant Name:** | Wonjang Baek |
| **Customer Number:** | 49455 |
| **Filer:** | Sungyeop Chung/Natasha Duarte |
| **Filer Authorized By:** | Sungyeop Chung |
| **Attorney Docket Number:** | 0293.1008 |
| **Receipt Date:** | 24-FEB-2012 |
| **Filing Date:** | 10-SEP-2009 |
| **Time Stamp:** | 11:58:28 |
| **Application Type:** | U.S. National Stage under 35 USC 371 |

**Payment information:**

| Submitted with Payment | yes |
| Payment Type | Credit Card |
| Payment was successfully received in RAM | $75 |
| RAM confirmation Number | 9709 |

**File Listing:**

| Document Number | Document Description | File Name | File Size(Bytes)/Message Digest | Multi Part/.zip | Pages (if appl.) |
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#### Warnings:

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| Fee Worksheet (SB06) | 30636 | no | 2 |

#### Warnings:

#### Information:

Total Files Size (in bytes): 864304

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. 0293.1008
Application Number 12/450,067
Filing Date October 24, 2011
First Named Inventor Wonjang BAEK et al.
Group Art Unit 2426

AMOUNT ENCLOSED $75.00
Examiner Name Fred H. Peng

FEE CALCULATION (fees effective 10/02/08)

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Since an Official Action set an original due date of January 24, 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 ($1,880)); (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. 64,130
Signature
Date February 24, 2012
### PATENT APPLICATION FEE DETERMINATION RECORD

**Application Number:** 12/450,067  
**Filing Date:** 09/10/2009  
**To be Mailed:** 

#### APPLICATION AS FILED – PART I

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#### APPLICATION AS AMENDED – PART II

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- OTHER THAN SMALL ENTITY

Total:

- TOTAL ADD'L FEE

Legal Instrument Examiner:  
/eugenia v. hardy/

*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.
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. 12/450,067
Applicant(s) BAEK ET AL.
Examiner FRED PENG
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 of 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) ☑ Responsive to communication(s) filed on 10 September 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 __________; 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) 1-11 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) 1-11 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 10 September 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)
   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

Status of Claims

1. Claims 1-11 are pending in this application.

Double Patenting

2. Claims 1-4 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 7-9, 11 and 13 of copending Application No. 12/450,066. Although the conflicting claims are not identical, they are not patentably distinct from each other because

As for Claim 1, the limitations as shown in the table below are clearly anticipated by Claims 7 and 9 of copending Application 12/450,066. It would have been obvious for one of ordinary skill in the art to recognize the usage of variations of language in Claim 1 to describe the same limitations as shown in copending Application 12/450,066.

As for Claim 2, the limitation is anticipated by Claims 11, 13 of the copending Application 12/450,066.

As for Claim 3, the limitation is anticipated by Claim 7 of the copending Application 12/450,066.

As for Claim 4, the limitation is anticipated by Claim 8 of the copending Application 12/450,066.

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<td>1. (Original) A method for providing a digital TV application in an application providing server for providing the digital TV application, the method comprising steps of:</td>
<td>7. (Original) A method for switching a digital TV application in an application providing server for providing the digital TV application, the method comprising steps of:</td>
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<tr>
<td>(a) dividing the digital broadcasting application into a plurality of execution data and storing the plurality of execution data;</td>
<td>(a) receiving, from a receiver executing and</td>
</tr>
<tr>
<td>(b) receiving an application requesting event</td>
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</table>
transmitted from a receiver, the receiver executing
and providing the digital broadcasting application;
(c) extracting one of the plurality of execution data
to be provided to the receiver, the extracted
execution data corresponding to the application
requesting event; and
(d) transmitting the execution data extracted in the
step (c) to the receiver.

providing the digital TV application, an application
switching event including at least one of a channel
identification information of a channel, a device
identification information of the receiver and a user
identification information of a user of the receiver;
and
(b) extracting and transmitting the digital TV
application based on the application switching
event to the receiver.
9. (Original) The method in accordance with claim
7, further comprising (c) dividing the digital TV
application into a minimum execution data and an
additional execution data and storing the minimum
execution data and the additional execution data
prior to carrying out the step (a).

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

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.
3. Claims 1-11 are rejected under 35 U.S.C. 102(b) as being anticipated by Cameron et al (US 2005/0028206).

Regarding Claim 1, Cameron discloses a method for providing a digital TV application in an application providing server for providing the digital TV application, the method comprising steps of:

(a) dividing the digital broadcasting application into a plurality of execution data and storing the plurality of execution data (e.g., see FIG.3; Para 36 lines 7-15; Para 41; Para 48; a web server and corresponding database including home page data and corresponding link data for additional self service for digital broadcasting application);

(b) receiving an application requesting event transmitted from a receiver, the receiver executing and providing the digital broadcasting application (e.g., see Para 64; when a web browser application requesting for a home page for more information when viewing a broadcast program);

(c) extracting one of the plurality of execution data to be provided to the receiver, the extracted execution data corresponding to the application requesting event (e.g., see Para 64; the web server then extracting the home page for transmission); and

(d) transmitting the execution data extracted in the step (c) to the receiver (e.g., see Para 64 lines 17-19; the web server then transmitting the home page).

Regarding Claims 2 and 11, Cameron further discloses each of the plurality of the execution data includes at least one of an executable code, a display data and a resource data for an initial screen of the digital TV application (e.g., see Para 48; the HTML home page includes at least one of an executable code, a display data and a resource data for an initial screen of the digital TV application).
Regarding Claims 3 and 10, Cameron further discloses receiving the application requesting event including at least one of a channel identification information for a channel, a device identification information for the receiver, a user identification information for a user of the receiver, and an identification information for the execution data (e.g., see Para 64; such as a channel number or an URL).

Regarding Claim 4, Cameron further discloses extracting one of the plurality of the execution data to be provided to the receiver based on at least one of the channel identification information, the device identification information, the user identification information and the identification information for the execution data (e.g., see Para 64; such as channel number or URL).

Regarding Claim 5, Cameron further discloses storing a plurality of control profiles (such as channel or program controls via interactive program guide, IPG) including a plurality of control nodes corresponding to a plurality of scenarios for the application requesting event (e.g., see Para 64 lines 13-19; Para 59-60; a hotlink for a program or a URL for a channel is considered as a control node; or a multimedia selection from an IPG such as game-on-demand, video-on-demand or on-demand VDVR also considered as control nodes corresponding to a plurality of scenarios for the application requesting event), and

extracting one of the plurality of the execution data to be provided to the receiver based on one of the plurality of control profiles suitable for the application requesting event (e.g., see Para 64 lines 13-19; then extracting and transmitting the corresponding program information based on the selected hotlink for a program; or extracting and transmitting the corresponding program for playback).
Regarding Claim 6, Cameron further the control node includes an identification information for one of the plurality of the execution data to be provided to the receiver (e.g., see Para 64; the hotlink or URL is an identification information).

Regarding Claim 7, Cameron further discloses a first control node included in a first control profile of the plurality of control profiles is associated with one of: the execution data corresponding the first control node; a second control profile of the plurality of control profiles different from the first control profile; and a second control node included in the second control profile different the first control node (e.g., see Para 64 lines 13-19; such as a hotlink for a particular program or an URL for a particular channel).

Regarding Claim 8, Cameron further discloses each of the plurality of the control profile or each of the plurality of the control node is represented by an identifier, and the association is represented in a form of a link to the identifier (a hotlink such as URL is an identifier, and the association is represented in a form of a link to the identifier).

Regarding Claim 9, Cameron discloses a method for providing a digital TV application in a receiver for receiving providing the digital TV application, the method comprising steps of:

(a) generating an application requesting event for requesting an execution data, the execution data classified according to a scene of the digital TV application for executing the digital TV application (e.g., see Para 64 lines 13-19; request a web page for information related to the subject matter currently being viewed);

(b) transmitting the application requesting event to the application providing server for providing the digital broadcasting application (e.g., see Para 64 lines 13-19; then transmitting the hotlink address or an URL to the web server);
(c) receiving the execution data corresponding to the application requesting event transmitted from the application providing server (e.g., see Para 64 lines 13-19; receiving corresponding web page); and

(d) executing the execution data to provide the digital TV application (e.g., see Para 64 lines 13-19; then display the web page on the screen).

**Conclusion**

4. The prior art of record and not relied upon is considered pertinent to applicant's disclosure.
   - Reisman, US 2011/0219419
   - Ratsch, US 2010/0180295
   - Oh, US 2007/0022434
   - Patel, US 2004/0078829
   - Heredia, US 2003/0217369
   - Klosterman, US 2002/0092017
   - Westberg, US 7,984,468
   - Ludvig, US 7,216,170

5. Claims 1-11 are rejected.

**Correspondence Information**

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to FRED PENG whose telephone number is (571)270-1147. The examiner can normally be reached on Monday-Friday 09:30-19:30.

   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.

/Fred Peng/
Examiner, Art Unit 2426
### 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).)*

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### BIB DATA SHEET

**CONFIRMATION NO. 3600**

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**APPLICANTS**
- Wonjhang Baek, Gyeonggi-do, KOREA, REPUBLIC OF;
- John Kim, Seoul, KOREA, REPUBLIC OF;
- Seong Baek Lee, Seoul, KOREA, REPUBLIC OF;

**CONTINUING DATA ****************************
This application is a 371 of PCT/KR2008/001617 03/21/2008

**FOREIGN APPLICATIONS ****************************

**IF REQUIRED, FOREIGN FILING LICENSE GRANTED *** SMALL ENTITY **

12/30/2009

- Foreign Priority claimed: Yes
- 35 USC 119(a-d) conditions met: Yes
- Met after Allowance
- STATE OR COUNTRY: KOREA, REPUBLIC OF
- SHEETS: 2
- DRAWINGS: 11
- TOTAL CLAIMS: 11
- INDEPENDENT CLAIMS: 2

**ADDRESS**  
STEIN MCEWEN, LLP  
1400 EYE STREET, NW  
SUITE 300  
WASHINGTON, DC 20005  
UNITED STATES

**TITLE**  
METHOD OF PROVIDING DIGITAL TV APPLICATION

**FILING FEE RECEIVED**  
490

FEES: Authority has been given in Paper  
No._________ to charge/credit DEPOSIT ACCOUNT  
No._________ for following:

- All Fees
- 1.16 Fees (Filing)
- 1.17 Fees (Processing Ext. of time)
- 1.18 Fees (Issue)
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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).

/sibrahim/

Office of Data Management, Application Assistance Unit (571) 272-4000, or (571) 272-4200, or 1-888-786-0101
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.

/sibrahim/

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. 12/450,067
Group Art Unit: 2423

Confirmation No. 3600

Filed: September 10, 2009
Examiner: Andrew Y. Koenig

For: METHOD OF PROVIDING DIGITAL TV APPLICATION

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

By:

Michael D. Stein
Registration No. 37,240

1400 Eye St. N.W., Suite 300
Washington, D.C. 20005
Telephone: (202) 216-9505
Facsimile: (202) 216-9510
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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## 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.
Title: METHOD OF PROVIDING DIGITAL TV APPLICATION
Publication No: US-2010-0095341-A1
Publication Date: 04/15/2010

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.

The publication may be accessed through the USPTO’s publicly available Searchable Databases via the Internet at www.uspto.gov. The direct link to access the publication is currently http://www.uspto.gov/patft/.

The publication process established by the Office does not provide for mailing a copy of the publication to applicant. A copy of the publication may be obtained from the Office upon payment of the appropriate fee set forth in 37 CFR 1.19(a)(1). Orders for copies of patent application publications are handled by the USPTO’s Office of Public Records. The Office of Public Records can be reached by telephone at (703) 308-9726 or (800) 972-6382, by facsimile at (703) 305-8759, by mail addressed to the United States Patent and Trademark Office, Office of Public Records, Alexandria, VA 22313-1450 or via the Internet.

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.

Further assistance in electronically accessing the publication, or about PAIR, is available by calling the Patent Electronic Business Center at 1-866-217-9197.

Office of Data Management, Application Assistance Unit (571) 272-4000, or (571) 272-4200, or 1-888-786-0101
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/KR2008/001617 03/21/2008

Foreign Applications

REPUBLIC OF KOREA 10-2007-0027895 03/22/2007

If Required, Foreign Filing License Granted: 12/30/2009

The country code and number of your priority application, to be used for filing abroad under the Paris Convention, is US 12/450,067

Projected Publication Date: 04/15/2010

Non-Publication Request: No

Early Publication Request: No

** SMALL ENTITY **
METHOD OF PROVIDING DIGITAL TV APPLICATION

PROTECTING YOUR INVENTION OUTSIDE THE UNITED STATES

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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

The applicant has been granted a license under 35 U.S.C. 184, if the phrase "IF REQUIRED, FOREIGN FILING LICENSE GRANTED" followed by a date appears on this form. Such licenses are issued in all applications where the conditions for issuance of a license have been met, regardless of whether or not a license may be required as
set forth in 37 CFR 5.15. The scope and limitations of this license are set forth in 37 CFR 5.15(a) unless an earlier license has been issued under 37 CFR 5.15(b). The license is subject to revocation upon written notification. The date indicated is the effective date of the license, unless an earlier license of similar scope has been granted under 37 CFR 5.13 or 5.14.

This license is to be retained by the licensee and may be used at any time on or after the effective date thereof unless it is revoked. This license is automatically transferred to any related applications(s) filed under 37 CFR 1.53(d). This license is not retroactive.

The grant of a license does not in any way lessen the responsibility of a licensee for the security of the subject matter as imposed by any Government contract or the provisions of existing laws relating to espionage and the national security or the export of technical data. Licensees should apprise themselves of current regulations especially with respect to certain countries, of other agencies, particularly the Office of Defense Trade Controls, Department of State (with respect to Arms, Munitions and Implements of War (22 CFR 121-128)); the Bureau of Industry and Security, Department of Commerce (15 CFR parts 730-774); the Office of Foreign Assets Control, Department of Treasury (31 CFR Parts 500+) and the Department of Energy.

NOT GRANTED

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:

Wonjang BAEK, et al. Conf. No.: 3600

Appl. No.: 12/450,067 Examiner: TBD

Filed: September 10, 2009 Art Unit: 2622

Title: METHOD OF PROVIDING DIGITAL TV APPLICATION

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) Request for a Corrected Official Filing Receipt, two (2) pages;
(2) Copy of the Official Filing Receipt with corrections marked in red, three (3) pages.

The Commissioner is hereby authorized to charge any deficiency or credit any excess 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: January 28, 2010

THE NATH LAW GROUP
112 S. West Street
Alexandria, Virginia 22314
Tel: (703) 548-6284
Fax: (703) 683-8396
JLM/DR/jag
IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:

Wonjang BAEK, et al. Conf. No.: 3600

Appl. No.: 12/450,067 Examiner: TBD

Filed: September 10, 2009 Art Unit: 2622

Title: METHOD OF PROVIDING DIGITAL TV APPLICATION

REQUEST FOR A CORRECTED OFFICIAL FILING RECEIPT

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

Dear Commissioner:

1. Attached is a copy of the Official Filing Receipt for the above-captioned application, with changes to be made indicated in red ink. A Corrected Official Filing Receipt is hereby requested.

2. There is an error with respect to the following data, which is: X incorrectly entered or _ omitted.

Error in:
1st Inventor's city: Gyeonnggi-Do, Republic of Korea

Correct Data: GYEONGGI-DO, REPUBLIC OF KOREA
The Commissioner is hereby authorized to charge any deficiency or credit any excess 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
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Date: January 28, 2010
THE NATH LAW GROUP
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Tel: (703) 548-6284
Fax: (703) 683-8396
JLM/DR/jag
Filing Receipt

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)

<table>
<thead>
<tr>
<th>GYEON GFI-DO</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wonjang Baek, Gyeonggi-do, KOREA, REPUBLIC OF;</td>
</tr>
<tr>
<td>John Kim, Seoul, KOREA, REPUBLIC OF;</td>
</tr>
<tr>
<td>Seong Baek Lee, Seoul, KOREA, REPUBLIC OF;</td>
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</table>

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/KR2008/001617 03/21/2008

Foreign Applications

REPUBLIC OF KOREA 10-2007-0027895 03/22/2007

If Required, Foreign Filing License Granted: 12/30/2009

The country code and number of your priority application, to be used for filing abroad under the Paris Convention, is US 12/450,067

Projected Publication Date: 04/15/2010

Non-Publication Request: No

Early Publication Request: No ** SMALL ENTITY **
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LICENSE FOR FOREIGN FILING UNDER

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set forth in 37 CFR 5.15. The scope and limitations of this license are set forth in 37 CFR 5.15(a) unless an earlier license has been issued under 37 CFR 5.15(b). The license is subject to revocation upon written notification. The date indicated is the effective date of the license, unless an earlier license of similar scope has been granted under 37 CFR 5.13 or 5.14.

This license is to be retained by the licensee and may be used at any time on or after the effective date thereof unless it is revoked. This license is automatically transferred to any related applications(s) filed under 37 CFR 1.53(d). This license is not retroactive.

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**NOT GRANTED**

No license under 35 U.S.C. 184 has been granted at this time, if the phrase "IF REQUIRED, FOREIGN FILING LICENSE GRANTED" DOES NOT appear on this form. Applicant may still petition for a license under 37 CFR 5.12, if a license is desired before the expiration of 6 months from the filing date of the application. If 6 months has lapsed from the filing date of this application and the licensee has not received any indication of a secrecy order under 35 U.S.C. 181, the licensee may foreign file the application pursuant to 37 CFR 5.15(b).
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:

09/10/2009
DATE OF RECEIPT OF 35 U.S.C. 371(c)(1), (c)(2) and (c)(4) REQUIREMENTS

09/10/2009
DATE OF COMPLETION OF ALL 35 U.S.C. 371 REQUIREMENTS

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 09/10/2009
- Copy of the International Search Report filed on 09/10/2009
- Preliminary Amendments filed on 09/10/2009
- Oath or Declaration filed on 09/10/2009
- Request for Immediate Examination filed on 09/10/2009
- U.S. Basic National Fees filed on 09/10/2009
- Substitute Specification filed on 09/10/2009
- Priority Documents filed on 09/10/2009
- Specification filed on 09/10/2009
- Claims filed on 09/10/2009
- Abstracts filed on 09/10/2009
- Drawings filed on 09/10/2009
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)

RODERICK M JONES

Telephone: (703) 756-1460
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CONFIRMATION NO. 3600

FILING RECEIPT

Date Mailed: 01/04/2010

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.

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John Kim, Seoul, KOREA, REPUBLIC OF;
Seong Baek Lee, Seoul, KOREA, REPUBLIC OF;

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DREAMER, Burbank, CA

Power of Attorney: The patent practitioners associated with Customer Number 20529

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Non-Publication Request: No

Early Publication Request: No

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<th>PRIORITY DATE CLAIMED</th>
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**ATTORNEY’S DOCKET NUMBER**
30398U

**U.S. APPLICATION NO.** (if applicable)
Not yet assigned

**METHOD OF PROVIDING DIGITAL TV APPLICATION (as amended)**

**APPLICANT(S) FOR DO/OE/US**

BAEK, Wonjung; KIM, John; LEE, Seong Baek

Applicant herewith submits to the United States Designated/Elected Office (DO/OE/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.


The following fees have been submitted:

21. **Basic national fee (37 CFR 1.492(a))** .............................................................. $330

22. **Examination fee (37 CFR 1.492(c))**

   - If the written opinion prepared by ISA/US indicates all claims satisfy provisions of PCT Article 33 (1)-(4) .......$0
   - All other situations ................................................................. $220

23. **Search fee (37 CFR 1.492(b))**

   - If the written opinion of the ISA/US indicates all claims satisfy provisions of PCT Article 33(1)-(4) ..............$0
   - Search fee (37 CFR 1.445(a)(2)) has been paid on the international application to the USPTO as an international Searching Authority ................................................................. $100
   - Previously communicated to the US by the IB ................................................. $430
   - All other situations ................................................................. $540

**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 1.621(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.

<table>
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<tr>
<th>Total Sheets</th>
<th>Extra Sheets</th>
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</table>

Surcharge of $130.00 for furnishing 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**

- **Total claims**
  - 11 - 20=
  - 0
  - 0 x $52
  - $0.00

- **Independent claims**
  - 2 - 3=
  - 0
  - 0 x $220
  - $0.00

**MULTIPLE DEPENDENT CLAIM(S) (if applicable)**

- 0 + $390
- $0.00

**TOTAL OF ABOVE CALCULATIONS** = $980.00

**Applicant claims small entity status. See 37 CFR 1.27. Fees above are reduced by ½.**

**SUBTOTAL** = $490.00

**Processing fee of $130.00 for furnishing the English translation later than 30 months from the earliest claimed priority date (37 CFR 1.492(h)).**

**TOTAL NATIONAL FEE** = $490.00

**Fee for recording the enclosed assignment (37 CFR 1.21(h)). The assignment must be accompanied by an appropriate cover sheet (37 CFR 3.28, 3.31). $40.00 per property**

**TOTAL FEES ENCLOSED** = $530.00

- 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 $530.00__________ to cover the above fee is enclosed.

b. □ Please charge my Deposit Account No. __________ in the amount of $__________ to cover the above fees.
   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 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
NAME

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: September 10, 2009              Art Unit: Not Yet Assigned
Intl. Filing Date: 21 March 2008

For: METHOD OF PROVIDING DIGITAL TV APPLICATION (as amended)

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) Cover Page of International Publication No.: WO 2008/115032 A1, one (1) page;
(4) Preliminary Amendment, sixty-four (64) pages, to be Examined, including twenty-six (26) pages of Substitute Specification – Clean Copy and twenty-eight (28) pages of Substitute Specification – Marked-up Copy;
(5) One (1) Executed Declaration and Power of Attorney, two (2) pages;
(6) One (1) Executed Assignment, two (2) pages, with a Recordation Cover Sheet, one (1) page, in favor of DREAMER of Burbank, California;

(7) Form PCT/ISA/210 (International Search Report), two (2) pages;

(8) Form PCT/IB/306 (Notification of the Recording of a Change), one (1) page;

(9) Our check no. 8943 in the amount of $530.00 for the filing fees as a small entity ($490.00), as well as the recordation fee ($40.00); and

(10) 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,

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**Application Data Sheet**

**Application Information**

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Page # 1
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Representative Information
Representative Customer Number:: 20529

Domestic Priority Information

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First Name:: Jerald L. Last Name:: Meyer
Registration No:: 41,194 Date (MM/DD/YY): 09/10/09
Title: METHOD OF PROVIDING DIGITAL TV APPLICATION AND COMPUTER-READABLE MEDIUM HAVING THEREON PROGRAM PERFORMING FUNCTION EMBODIYING THE SAME

[Fig. 1]

START

DIVIDE AND STORE DIGITAL TV APPLICATION INTO PLURALITY OF EXECUTION DATA

RECEIVE APPLICATION REQUESTING EVENT FROM RECEIVER

EXTRACT EXECUTION DATA TO BE TRANSMITTED TO RECEIVER

TRANSMIT EXTRACTED EXECUTION DATA TO RECEIVER

END

Abstract: A method of providing a digital TV application and a computer-readable medium having thereon a program performing a function embodying the same are disclosed. In accordance with the method of the present invention, a transmission time and a loading time of the digital TV application and a limitation on a number and a size of the digital TV application are minimized, providing a personalized digital TV application based on a receiver information or a user information is possible.
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: September 19, 2009

Art Unit: Not Yet Assigned


Intl. Filing Date: 21 March 2008

For: METHOD OF PROVIDING DIGITAL TV APPLICATION (as amended)

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 4 of this paper.

Amendments to the Claims begin on page 5 of this paper.

Remarks begin on page 9 of this paper.

A Conclusion appears on page 10 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/KR2008/001617, filed on March 21, 2008, which claims foreign priority benefit under 35 USC 119 of Korean Application No. 10-2007-0027895, filed on March 22, 2007, the entire content of each of which is hereby incorporated herein by reference in its entirety. --
In the Specification:

Please enter the twenty-six (26) pages of a Substitute Specification attached hereto; following the Conclusion page of this amendment.
ABSTRACT:

Please place the following Abstract on a new last page of the Application.

A method of providing a digital TV application is disclosed. In accordance with the method of the present invention, a transmission time and a loading time of the digital TV application and a limitation on a number and a size of the digital TV application are minimized, providing a personalized digital TV application based on a receiver information or a user information is possible.
Amendments to the Claims

This listing of claims will replace all prior versions, and listings, of claims in the application.

1. (Original) A method for providing a digital TV application in an application providing server for providing the digital TV application, the method comprising steps of:
   (a) dividing the digital broadcasting application into a plurality of execution data and storing the plurality of execution data;
   (b) receiving an application requesting event transmitted from a receiver, the receiver executing and providing the digital broadcasting application;
   (c) extracting one of the plurality of execution data to be provided to the receiver, the extracted execution data corresponding to the application requesting event; and
   (d) transmitting the execution data extracted in the step (c) to the receiver.

2. (Original) The method in accordance with claim 1, wherein each of the plurality of the execution data includes at least one of an executable code, a display data and a resource data for an initial screen of the digital TV application.

3. (Original) The method in accordance with claim 1, wherein the step (b) comprises:
   (b-1) receiving the application requesting event including at least one of a channel identification information for a channel, a device identification information for the receiver, a user identification information for a user of the receiver, and an
identification information for the execution data.

4. (Original) The method in accordance with claim 3, wherein the step (c) comprises (c-1) extracting one of the plurality of the execution data to be provided to the receiver based on at least one of the channel identification information, the device identification information, the user identification information and the identification information for the execution data.

5. (Original) The method in accordance with claim 1, further comprising (e) storing a plurality of control profiles including a plurality of control nodes corresponding to a plurality of scenarios for the application requesting event, and

    the step (c) comprises (c-2) extracting one of the plurality of the execution data to be provided to the receiver based on one of the plurality of control profiles suitable for the application requesting event.

6. (Original) The method in accordance with claim 5, wherein the control node includes an identification information for one of the plurality of the execution data to be provided to the receiver.

7. (Original) The method in accordance with claim 5, wherein a first control node included in a first control profile of the plurality of control profiles is associated with one of: the execution data corresponding the first control node; a second control profile of the plurality of control profiles different from the first control profile; and a second control
node included in the second control profile different from the first control node.

8. (Original) The method in accordance with claim 7, wherein each of the plurality of the control profile or each of the plurality of the control node is represented by an identifier, and the association is represented in a form of a link to the identifier.

9. (Original) A method for providing a digital TV application in a receiver for receiving providing the digital TV application, the method comprising steps of:

(a) generating an application requesting event for requesting an execution data, the execution data classified according to a scene of the digital TV application for executing the digital TV application;

(b) transmitting the application requesting event to the application providing server for providing the digital broadcasting application;

(c) receiving the execution data corresponding to the application requesting event transmitted from the application providing server; and

(d) executing the execution data to provide the digital TV application.

10. (Original) The method in accordance with claim 9, wherein the step (a) comprises:

(a-1) generating the application requesting event including at least one of a channel identification information of a current channel, a user input information within the current channel, a device identification information of the receiver, a user identification information of a user of the receiver, and an identification information of
the execution data.

11. (Original) The method in accordance with claim 9, wherein the execution data includes at least one of an executable code, a display data and a resource data for the scene of the digital TV application.

12. (Cancelled)
REMARKS

The above amendment has been made to the specification to incorporate by reference the earlier filed applications.

The specification has also been amended in order to incorporate extensive changes. No new matter has been added.

A marked-up substitute specification is attached behind the clean substitute specification to show the changes.

An Abstract has been newly added and is in proper U.S. form.

The amendments to the claims have been made to correspond with the amended specification.

Upon entry of the above amendment, claim 12 is cancelled and claims 1 – 11 are pending in this application. The amendments to the claims do not introduce new matter within the meaning of 35 U.S.C. §132.

Applicants reserve the right to reintroduce any cancelled subject matter to this application or to any child applications.

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,

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METHOD OF PROVIDING DIGITAL TV APPLICATION

[Technical Field]

The present invention relates to a method of providing a digital TV application, and more particularly to a method of providing a digital TV application that minimizes a transmission time and a loading time of the digital TV application and a limitation on a number and a size of the digital TV application, and that is capable of providing a personalized digital TV application based on a receiver information or a user information.

[Background Art]

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 and an IP-TV service using a high speed communication network.

The digital broadcast 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 are possible.

In addition, under a digital broadcasting environment, a digital TV application may
be transmitted as well as a conventional TV program signal, and an interactivity may be embodied by associating with a communication network. Various data services using the digital TV application is expected to play an important role in spreading the digital broadcasting since the viewer may easily use the digital TV application.

However, the provision of the digital TV application in accordance with an conventional art wherein the digital TV application is transmitted to a receiver via a broadcasting network and the receiver executes the digital TV application to be provided to the viewer has following drawbacks.

A head-end system is a system of a digital broadcasting provider for transmitting the TV program signal including audio/video data and the digital TV application to the receiver via the broadcasting network.

Herein, the broadcasting network refers to various broadcasting networks such as a terrestrial broadcasting network, a cable broadcasting network, a satellite broadcasting network, an IP-TV service using the high speed communication network, and a DMB network.

The receiver decodes the broadcast program signal and the digital TV application received from the head-end system to be provided to the viewer. For instance, the receiver 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 a terrestrial digital broadcasting. The receiver 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 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 receiver may be embodied in a form of the set-top box, the television or a display device. In case of the set-top box, the receiver is connected to the display device to provide the digital broadcasting. In case of the DMB, the receiver may be is built into the mobile communication terminal or an independent DMB receiver. The receiver may be embodied in a form of a PC peripheral when the digital broadcasting is received by a personal computer. When the digital broadcasting is received by the personal computer, the digital broadcasting may be provided on a monitor connected to the personal computer.

However, when the digital TV application is transmitted via the broadcasting network, the digital TV application for a plurality of broadcasting channels are transmitted to the receiver.

For instance, the digital TV application is generally transmitted using a DSM-CC data/object carousel in the terrestrial broadcasting. In addition, the digital TV application is transmitted using an IP multicast scheme in the IP-TV.

Therefore, a number of the digital TV application is limited, and a size and a configuration the digital TV application are also limited.

For instance, a size of a data of the digital TV application corresponding to an HD broadcasting is larger than that of an SD broadcasting.

Therefore, the digital TV application corresponding to the HD broadcasting requires a large bandwidth for transmission, and the number of the digital TV application
that can be transmitted via the broadcasting network is smaller than that of the SD broadcasting. In addition, a screen configuration or a scene configuration should be minimized such that the digital TV application can be transmitted within the usable bandwidth. Accordingly, various configurations cannot be used for the digital TV application corresponding to the HD broadcasting.

That is, because the digital TV application is transmitted using a limited resource, the number of and the configuration of the digital TV application are limited.

Therefore, a personalized digital TV application cannot be provided for the viewer.

Moreover, a long time is required from selecting of the digital TV application to loading of the digital TV application.

That is, when the head-end system transmits the digital TV application, the head-end system divides the digital TV application into packets having affixed size similar to the transmission of a conventional TV program packet. The receiver combines the received packets to generate the digital TV application. When the packet is lost during the transmission, the digital TV application cannot be executed for some cases.

A video data included in 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 digital TV application cannot be executed when a portion of the packets thereof is lost. Therefore, an entirety of the data application should be re-transmitted, re-received and re-executed when an error occurs.

In addition, when the receiver receives the packet of the digital TV application, the packet should be combined according to a predetermined order, thereby required an
additional time for the combination.

Moreover, even after the combination of the packets is complete, the digital TV application cannot be loaded dividedly, and the entirety of the digital TV application should be loaded and executed. Therefore, an execution speed is slow and a resource of the receiver is excessively used.

Due to above-described problems, the time required for receiving, executing and providing the digital TV application is 10 to 30 seconds. Therefore, it is very inconvenient for the viewer.

 Particularly, in case of a broadcast network using the communication network such as the IP-TV, a TV program for a channel requested by the receiver and the digital TV application corresponding to the channel are provided to the receiver from the head-end system rather than providing an entirety of the channel and the digital TV application. Such configuration using the communication network may be used for the cable broadcasting, the terrestrial broadcasting, the satellite broadcasting using the return channel and the DMB in order to provide more channels.

In accordance with the configuration, the changing of the channel is notified to the head-end system, and the head-end system extracts the TV program and the digital TV application for the corresponding channel to be transmitted to the receiver. The receiver receives and provides the TV program and the digital TV application.

Therefore, the head-end system should additionally carry out a switching of the TV program and the digital TV application for the corresponding channel to correspond to the changing of the channel.
Because the time for receiving the digital TV application by the receiver and providing the received digital TV application to the viewer to correspond to the changing of the channel includes time for switching in the head-end system, more than 30 - 40 seconds of time are required to provide the digital TV application in the receiver. Therefore, it is very inconvenient for the viewer.

Moreover, the execution of the digital TV application is limited by a processing capacity or a storage capacity of the receiver.

That is, when a size of the digital TV application is too large, the digital TV application cannot be executed. Therefore, the number of and the configuration of the digital TV application are limited.

In addition, in accordance with the conventional art, the digital TV application is provided independently for each of the channels.

For instance, the digital TV application associated with the TV program is transmitted only for the corresponding TV program and is executed within the corresponding TV program.

Moreover, in case of the digital TV application provided independently as a data channel, the digital TV application may only be used in the corresponding data channel.

Therefore, a size of the digital TV application that may be executed in a single channel is limited.

For instance, in case a portal service function is embodied using the digital TV application, the digital TV application should have multiple functions in order to provide the portal service.
That is, the digital TV application for providing the portal service should have various functions such as a T-commerce function, a game function, a stock service function and a financial service function.

However, when the single digital TV application is configured to include the various functions, the digital TV application cannot be provided through the single channel due to an excessive size thereof. Moreover, the digital TV application cannot be executed in the receiver. Even when the resource of the receiver is sufficient to execute the digital TV application having the excessive size, a transmission time for transmitting the digital TV application from the head-end system to the receiver and a loading time for the receiver to load the digital TV application are increased. Therefore, the digital TV application having the various functions cannot be applied.

In addition, when the digital TV application is divided according to the function, i.e. is divided into the digital TV application for the portal function, the digital TV application for the T-commerce function, the digital TV application for the game function, the digital TV application for the stock service function and the digital TV application for the financial service function, and transmitted through a same or a different channel, the limit on the resource of the receiver may be reduced. However, the transmission time for transmitting the digital TV application from the head-end system to the receiver cannot be reduced.

Therefore, the digital TV application having the various functions so-called "mega channel service" cannot be provided.

[Disclosure of Invention]
[Technical Problem]

It is an object of the present invention to provide a method for providing a digital TV application that minimizes a transmission time and a loading time of the digital TV application and a limitation on the number and a size of the digital TV application, and that is capable of providing a personalized digital TV application based on a receiver information or a user information.

[Technical Solution]

In order to achieve above-described object of the present invention, there is provided a method for providing a digital TV application in an application providing server for providing the digital TV application, the method comprising steps of: (a) dividing the digital broadcasting application into a plurality of execution data and storing the plurality of execution data; (b) receiving an application requesting event transmitted from a receiver, the receiver executing and providing the digital broadcasting application; (c) extracting one of the plurality of execution data to be provided to the receiver, the extracted execution data corresponding to the application requesting event; and (d) transmitting the execution data extracted in the step (c) to the receiver.

Preferably, each of the plurality of the execution data includes at least one of an executable code, a display data and a resource data for an initial screen of the digital TV application.

Preferably, the step (b) comprises: (b-1) receiving the application requesting event including at least one of a channel identification information for a channel, a device
identification information for the receiver, a user identification information for a user of the receiver, and an identification information for the execution data.

Preferably, the step (c) comprises (c-1) extracting one of the plurality of the execution data to be provided to the receiver based on at least one of the channel identification information, the device identification information, the user identification information and the identification information for the execution data.

Preferably, the method in accordance with the present invention further comprising (e) storing a plurality of control profiles including a plurality of control nodes corresponding to a plurality of scenarios for the application requesting event, and the step (c) comprises (c-2) extracting one of the plurality of the execution data to be provided to the receiver based on one of the plurality of control profiles suitable for the application requesting event.

Preferably, the control node includes an identification information for one of the plurality of the execution data to be provided to the receiver.

Preferably, a first control node included in a first control profile of the plurality of control profiles is associated with one of: the execution data corresponding the first control node; a second control profile of the plurality of control profiles different from the first control profile; and a second control node included in the second control profile different from the first control node.

Preferably, each of the plurality of the control profile or each of the plurality of the control node is represented by an identifier, and the association is represented in a form of a link to the identifier.
There is also provided a method for providing a digital TV application in a receiver for receiving providing the digital TV application, the method comprising steps of: (a) generating an application requesting event for requesting an execution data, the execution data classified according to a scene of the digital TV application for executing the digital TV application; (b) transmitting the application requesting event to the application providing server for providing the digital broadcasting application; (c) receiving the execution data corresponding to the application requesting event transmitted from the application providing server; and (d) executing the execution data to provide the digital TV application.

Preferably, the step (a) comprises: (a-1) generating the application requesting event including at least one of a channel identification information of a current channel, a user input information within the current channel, a device identification information of the receiver, a user identification information of a user of the receiver, and an identification information of the execution data.

Preferably, the execution data includes at least one of an executable code, a display data and a resource data for the scene of the digital TV application.

[Advantageous Effects]

As described above, the method for providing the digital TV application in accordance with the present invention is advantageous in that a transmission time and a loading time of the digital TV application and a limitation on the number and a size of the digital TV application are minimized, and the personalized digital TV application may be
provided based on the receiver information or the user information.

[Brief Description of the Drawings]

Fig. 1 is a flow diagram exemplifying a method for providing a digital TV application in accordance with the present invention.

Fig. 2 is a flow diagram exemplifying another method for providing a digital TV application in accordance with the present invention.

Fig. 3 is a diagram illustrating a concept of providing a digital TV application between an application providing server and a receiver in accordance with a method for providing a digital TV application of the present invention.

Fig. 4 is a diagram illustrating a concept of a control profile in accordance with a method for providing a digital TV application of the present invention.

[Description of the reference numerals]

110: data 130: control profile
135: control node 210: model
213: property 216: control profile dispatcher

[Best Mode for Carrying Out the Invention]

A method for providing a digital TV application in accordance with the present invention will now be described in detail with reference to the accompanied drawings.

Fig. 1 is a flow diagram exemplifying a method for providing a digital TV
application in accordance with the present invention wherein the method is embodied in an application providing server for providing the digital TV application.

Referring to Fig. 1, the application providing server divides the digital TV application into a plurality of execution data and stores the plurality of execution data (S110).

Each of the plurality of the execution data may include at least one of an executable code, a display data and a resource data for each scene of the digital TV application.

The executable code is an independently executable code to correspond to the scene. That is, the executable code is independently executable for each scene contrary to that of the conventional art that is executable for the entirety of the digital TV application. Therefore, the executable code is required for each scene of the digital TV application.

The display data is an element displayed on a screen when the digital TV application is executed wherein a plurality of scenes corresponding to a user input are divided and stored according to the user input for each scene.

The resource data refers to a data that may be additionally displayed such as a control box, a text box and an image other than the display data.

In accordance with the conventional art, the executable code, the display data and the resource data are integrated into the digital TV application. Therefore, the entirety of the digital TV application transmitted from the head-end system to the receiver to be executed.

However, in accordance with the present invention, the separate application providing server carries out the transmission of the digital TV application and divides and
stores the digital TV application for each scene. That is, the application providing server divides the digital TV application by dividing the digital TV application into the plurality of the execution data including at least one of the display data, the resource data and the executable code for each scene instead storing the digital TV application as a whole.

Since the digital TV application is stored as the plurality of the execution data, the transmission and the execution per execution data are possible.

Although not shown, the application providing server may store, in advance, a plurality of control profiles for extracting the execution data to correspond to the plurality of execution data constituting the digital TV application.

Each of the plurality of control profiles includes a plurality of control nodes corresponding to a plurality of scenarios. The control profile defines a scheme on extracting the plurality of execution data stored in the step S110.

The control profile may be configured for each channel.

For instance, a control profile A is stored for a channel A and a control profile B is stored for a channel B.

The control profile includes the plurality of control nodes corresponding to the plurality of scenarios for the application requesting event. The execution data to be transmitted is extracted based on the corresponding control node.

In addition, the control profile may be configured based on a user group information in order to provide a personalized service.

For instance, a control profile D may be stored for a user group D and a control
profile E may be stored for a user group E.

The control profile based on the user group information may be configured to extract the execution data to be transmitted to the receiver, and be used in order to embody the personalized digital TV application.

The extraction of the execution data based on the control profile will be described in latter portion of specification.

Moreover, the control node included in the control profile includes an identification information of the corresponding execution data, and is configured to extract the execution data based thereon.

In addition, a first control node may be associated with the corresponding execution data in order to extract the execution data to be transmitted to the receiver.

Moreover, the first control node included in a first control profile may be associated with a second control profile.

In addition, the first control node may be associated with a second control node included the second control profile.

The association may be embodied by expressing the control profile or the control node as an identifier and representing the identifier as a link.

A detailed description will be given with reference to Fig. 4. When a configuration wherein a first control node included in a first control profile is associated with a second control profile or a second control node in the second control profile is employed, the limitation of the conventional art may be overcome. Therefore, the digital TV application for so-called “mega channel service” may be embodied.
Thereafter, the application providing server receives the application requesting event from the receiver that executes and provides the digital TV application (S130).

The application requesting event is generated by the receiver. The application requesting event is a request for the execution data provided by the application providing server in order to execute the digital TV application.

The application requesting event may include at least one of a channel identification information, a device identification information of the receiver, a user identification information of the receiver and the identification information of the execution data.

For instance, when a viewer changes the channel from the channel A to the channel B, the receiver should receive the digital TV application suitable for the channel B. In order to transmit the digital TV application suitable for the channel B, the application providing server requires the channel information of the changed channel.

Therefore, the application requesting event may include the channel identification information that tells which channel is the changed channel.

In addition, the application providing server requires an information of the viewer (user) or the receiver in order to transmit the personalized digital TV application suitable for the viewer.

Accordingly, the application requesting event may include the device identification information of the receiver or the user identification information of the user of the receiver.

Moreover, the receiver may display a scene based on a certain execution data of the digital TV application and switch to another scene. In order to switch to another scene, the
receiver request the execution data for another scene. Correspondingly, the application providing server transmits the execution data corresponding to another scene to the receiver.

Accordingly, the application requesting event may include an information of the execution data, i.e. the identification information of the execution data.

After receiving the application requesting event in the step S130, the application providing server extracts one of the plurality of execution data, which is to be transmitted to the receiver, stored in the step S110 (S150).

For instance, when the application requesting event includes at least one of the channel identification information of the channel, the device identification information of the receiver, the user identification information of the receiver and the identification information of the execution data, the application providing server extracts the execution data to be provided to the receiver based on at least one of the informations.

The extraction of the execution data in the step S150 is described in detail below.

In case that the control profile is stored based on the channel, the application requesting event, includes at least one of the channel identification information of a current channel, a user input information within a screen of the current channel and the identification information of the execution data.

Therefore, the application providing server extracts the execution data to be transmitted to the receiver by comparing at least one of the channel identification information of the current channel, the user input information within the screen and the identification information of the execution data included in the application requesting event with the corresponding control node included in the control profile based on the channel.
For instance, when the channel is changed from the channel A to channel B, the receiver transmits the application requesting event including the channel identification information to the application providing server. Thereafter, the application providing server extracts the execution data for an initial screen of the digital TV application corresponding to the channel B by referring to the control profile of the channel B.

Alternately, when the user selects a certain function from the screen while watching the channel B, the receiver transmits the application requesting event including the user input information to the application providing server. Thereafter, the application providing server extracts the execution data for the control node corresponding to the user input information by referring to the control profile for the channel B.

In one embodiment, when the user request a certain execution data while watching the channel B, the receiver transmits the application requesting event including the identification information of the certain execution data to the application providing server. Thereafter, the application providing server extracts the execution data for the control node corresponding to the identification information by referring to the control profile for the channel B.

The similar may be applied to each user group.

In such case, the application requesting event may include at least one of the device identification information of the receiver, the user identification information of the receiver, the user input information within the current channel and the identification information of the execution data.

Therefore, the application providing server extracts the execution data to be
transmitted to the receiver by comparing at least one of the device identification
information of the receiver, the user identification information of the receiver, the user input
information within the current channel and the identification information of the execution
data in the application requesting event with the corresponding control node included in the
control profile based on user group.

For instance, when the receiver transmits the application requesting event including
the user identification information to the application providing server, the application
providing server searches for the user group corresponding to the user identification
information. When the user identification information belongs to the user group B, the
application providing server extracts the execution data for the initial screen of the digital
TV application corresponding to an initial connection by referring to the control profile for
the user group B.

Alternately, when the user selects the certain function after the receiver executes
the execution data, the receiver transmits the application requesting event including the user
input information to the application providing server. Thereafter, the application providing
server extracts the execution data corresponding to the control node corresponding to the
user input by referring to the control profile for the user group B.

In one embodiment, when the user requests the certain execution data after the
receiver executes the execution data, the receiver transmits the application requesting event
including the identification information of the certain execution data to the application
providing server. Thereafter, the application providing server extracts the certain execution
data corresponding to the identification information by referring to the control profile for
the user group B.

Thereafter, the application providing server transmits the execution data extracted in the step S150 to the receiver (S170).

That is, while the head-end system transmit the entirety of the digital TV application to the receiver in accordance with the conventional method, the application providing server only transmits the execution data extracted in the step S150 to the receiver in accordance with the present invention.

The receiver executes and provides the execution data transmitted in the step S170 by the application providing server. Thereafter, when the receiver requires an additional execution data, the receiver again transmits the application requesting event to the application providing server in the step S130. The receiver then receives the corresponding execution data and provides the received execution data to the viewer.

[Mode for the Invention]

Fig. 2 is a flow diagram exemplifying another method for providing the digital TV application in accordance with the present invention, wherein the method is embodied in the receiver for receiving and providing the execution data from the application providing server.

Referring to Fig. 2, the receiver generates the application requesting event for requesting the execution data divided according to the scene of the digital TV application (S210).

The application requesting event is identical to the application requesting event
described with reference to Fig 1.

That is, the application requesting event may include at least one of the channel identification information of the current channel, the user input information within the screen of the current channel, the device identification information of the receiver, the user identification information of the receiver and the identification information of the execution data.

Thereafter, the receiver transmits the application requesting event generated in the step S210 to the application providing server that provides the digital TV application (S230).

That is, the receiver transmits the application requesting event to the application providing server such that the application providing server may extract a desired execution data.

Thereafter, the receiver receives the execution data transmitted from the application providing server (S250).

The application providing server extracts the execution data corresponding to the application requesting event transmitted in the step S230.

The application providing server extracts the execution data based on the application requesting event including at least one of the channel identification information of the current channel, the user input information within the screen of the current channel, the device identification information of the receiver, the user identification information of the receiver and the identification information of the execution data. The application providing server transmits the extracted execution data to the receiver, and the receiver
receives the execution data in the step S250.

Thereafter, the receiver executes the execution data received in the step S250 to provide the digital TV application (S270).

That is, while the receiver receives the entirety of the digital TV application from the head-end system in accordance with conventional art, the receiver only receives the required execution data from the application providing server in accordance with the present invention.

The receiver executes and provides the received execution data. When the receiver requires the additional execution data, the receiver generates the application requesting event for the additional execution data in the step S210.

Thereafter, the receiver transmits the application requesting event to the application providing server in the step S230. The receiver then receives the corresponding additional execution data and provides the received additional execution data to the viewer.

Therefore, the problem of the conventional method for providing the digital TV application may be overcome, and so-called “mega channel service” may be embodied.

Fig. 3 is a diagram illustrating a concept of providing the digital TV application between the application providing server and the receiver in accordance with the method for providing a digital TV application of the present invention.

Referring to Fig. 3, a plurality of data 110a through 110n, a plurality of control profiles 130a through 130m and a model 210 are shown.

The plurality of data 110a through 110n and the plurality of control profiles 130a through 130m are embodied in the application providing server.
The plurality of data 110a through 110n correspond to the executable code, the display data or resource data. The plurality of data 110a through 110n may include an information of the initial screen, additional screen of the digital TV application, i.e. an information of the scene or the resource.

The plurality of control profiles 130a through 130m selects and provides the plurality of data 110a through 110n according to a request from the model 210.

For instance, the plurality of control profiles 130a through 130m extracts the execution data of the digital TV application from the plurality of data 110a through 110n and carries out a control for a screen configuration.

The plurality of control profiles 130a through 130m carry out the extraction of the digital TV application for each channel or the extraction a personalized digital TV application based on the device identification information or the user identification information. In addition, each of the plurality of control profiles 130a through 130m is capable of associating with other control profiles.

The model 210 may include a property 213 and a control profile dispatcher 216, and may be embodied in the receiver or the application providing server.

While the model 210 may be embodied in the head-end system, a problem may occur due to the head-end system. Therefore, it is preferable that the model 210 is embodied in the receiver or the application providing server.

The model 210 includes an information such as a predetermined property and a predetermined specification rather than a variable property. That is, the model 210 is a configuration for processing the digital TV application. The model 210 may comprise an
information of a property 213 of the digital TV application or a control profile dispatcher 216.

The property 213 may include an information of the execution of the digital TV application. The control profile dispatcher 216 may include an information of a control of the plurality of control profiles 130a through 130m.

Fig. 4 is a diagram exemplifying the concept of the control profile in accordance with the method for providing the digital TV application of the present invention.

Referring to Fig. 4, three control profiles 130a through 130c are shown.

Each of the control profiles 130a through 130c comprises a plurality of control nodes, and each of the control nodes are denoted as a circle.

For instance, let the control profile 130a be assumed as a profile for a channel A, the control profile 130b be assumed as a profile for a channel B, and the control profile 130c be assumed as a profile for a channel C.

In accordance with conventional art, the digital TV application is executed independently for each channel.

Therefore, only the digital TV application designated for the channel A is executable in the channel A, and the digital TV application designated for the channel C is not executable. In addition, since the entirety of the digital TV application is received and executed, the size and a function of the digital TV application are limited.

However, in accordance with the present invention, the digital TV application is divided into the plurality of execution data according to the scene and the digital TV application for each of the designated channels is associated with each other such that the
limitation of the size and the function of the digital TV application is minimized.

For instance, a low-ranking control node 135a of the control profile 130a for the channel A may be associated with an intermediate-ranking control node 135b of the control profile 130b for the channel B.

Accordingly, the execution of the digital TV application while watching the channel A may be switched to a screen provided by executing the digital TV application for the channel B based on the user input.

This is referred to as a scene-to-scene jumping hereinafter.

Therefore, a design of providing the digital TV application for one channel may be carried out by considering the digital TV application for another channel.

In addition, an intermediate-ranking control node 135c of the control profile 130c for the channel C may be associated with a top-ranking control node 135b of the control profile 130b for the channel B in order to enable the scene-to-scene jumping.

On the other hand, the association may be expressed through an identifier.

For instance, the control profile 130a for the channel A may be expressed as "ncfc://ChaA" and the control profile 130b for the channel B as "ncfc://ChaB".

In addition, the low-ranking control node 135a of the control profile 130a may be expressed as "ncfc://ChaA/A/AA", and the intermediate-ranking control node 135b of the control profile 130b as "ncfc://ChaB/B".

The identifier is configured to correspond to the execution data, i.e. one of the plurality of data 110a through 110n of Fig. 3.

When an event corresponding to the low-ranking control node 135a occurs, the
scene-to-scene jumping to the intermediate-ranking control node 135b of the control profile 130b because the low-ranking control node 135a is associated with the intermediate-ranking control node 135b of the control profile 130b.

In order to achieve this, the low-ranking control node 135a of the control profile 130a may be linked to "ncfc://ChaB/B", and the execution data corresponding to the intermediate-ranking control node 135b of the control profile 130b may thus be expressed.

In addition, the control profile may be configured according to a function thereof instead of the channel. While only the entirety of the digital TV application is executable in accordance with the conventional art, the digital TV application having various functions may be created by dividing the digital TV application into the plurality of execution data according to the function having the association with each other, i.e. by generating the plurality of control profiles capable of the scene-to-scene jumping.

The above-described configuration is useful when a portal function is embodied by the digital TV application.

For instance, in accordance with the conventional method, the size of the digital TV application is increased when the portal service function is embodied by the single digital TV application. therefore, the receiver cannot provide the digital TV application due to the excessive receiving time and the limited resources.

However, in accordance with the present invention, because the portal service function is embodied by dividing into the plurality of execution data, the drawback due to the excessive receiving time and the limited resources is overcome.

For instance, each portal service function such as the T-commerce function, the
The game function, the stock service function and the financial service function is divided into the execution data.

Accordingly, the receiver receives and provides the desired execution data based on the control profile for the portal service function.

Even when such configuration is employed, the digital TV application is executable without being limited by a resource of the receiver because each function is executed based on the scene-by-scene execution data.

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]

As described above, the digital TV application including various functions may be easily embodied using the scene-to-scene jumping.

In addition, the transmission time and the loading time of the mobile application and the limitation on the number and a size of the mobile application are minimized using the scene-to-scene jumping in accordance with the method for providing the mobile application.

Moreover, the personalized mobile application may be provided based on the device identification information of the receiver or the user information.
[DESCRIPTION]

METHOD OF PROVIDING DIGITAL TV APPLICATION AND COMPUTER-READABLE MEDIUM HAVING THEREON PROGRAM PERFORMING FUNCTION EMBODYING THE SAME

[Technical Field]

The present invention relates to a method of providing a digital TV application and a computer-readable medium having thereon a program performing a function embodying the same, and more particularly to a method of providing a digital TV application and a computer-readable medium having thereon a program performing a function embodying the same that minimizes a transmission time and a loading time of the digital TV application and a limitation on a number and a size of the digital TV application, and that is capable of providing a personalized digital TV application based on a receiver information or a user information.

[Background Art]

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 and an IP-TV service using a high speed communication network.

The digital broadcast 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 are possible.

In addition, under a digital broadcasting environment, a digital TV application may be transmitted as well as a conventional TV program signal, and an interactivity may be embodied by associating with a communication network. Various data services using the digital TV application is expected to play an important role in spreading the digital broadcasting since the viewer may easily use the digital TV application.

However, the provision of the digital TV application in accordance with an conventional art wherein the digital TV application is transmitted to a receiver via a broadcasting network and the receiver executes the digital TV application to be provided to the viewer has following drawbacks.

A head-end system is a system of a digital broadcasting provider for transmitting the TV program signal including audio/video data and the digital TV application to the receiver via the broadcasting network.

Herein, the broadcasting network refers to various broadcasting networks such as a terrestrial broadcasting network, a cable broadcasting network, a satellite broadcasting network, an IP-TV service using the high speed communication network, and a DMB network.

The receiver decodes the broadcast program signal and the digital TV application received from the head-end system to be provided to the viewer. For instance, the receiver
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 a terrestrial digital broadcasting. The receiver 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 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 receiver may be embodied in a form of the set-top box, the television or a display device. In case of the set-top box, the receiver is connected to the display device to provide the digital broadcasting. In case of the DMB, the receiver may be is built into the mobile communication terminal or an independent DMB receiver. The receiver may be embodied in a form of a PC peripheral when the digital broadcasting is received by a personal computer. When the digital broadcasting is received by the personal computer, the digital broadcasting may be provided on a monitor connected to the personal computer.

However, when the digital TV application is transmitted via the broadcasting network, the digital TV application for a plurality of broadcasting channels are transmitted to the receiver.

For instance, the digital TV application is generally transmitted using a DSM-CC data/object carousel in the terrestrial broadcasting. In addition, the digital TV application is transmitted using an IP multicast scheme in the IP-TV.

Therefore, a number of the digital TV application is limited, and a size and a
configuration the digital TV application are also limited.

For instance, a size of a data of the digital TV application corresponding to an HD broadcasting is larger than that of an SD broadcasting.

Therefore, the digital TV application corresponding to the HD broadcasting requires a large bandwidth for transmission, and the number of the digital TV application that can be transmitted via the broadcasting network is smaller than that of the SD broadcasting. In addition, a screen configuration or a scene configuration should be minimized such that the digital TV application can be transmitted within the usable bandwidth. Accordingly, various configurations cannot be used for the digital TV application corresponding to the HD broadcasting.

That is, because the digital TV application is transmitted using a limited resource, the number of and the configuration of the digital TV application are limited.

Therefore, a personalized digital TV application cannot be provided for the viewer.

Moreover, a long time is required from selecting of the digital TV application to loading of the digital TV application.

That is, when the head-end system transmits the digital TV application, the head-end system divides the digital TV application into packets having affixed size similar to the transmission of a conventional TV program packet. The receiver combines the received packets to generate the digital TV application. When the packet is lost during the transmission, the digital TV application cannot be executed for some cases.

A video data included in 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 digital TV application cannot be executed when a portion of the packets thereof is lost. Therefore, an entirety of the data application should be re-transmitted, re-received and re-executed when an error occurs.

In addition, when the receiver receives the packet of the digital TV application, the packet should be combined according to a predetermined order, thereby required an additional time for the combination.

Moreover, even after the combination of the packets is complete, the digital TV application cannot be loaded dividedly, and the entirety of the digital TV application should be loaded and executed. Therefore, an execution speed is slow and a resource of the receiver is excessively used.

Due to above-described problems, the time required for receiving, executing and providing the digital TV application is 10 to 30 seconds. Therefore, it is very inconvenient for the viewer.

Particularly, in case of a broadcast network using the communication network such as the IP-TV, a TV program for a channel requested by the receiver and the digital TV application corresponding to the channel are provided to the receiver from the head-end system rather than providing an entirety of the channel and the digital TV application. Such configuration using the communication network may be used for the cable broadcasting, the terrestrial broadcasting, the satellite broadcasting using the return channel and the DMB in order to provide more channels.

In accordance with the configuration, the changing of the channel is notified to the head-end system, and the head-end system extracts the TV program and the digital TV
application for the corresponding channel to be transmitted to the receiver. The receiver receives and provides the TV program and the digital TV application.

Therefore, the head-end system should additionally carry out a switching of the TV program and the digital TV application for the corresponding channel to correspond to the changing of the channel.

Because the time for receiving the digital TV application by the receiver and providing the received digital TV application to the viewer to correspond to the changing of the channel includes time for switching in the head-end system, more than 30 - 40 seconds of time are required to provide the digital TV application in the receiver. Therefore, it is very inconvenient for the viewer.

Moreover, the execution of the digital TV application is limited by a processing capacity or a storage capacity of the receiver.

That is, when a size of the digital TV application is too large, the digital TV application cannot be executed. Therefore, the number of and the configuration of the digital TV application are limited.

In addition, in accordance with the conventional art, the digital TV application is provided independently for each of the channels.

For instance, the digital TV application associated with the TV program is transmitted only for the corresponding TV program and is executed within the corresponding TV program.

Moreover, in case of the digital TV application provided independently as a data channel, the digital TV application may only be used in the corresponding data channel.
Therefore, a size of the digital TV application that may be executed in a single channel is limited.

For instance, in case a portal service function is embodied using the digital TV application, the digital TV application should have multiple functions in order to provide the portal service.

That is, the digital TV application for providing the portal service should have various functions such as a T-commerce function, a game function, a stock service function and a financial service function.

However, when the single digital TV application is configured to include the various functions, the digital TV application cannot be provided through the single channel due to an excessive size thereof. Moreover, the digital TV application cannot be executed in the receiver. Even when the resource of the receiver is sufficient to execute the digital TV application having the excessive size, a transmission time for transmitting the digital TV application from the head-end system to the receiver and a loading time for the receiver to load the digital TV application are increased. Therefore, the digital TV application having the various functions cannot be applied.

In addition, when the digital TV application is divided according to the function, i.e. is divided into the digital TV application for the portal function, the digital TV application for the T-commerce function, the digital TV application for the game function, the digital TV application for the stock service function and the digital TV application for the financial service function, and transmitted through a same or a different channel, the limit on the resource of the receiver may be reduced. However, the transmission time for transmitting
the digital TV application from the head-end system to the receiver cannot be reduced.

Therefore, the digital TV application having the various functions so-called “mega channel service” cannot be provided.

[Disclosure of Invention]

[Technical Problem]

It is an object of the present invention to provide a method for providing a digital TV application that minimizes a transmission time and a loading time of the digital TV application and a limitation on the number and a size of the digital TV application, and that is capable of providing a personalized digital TV application based on a receiver information or a user information.

It is yet another object of the present invention to provide a computer readable medium having thereon a program performing a function embodying a method for providing the digital TV application.

[Technical Solution]

In order to achieve above-described object of the present invention, there is provided a method for providing a digital TV application in an application providing server for providing the digital TV application, the method comprising steps of: (a) dividing the digital broadcasting application into a plurality of execution data and storing the plurality of execution data; (b) receiving an application requesting event transmitted from a receiver, the receiver executing and providing the digital broadcasting application; (c) extracting one
of the plurality of execution data to be provided to the receiver, the extracted execution data corresponding to the application requesting event; and (d) transmitting the execution data extracted in the step (c) to the receiver.

Preferably, each of the plurality of the execution data includes at least one of an executable code, a display data and a resource data for an initial screen of the digital TV application.

Preferably, the step (b) comprises: (b-1) receiving the application requesting event including at least one of a channel identification information for a channel, a device identification information for the receiver, a user identification information for a user of the receiver, and an identification information for the execution data.

Preferably, the step (c) comprises (c-1) extracting one of the plurality of the execution data to be provided to the receiver based on at least one of the channel identification information, the device identification information, the user identification information and the identification information for the execution data.

Preferably, the method in accordance with the present invention further comprising (e) storing a plurality of control profiles including a plurality of control nodes corresponding to a plurality of scenarios for the application requesting event, and the step (c) comprises (c-2) extracting one of the plurality of the execution data to be provided to the receiver based on one of the plurality of control profiles suitable for the application requesting event.

Preferably, the control node includes an identification information for one of the plurality of the execution data to be provided to the receiver.
Preferably, a first control node included in a first control profile of the plurality of control profiles is associated with one of: the execution data corresponding the first control node; a second control profile of the plurality of control profiles different from the first control profile; and a second control node included in the second control profile different from the first control node.

Preferably, each of the plurality of the control profile or each of the plurality of the control node is represented by an identifier, and the association is represented in a form of a link to the identifier.

There is also provided a method for providing a digital TV application in a receiver for receiving the digital TV application, the method comprising steps of: (a) generating an application requesting event for requesting an execution data, the execution data classified according to a scene of the digital TV application for executing the digital TV application; (b) transmitting the application requesting event to the application providing server for providing the digital broadcasting application; (c) receiving the execution data corresponding to the application requesting event transmitted from the application providing server; and (d) executing the execution data to provide the digital TV application.

Preferably, the step (a) comprises: (a-1) generating the application requesting event including at least one of a channel identification information of a current channel, a user input information within the current channel, a device identification information of the receiver, a user identification information of a user of the receiver, and an identification information of the execution data.
Preferably, the execution data includes at least one of an executable code, a display data and a resource data for the scene of the digital TV application.

[Advantageous Effects]

As described above, the method for providing the digital TV application in accordance with the present invention is advantageous in that a transmission time and a loading time of the digital TV application and a limitation on the number and a size of the digital TV application are minimized, and the personalized digital TV application may be provided based on the receiver information or the user information.

[Brief Description of the Drawings]

Fig. 1 is a flow diagram exemplifying a method for providing a digital TV application in accordance with the present invention.

Fig. 2 is a flow diagram exemplifying another method for providing a digital TV application in accordance with the present invention.

Fig. 3 is a diagram illustrating a concept of providing a digital TV application between an application providing server and a receiver in accordance with a method for providing a digital TV application of the present invention.

Fig. 4 is a diagram illustrating a concept of a control profile in accordance with a method for providing a digital TV application of the present invention.

[Description of the reference numerals]
[Best Mode for Carrying Out the Invention]

A method for providing a digital TV application and a computer-readable medium having thereon a program performing a function embodying the same in accordance with the present invention will now be described in detail with reference to the accompanied drawings.

Fig. 1 is a flow diagram exemplifying a method for providing a digital TV application in accordance with the present invention wherein the method is embodied in an application providing server for providing the digital TV application.

Referring to Fig. 1, the application providing server divides the digital TV application into a plurality of execution data and stores the plurality of execution data (S110).

Each of the plurality of the execution data may include at least one of an executable code, a display data and a resource data for each scene of the digital TV application.

The executable code is an independently executable code to correspond to the scene. That is, the executable code is independently executable for each scene contrary to that of the conventional art that is executable for the entirety of the digital TV application. Therefore, the executable code is required for each scene of the digital TV application.
The display data is an element displayed on a screen when the digital TV application is executed wherein a plurality of scenes corresponding to a user input are divided and stored according to the user input for each scene.

The resource data refers to a data that may be additionally displayed such as a control box, a text box and an image other than the display data.

In accordance with the conventional art, the executable code, the display data and the resource data are integrated into the digital TV application. Therefore, the entirety of the digital TV application transmitted from the head-end system to the receiver to be executed.

However, in accordance with the present invention, the separate application providing server carries out the transmission of the digital TV application and divides and stores the digital TV application for each scene. That is, the application providing server divides the digital TV application stores the digital TV application by dividing the digital TV application into the plurality of the execution data including at least one of the display data, the resource data and the executable code for each scene instead storing the digital TV application as a whole.

Since the digital TV application is stored as the plurality of the execution data, the transmission and the execution per execution data are possible.

Although not shown, the application providing server may store, in advance, a plurality of control profiles for extracting the execution data to correspond to the plurality of execution data constituting the digital TV application.

Each of the plurality of control profiles includes a plurality of control nodes corresponding to a plurality of scenarios. The control profile defines a scheme on extracting
the plurality of execution data stored in the step S110.

The control profile may be configured for each channel.

For instance, a control profile A is stored for a channel A and a control profile B is stored for a channel B.

The control profile includes the plurality of control nodes corresponding to the plurality of scenarios for the application requesting event. The execution data to be transmitted is extracted based on the corresponding control node.

In addition, the control profile may be configured based on a user group information in order to provide a personalized service.

For instance, a control profile D may be stored for a user group D and a control profile E may be stored for a user group E.

The control profile based on the user group information may be configured to extract the execution data to be transmitted to the receiver, and be used in order to embody the personalized digital TV application.

The extraction of the execution data based on the control profile will be described in latter portion of specification.

Moreover, the control node included in the control profile includes an identification information of the corresponding execution data, and is configured to extract the execution data based thereon.

In addition, a first control node may be associated with the corresponding execution data in order to extract the execution data to be transmitted to the receiver.

Moreover, the first control node included in a first control profile may be
associated with a second control profile.

In addition, the first control node may be associated with a second control node included the second control profile.

The association may be embodied by expressing the control profile or the control node as an identifier and representing the identifier as a link.

A detailed description will be given with reference to Fig. 4. When a configuration wherein a first control node included in a first control profile is associated with a second control profile or a second control node in the second control profile is employed, the limitation of the conventional art may be overcome. Therefore, the digital TV application for so-called “mega channel service” may be embodied.

Thereafter, the application providing server receives the application requesting event from the receiver that executes and provides the digital TV application (S130).

The application requesting event is generated by the receiver. The application requesting event is a request for the execution data provided by the application providing server in order to execute the digital TV application.

The application requesting event may include at least one of a channel identification information, a device identification information of the receiver, a user identification information of the receiver and the identification information of the execution data.

For instance, when a viewer changes the channel from the channel A to the channel B, the receiver should receive the digital TV application suitable for the channel B. In order to transmit the digital TV application suitable for the channel B, the application providing
server requires the channel information of the changed channel.

Therefore, the application requesting event may include the channel identification information that tells which channel is the changed channel.

In addition, the application providing server requires an information of the viewer (user) or the receiver in order to transmit the personalized digital TV application suitable for the viewer.

Accordingly, the application requesting event may include the device identification information of the receiver or the user identification information of the user of the receiver.

Moreover, the receiver may display a scene based on a certain execution data of the digital TV application and switch to another scene. In order to switch to another scene, the receiver request the execution data for another scene. Correspondingly, the application providing server transmits the execution data corresponding to another scene to the receiver.

Accordingly, the application requesting event may include an information of the execution data, i.e. the identification information of the execution data.

After receiving the application requesting event in the step S130, the application providing server extracts one of the plurality of execution data, which is to be transmitted to the receiver, stored in the step S110 (S150).

For instance, when the application requesting event includes at least one of the channel identification information of the channel, the device identification information of the receiver, the user identification information of the receiver and the identification information of the execution data, the application providing server extracts the execution data to be provided to the receiver based on at least one of the informations.
The extraction of the execution data in the step S150 is described in detail below.

In case that the control profile is stored based on the channel, the application requesting event, includes at least one of the channel identification information of a current channel, a user input information within a screen of the current channel and the identification information of the execution data.

Therefore, the application providing server extracts the execution data to be transmitted to the receiver by comparing at least one of the channel identification information of the current channel, the user input information within the screen and the identification information of the execution data included in the application requesting event with the corresponding control node included in the control profile based on the channel.

For instance, when the channel is changed from the channel A to channel B, the receiver transmits the application requesting event including the channel identification information to the application providing server. Thereafter, the application providing server extracts the execution data for an initial screen of the digital TV application corresponding to the channel B by referring to the control profile of the channel B.

Alternately, when the user selects a certain function from the screen while watching the channel B, the receiver transmits the application requesting event including the user input information to the application providing server. Thereafter, the application providing server extracts the execution data for the control node corresponding to the user input information by referring to the control profile for the channel B.

In one embodiment, when the user request a certain execution data while watching the channel B, the receiver transmits the application requesting event including the
identification information of the certain execution data to the application providing server. Thereafter, the application providing server extracts the execution data for the control node corresponding to the identification information by referring to the control profile for the channel B.

The similar may be applied to each user group.

In such case, the application requesting event may include at least one of the device identification information of the receiver, the user identification information of the receiver, the user input information within the current channel and the identification information of the execution data.

Therefore, the application providing server extracts the execution data to be transmitted to the receiver by comparing at least one of the device identification information of the receiver, the user identification information of the receiver, the user input information within the current channel and the identification information of the execution data in the application requesting event with the corresponding control node included in the control profile based on user group.

For instance, when the receiver transmits the application requesting event including the user identification information to the application providing server, the application providing server searches for the user group corresponding to the user identification information. When the user identification information belongs to the user group B, the application providing server extracts the execution data for the initial screen of the digital TV application corresponding to an initial connection by referring to the control profile for the user group B.
Alternately, when the user selects the certain function after the receiver executes the execution data, the receiver transmits the application requesting event including the user input information to the application providing server. Thereafter, the application providing server extracts the execution data corresponding to the control node corresponding to the user input by referring to the control profile for the user group B.

In one embodiment, when the user requests the certain execution data after the receiver executes the execution data, the receiver transmits the application requesting event including the identification information of the certain execution data to the application providing server. Thereafter, the application providing server extracts the certain execution data corresponding to the identification information by referring to the control profile for the user group B.

Thereafter, the application providing server transmits the execution data extracted in the step S150 to the receiver (S170).

That is, while the head-end system transmit the entirety of the digital TV application to the receiver in accordance with the conventional method, the application providing server only transmits the execution data extracted in the step S150 to the receiver in accordance with the present invention.

The receiver executes and provides the execution data transmitted in the step S170 by the application providing server. Thereafter, when the receiver requires an additional execution data, the receiver again transmits the application requesting event to the application providing server in the step S130. The receiver then receives the corresponding execution data and provides the received execution data to the viewer.
[Mode for the Invention]

Fig. 2 is a flow diagram exemplifying another method for providing the digital TV application in accordance with the present invention, wherein the method is embodied in the receiver for receiving and providing the execution data from the application providing server.

Referring to Fig. 2, the receiver generates the application requesting event for requesting the execution data divided according to the scene of the digital TV application (S210).

The application requesting event is identical to the application requesting event described with reference to Fig 1.

That is, the application requesting event may include at least one of the channel identification information of the current channel, the user input information within the screen of the current channel, the device identification information of the receiver, the user identification information of the receiver and the identification information of the execution data.

Thereafter, the receiver transmits the application requesting event generated in the step S210 to the application providing server that provides the digital TV application (S230).

That is, the receiver transmits the application requesting event to the application providing server such that the application providing server may extract a desired execution data.
Thereafter, the receiver receives the execution data transmitted from the application providing server (S250).

The application providing server extracts the execution data corresponding to the application requesting event transmitted in the step S230.

The application providing server extracts the execution data based on the application requesting event including at least one of the channel identification information of the current channel, the user input information within the screen of the current channel, the device identification information of the receiver, the user identification information of the receiver and the identification information of the execution data. The application providing server transmits the extracted execution data to the receiver, and the receiver receives the execution data in the step S250.

Thereafter, the receiver executes the execution data received in the step S250 to provide the digital TV application (S270).

That is, while the receiver receives the entirety of the digital TV application from the head-end system in accordance with conventional art, the receiver only receives the required execution data from the application providing server in accordance with the present invention.

The receiver executes and provides the received execution data. When the receiver requires the additional execution data, the receiver generates the application requesting event for the additional execution data in the step S210.

Thereafter, the receiver transmits the application requesting event to the application providing server in the step S230. The receiver then receives the corresponding additional
execution data and provides the received additional execution data to the viewer.

Therefore, the problem of the conventional method for providing the digital TV application may be overcome, and so-called "mega channel service" may be embodied.

Fig. 3 is a diagram illustrating a concept of providing the digital TV application between the application providing server and the receiver in accordance with the method for providing a digital TV application of the present invention.

Referring to Fig. 3, a plurality of data 110a through 110n, a plurality of control profiles 130a through 130m and a model 210 are shown.

The plurality of data 110a through 110n and the plurality of control profiles 130a through 130m are embodied in the application providing server.

The plurality of data 110a through 110n correspond to the executable code, the display data or resource data. The plurality of data 110a through 110n may include an information of the initial screen, additional screen of the digital TV application, i.e. an information of the scene or the resource.

The plurality of control profiles 130a through 130m selects and provides the plurality of data 110a through 110n according to a request from the model 210.

For instance, the plurality of control profiles 130a through 130m extracts the execution data of the digital TV application from the plurality of data 110a through 110n and carries out a control for a screen configuration.

The plurality of control profiles 130a through 130m carry out the extraction of the digital TV application for each channel or the extraction a personalized digital TV application based on the device identification information or the user identification
information. In addition, each of the plurality of control profiles 130a through 130m is capable of associating with other control profiles.

The model 210 may include a property 213 and a control profile dispatcher 216, and may be embodied in the receiver or the application providing server.

While the model 210 may be embodied in the head-end system, a problem may occur due to the head-end system. Therefore, it is preferable that the model 210 is embodied in the receiver or the application providing server.

The model 210 includes an information such as a predetermined property and a predetermined specification rather than a variable property. That is, the model 210 is a configuration for processing the digital TV application. The model 210 may comprise an information of a property 213 of the digital TV application or a control profile dispatcher 216.

The property 213 may include an information of the execution of the digital TV application. The control profile dispatcher 216 may include an information of a control of the plurality of control profiles 130a through 130m.

Fig. 4 is a diagram exemplifying the concept of the control profile in accordance with the method for providing the digital TV application of the present invention.

Referring to Fig. 4, three control profiles 130a through 130c are shown.

Each of the control profiles 130a through 130c comprises a plurality of control nodes, and each of the control nodes are denoted as a circle.

For instance, let the control profile 130a be assumed as a profile for a channel A, the control profile 130b be assumed as a profile for a channel B, and the control profile
130c be assumed as a profile for a channel C.

In accordance with conventional art, the digital TV application is executed independently for each channel.

Therefore, only the digital TV application designated for the channel A is executable in the channel A, and the digital TV application designated for the channel C is not executable. In addition, since the entirety of the digital TV application is received and executed, the size and a function of the digital TV application are limited.

However, in accordance with the present invention, the digital TV application is divided into the plurality of execution data according to the scene and the digital TV application for each of the designated channels is associated with each other such that the limitation of the size and the function of the digital TV application is minimized.

For instance, a low-ranking control node 135a of the control profile 130a for the channel A may be associated with an intermediate-ranking control node 135b of the control profile 130b for the channel B.

Accordingly, the execution of the digital TV application while watching the channel A may be switched to a screen provided by executing the digital TV application for the channel B based on the user input.

This is referred to as a scene-to-scene jumping hereinafter.

Therefore, a design of providing the digital TV application for one channel may be carried out by considering the digital TV application for another channel.

In addition, an intermediate-ranking control node 135c of the control profile 130c for the channel C may be associated with a top-ranking control node 135b of the control
profile 130b for the channel B in order to enable the scene-to-scene jumping.

On the other hand, the association may be expressed through an identifier.

For instance, the control profile 130a for the channel A may be expressed as "ncfc://ChaA" and the control profile 130b for the channel B as "ncfc://ChaB".

In addition, the low-ranking control node 135a of the control profile 130a may be expressed as "ncfc://ChaA/A/AA", and the intermediate-ranking control node 135b of the control profile 130b as "ncfc://ChaB/B".

The identifier is configured to correspond to the execution data, i.e. one of the plurality of data 110a through 110n of Fig. 3.

When an event corresponding to the low-ranking control node 135a occurs, the scene-to-scene jumping to the intermediate-ranking control node 135b of the control profile 130b because the low-ranking control node 135a is associated with the intermediate-ranking control node 135b of the control profile 130b.

In order to achieve this, the low-ranking control node 135a of the control profile 130a may be linked to "ncfc://ChaB/B", and the execution data corresponding to the intermediate-ranking control node 135b of the control profile 130b may thus be expressed.

In addition, the control profile may be configured according to a function thereof instead of the channel. While only the entirety of the digital TV application is executable in accordance with the conventional art, the digital TV application having various functions may be created by dividing the digital TV application into the plurality of execution data according to the function having the association with each other, i.e. by generating the plurality of control profiles capable of the scene-to-scene jumping.
The above-described configuration is useful when a portal function is embodied by the digital TV application.

For instance, in accordance with the conventional method, the size of the digital TV application is increased when the portal service function is embodied by the single digital TV application. Therefore, the receiver cannot provide the digital TV application due to the excessive receiving time and the limited resources.

However, in accordance with the present invention, because the portal service function is embodied by dividing into the plurality of execution data, the drawback due to the excessive receiving time and the limited resources is overcome.

For instance, each portal service function such as the T-commerce function, the game function, the stock service function and the financial service function is divided into the execution data.

Accordingly, the receiver receives and provides the desired execution data based on the control profile for the portal service function.

Even when such configuration is employed, the digital TV application is executable without being limited by a resource of the receiver because each function is executed based on the scene-by-scene execution data.

In addition, the present invention provides a computer readable medium having thereon a program performing function embodying the method for providing the digital TV application.

The computer readable medium refers to various storage mediums for storing a data in a code or a program format that may be read by a computer system. The computer-
readable medium may include a memory such as a ROM and a RAM, a storage medium such as CD-ROM and a DVD-ROM, a magnetic storage medium such as a magnetic tape and a floppy disk, and an optical data storage medium. The computer readable medium may include a data transferred via the Internet. The computer readable medium may be embodied by a computer readable data divided and stored over computer systems connected through a network.

Since the computer readable medium in accordance with the present invention is substantially identical to that of the method in accordance with the present invention described with reference to Figs. 1 through 4, a detailed description thereof is omitted.

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]

As described above, the digital TV application including various functions may be easily embodied using the scene-to-scene jumping.

In addition, the transmission time and the loading time of the mobile application and the limitation on the number and a size of the mobile application are minimized using the scene-to-scene jumping in accordance with the method for providing the mobile application.

Moreover, the personalized mobile application may be provided based on the
device identification information of the receiver or the user information.
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:

METHOD OF PROVIDING DIGITAL TV APPLICATION

the specification of which: (check one)

[ ] is attached here to.

[X] was filed on 21 March 2008, as Serial No. PCT/KR2008/001617,

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:

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I/We hereby appoint the Practitioners associated with the following Customer Number:

Customer Number 20529

Direct Telephone Calls to:

Gary M. Nath
(703) 546-6284

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:

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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: BAEG, Wonjang
Inventor's Signature: __________________________ Date: 5/17/09
Country of Citizenship: Republic of Korea
Post Office Address: 501-401 AreumMaeul Kunyoung Apts. 107-402, Imae-dong, Bundang-gu, Seongnam-si, Gyeonggido 463-731, 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-gu, 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-gu, 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-gu, Seoul 158-757, Republic of Korea
Country of Citizenship: Republic of Korea
Post Office Address: Mokdong Apts. 704-1403, Mok 1-dong, Yangcheon-gu, Seoul 158-757, Republic of Korea
INTERNATIONAL SEARCH REPORT

A. CLASSIFICATION OF SUBJECT MATTER

H04N 5/44(2006.01)

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: IPC as above

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

eKIPASS(KIPO Internl): "Providing the digital TV application"

C. DOCUMENTS CONSIDERED TO BE RELEVANT

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<td>KR 10-2005-0017996 A (LG ELECTRONICS INC.) 23 Feb. 2005 See abstract; claims 1-7; figure 1-3.</td>
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<td>A</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
  "P" document published prior to the international filing date but later than the priority date claimed
  "T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
  "X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
  "Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
  "&" document member of the same patent family

Date of the actual completion of the international search
25 JUNE 2008 (25.06.2008)

Date of mailing of the international search report
25 JUNE 2008 (25.06.2008)

Name and mailing address of the ISA/KR
Korean Intellectual Property Office Government Complex-Daejeon, 139 Seouns-ro, Seogu, Daejeon 302-701, Republic of Korea
Facsimile No. 82-42-472-7140

Authorized officer
JUNG, Yui Seok
Telephone No. 82-42-481-8123

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Form PCT/SA/210 (patent family annex) (April 2007)
PCT
NOTIFICATION OF THE RECORDING
OF A CHANGE
(PCT Rule 92bis.1 and
Administrative Instructions, Section 422)

Date of mailing (day/month/year)
28 May 2009 (28.05.2009)

Applicant’s or agent’s file reference
08-PCT-0008

International application No.
PCT/KR2008/001617

IMPORTANT NOTIFICATION

International filing date (day/month/year)
21 March 2008 (21.03.2008)

1. The following indications appeared on record concerning:

- ○ the applicant
- ○ the inventor
- ○ the agent
- ○ the common representative

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Republic of Korea

State of Nationality
KR

State of Residence
KR

Telephone No.
82-2-2026-1600

Facsimile No.
82-2-3444-5438

E-mail address
wjbaek@dreamer.co.kr

2. The International Bureau hereby notifies the applicant that the following change has been recorded concerning:

- ○ the person
- ○ the name
- ○ the address
- ○ the nationality
- ○ the residence

Name and Address
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United States of America

State of Nationality
KR

State of Residence
KR

Telephone No.

Facsimile No.

E-mail address

Notifications by e-mail authorized

3. Further observations, if necessary:

The person identified in Box 2 should be added to the record as applicant for all designated States except the United States of America.

4. A copy of this notification has been sent to:

- ○ the receiving Office
- ○ the International Preliminary Examining Authority
- ○ the designated Offices concerned
- ○ the International Searching Authority
- ○ the elected Offices concerned
- ○ the Authority(ies) specified for supplementary search
- ○ other:

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34, chemin des Colombettes
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*U.S. Government Printing Office: 2002-489-26769033*
Title: METHOD OF PROVIDING DIGITAL TV APPLICATION AND COMPUTER-READABLE MEDIUM HAVING THEREON PROGRAM PERFORMING FUNCTION EMBODYING THE SAME

Abstract: A method of providing a digital TV application and a computer-readable medium having thereon a program performing a function embodying the same are disclosed. In accordance with the method of the present invention, a transmission time and a loading time of the digital TV application are minimized, providing a personalized digital TV application based on a receiver information or a user information.
Description

METHOD OF PROVIDING DIGITAL TV APPLICATION AND COMPUTER-READABLE MEDIUM HAVING THEREON PROGRAM PERFORMING FUNCTION EMBODYING THE SAME

Technical Field

[1] The present invention relates to a method of providing a digital TV application and a computer-readable medium having thereon a program performing a function embodying the same, and more particularly to a method of providing a digital TV application and a computer-readable medium having thereon a program performing a function embodying the same that minimizes a transmission time and a loading time of the digital TV application and a limitation on a number and a size of the digital TV application, and that is capable of providing a personalized digital TV application based on a receiver information or a user information.

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 and an IP-TV service using a high speed communication network.

[3] The digital broadcast 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 are possible.

[4] In addition, under a digital broadcasting environment, a digital TV application may be transmitted as well as a conventional TV program signal, and an interactivity may be embodied by associating with a communication network. Various data services using the digital TV application is expected to play an important role in spreading the digital broadcasting since the viewer may easily use the digital TV application.

[5] However, the provision of the digital TV application in accordance with an conventional art wherein the digital TV application is transmitted to a receiver via a broadcasting network and the receiver executes the digital TV application to be provided to the viewer has following drawbacks.
A head-end system is a system of a digital broadcasting provider for transmitting the TV program signal including audio/video data and the digital TV application to the receiver via the broadcasting network.

Herein, the broadcasting network refers to various broadcasting networks such as a terrestrial broadcasting network, a cable broadcasting network, a satellite broadcasting network, an IP-TV service using the high speed communication network, and a DMB network.

The receiver decodes the broadcast program signal and the digital TV application received from the head-end system to be provided to the viewer. For instance, the receiver 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 a terrestrial digital broadcasting. The receiver 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 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 receiver may be embodied in a form of the set-top box, the television or a display device. In case of the set-top box, the receiver is connected to the display device to provide the digital broadcasting. In case of the DMB, the receiver may be is built into the mobile communication terminal or an independent DMB receiver. The receiver may be embodied in a form of a PC peripheral when the digital broadcasting is received by a personal computer. When the digital broadcasting is received by the personal computer, the digital broadcasting may be provided on a monitor connected to the personal computer.

However, when the digital TV application is transmitted via the broadcasting network, the digital TV application for a plurality of broadcasting channels are transmitted to the receiver.

For instance, the digital TV application is generally transmitted using a DSM-CC data/object carousel in the terrestrial broadcasting. In addition, the digital TV application is transmitted using an IP multicast scheme in the IP-TV.

Therefore, a number of the digital TV application is limited, and a size and a configuration the digital TV application are also limited.

For instance, a size of a data of the digital TV application corresponding to an HD broadcasting is larger than that of an SD broadcasting.

Therefore, the digital TV application corresponding to the HD broadcasting requires a large bandwidth for transmission, and the number of the digital TV application that can be transmitted via the broadcasting network is smaller than that of the SD
broadcasting. In addition, a screen configuration or a scene configuration should be minimized such that the digital TV application can be transmitted within the usable bandwidth. Accordingly, various configurations cannot be used for the digital TV application corresponding to the HD broadcasting.

That is, because the digital TV application is transmitted using a limited resource, the number of and the configuration of the digital TV application are limited.

Therefore, a personalized digital TV application cannot be provided for the viewer.

Moreover, a long time is required from selecting of the digital TV application to loading of the digital TV application.

That is, when the head-end system transmits the digital TV application, the head-end system divides the digital TV application into packets having affixed size similar to the transmission of a conventional TV program packet. The receiver combines the received packets to generate the digital TV application. When the packet is lost during the transmission, the digital TV application cannot be executed for some cases.

A video data included in 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 digital TV application cannot be executed when a portion of the packets thereof is lost. Therefore, an entirety of the data application should be re-transmitted, re-received and re-executed when an error occurs.

In addition, when the receiver receives the packet of the digital TV application, the packet should be combined according to a predetermined order, thereby required an additional time for the combination.

Moreover, even after the combination of the packets is complete, the digital TV application cannot be loaded dividedly, and the entirety of the digital TV application should be loaded and executed. Therefore, an execution speed is slow and a resource of the receiver is excessively used.

Due to above-described problems, the time required for receiving, executing and providing the digital TV application is 10 to 30 seconds. Therefore, it is very inconvenient for the viewer.

Particularly, in case of a broadcast network using the communication network such as the IP-TV, a TV program for a channel requested by the receiver and the digital TV application corresponding to the channel are provided to the receiver from the head-end system rather than providing an entirety of the channel and the digital TV application. Such configuration using the communication network may be used for the cable broadcasting, the terrestrial broadcasting, the satellite broadcasting using the return channel and the DMB in order to provide more channels.

In accordance with the configuration, the changing of the channel is notified to the head-end system, and the head-end system extracts the TV program and the digital TV
application for the corresponding channel to be transmitted to the receiver. The receiver receives and provides the TV program and the digital TV application.

Therefore, the head-end system should additionally carry out a switching of the TV program and the digital TV application for the corresponding channel to correspond to the changing of the channel.

Because the time for receiving the digital TV application by the receiver and providing the received digital TV application to the viewer to correspond to the changing of the channel includes time for switching in the head-end system, more than 30 - 40 seconds of time are required to provide the digital TV application in the receiver. Therefore, it is very inconvenient for the viewer.

Moreover, the execution of the digital TV application is limited by a processing capacity or a storage capacity of the receiver.

That is, when a size of the digital TV application is too large, the digital TV application cannot be executed. Therefore, the number of and the configuration of the digital TV application are limited.

In addition, in accordance with the conventional art, the digital TV application is provided independently for each of the channels.

For instance, the digital TV application associated with the TV program is transmitted only for the corresponding TV program and is executed within the corresponding TV program.

Moreover, in case of the digital TV application provided independently as a data channel, the digital TV application may only be used in the corresponding data channel.

Therefore, a size of the digital TV application that may be executed in a single channel is limited.

For instance, in case a portal service function is embodied using the digital TV application, the digital TV application should have multiple functions in order to provide the portal service.

That is, the digital TV application for providing the portal service should have various functions such as a T-commerce function, a game function, a stock service function and a financial service function.

However, when the single digital TV application is configured to include the various functions, the digital TV application cannot be provided through the single channel due to an excessive size thereof. Moreover, the digital TV application cannot be executed in the receiver. Even when the resource of the receiver is sufficient to execute the digital TV application having the excessive size, a transmission time for transmitting the digital TV application from the head-end system to the receiver and a loading time for the receiver to load the digital TV application are increased.
Therefore, the digital TV application having the various functions cannot be applied.

In addition, when the digital TV application is divided according to the function, i.e. is divided into the digital TV application for the portal function, the digital TV application for the T-commerce function, the digital TV application for the game function, the digital TV application for the stock service function and the digital TV application for the financial service function, and transmitted through a same or a different channel, the limit on the resource of the receiver may be reduced. However, the transmission time for transmitting the digital TV application from the head-end system to the receiver cannot be reduced.

Therefore, the digital TV application having the various functions so-called "mega channel service" cannot be provided.

**Disclosure of Invention**

**Technical Problem**

It is an object of the present invention to provide a method for providing a digital TV application that minimizes a transmission time and a loading time of the digital TV application and a limitation on the number and a size of the digital TV application, and that is capable of providing a personalized digital TV application based on a receiver information or a user information.

It is yet another object of the present invention to provide a computer-readable medium having thereon a program performing a function embodying a method for providing the digital TV application.

**Technical Solution**

In order to achieve above-described object of the present invention, there is provided a method for providing a digital TV application in an application providing server for providing the digital TV application, the method comprising steps of: (a) dividing the digital broadcasting application into a plurality of execution data and storing the plurality of execution data; (b) receiving an application requesting event transmitted from a receiver, the receiver executing and providing the digital broadcasting application; (c) extracting one of the plurality of execution data to be provided to the receiver, the extracted execution data corresponding to the application requesting event; and (d) transmitting the execution data extracted in the step (c) to the receiver.

Preferably, each of the plurality of the execution data includes at least one of an executable code, a display data and a resource data for an initial screen of the digital TV application.

Preferably, the step (b) comprises: (b-1) receiving the application requesting event including at least one of a channel identification information for a channel, a device
identification information for the receiver, a user identification information for a user of the receiver, and an identification information for the execution data.

Preferably, the step (c) comprises (c-1) extracting one of the plurality of the execution data to be provided to the receiver based on at least one of the channel identification information, the device identification information, the user identification information and the identification information for the execution data.

Preferably, the method in accordance with the present invention further comprising (e) storing a plurality of control profiles including a plurality of control nodes corresponding to a plurality of scenarios for the application requesting event, and the step (c) comprises (c-2) extracting one of the plurality of the execution data to be provided to the receiver based on one of the plurality of control profiles suitable for the application requesting event.

Preferably, the control node includes an identification information for one of the plurality of the execution data to be provided to the receiver.

Preferably, a first control node included in a first control profile of the plurality of control profiles is associated with one of: the execution data corresponding the first control node; a second control profile of the plurality of control profiles different from the first control profile; and a second control node included in the second control profile different from the first control node.

Preferably, each of the plurality of the control profile or each of the plurality of the control node is represented by an identifier, and the association is represented in a form of a link to the identifier.

There is also provided a method for providing a digital TV application in a receiver for receiving providing the digital TV application, the method comprising steps of: (a) generating an application requesting event for requesting an execution data, the execution data classified according to a scene of the digital TV application for executing the digital TV application; (b) transmitting the application requesting event to the application providing server for providing the digital broadcasting application; (c) receiving the execution data corresponding to the application requesting event transmitted from the application providing server; and (d) executing the execution data to provide the digital TV application.

Preferably, the step (a) comprises: (a-1) generating the application requesting event including at least one of a channel identification information of a current channel, a user input information within the current channel, a device identification information of the receiver, a user identification information of a user of the receiver, and an identification information of the execution data.

Preferably, the execution data includes at least one of an executable code, a display data and a resource data for the scene of the digital TV application.
Advantageous Effects

As described above, the method for providing the digital TV application in accordance with the present invention is advantageous in that a transmission time and a loading time of the digital TV application and a limitation on the number and a size of the digital TV application are minimized, and the personalized digital TV application may be provided based on the receiver information or the user information.

Brief Description of the Drawings

Fig. 1 is a flow diagram exemplifying a method for providing a digital TV application in accordance with the present invention.

Fig. 2 is a flow diagram exemplifying another method for providing a digital TV application in accordance with the present invention.

Fig. 3 is a diagram illustrating a concept of providing a digital TV application between an application providing server and a receiver in accordance with a method for providing a digital TV application of the present invention.

Fig. 4 is a diagram illustrating a concept of a control profile in accordance with a method for providing a digital TV application of the present invention.

[Description of the reference numerals]

110: data 130: control profile
135: control node 210: model
213: property 216: control profile dispatcher

Best Mode for Carrying Out the Invention

A method for providing a digital TV application and a computer-readable medium having thereon a program performing a function embodying the same in accordance with the present invention will now be described in detail with reference to the accompanied drawings.

Fig. 1 is a flow diagram exemplifying a method for providing a digital TV application in accordance with the present invention wherein the method is embodied in an application providing server for providing the digital TV application.

Referring to Fig. 1, the application providing server divides the digital TV application into a plurality of execution data and stores the plurality of execution data (S110).

Each of the plurality of the execution data may include at least one of an executable code, a display data and a resource data for each scene of the digital TV application.

The executable code is an independently executable code to correspond to the scene. That is, the executable code is independently executable for each scene contrary to that of the conventional art that is executable for the entirety of the digital TV application. Therefore, the executable code is required for each scene of the digital TV
application.

The display data is an element displayed on a screen when the digital TV application is executed wherein a plurality of scenes corresponding to a user input are divided and stored according to the user input for each scene.

The resource data refers to a data that may be additionally displayed such as a control box, a text box and an image other than the display data.

In accordance with the conventional art, the executable code, the display data and the resource data are integrated into the digital TV application. Therefore, the entirety of the digital TV application transmitted from the head-end system to the receiver to be executed.

However, in accordance with the present invention, the separate application providing server carries out the transmission of the digital TV application and divides and stores the digital TV application for each scene. That is, the application providing server divides the digital TV application stores the digital TV application by dividing the digital TV application into the plurality of the execution data including at least one of the display data, the resource data and the executable code for each scene instead storing the digital TV application as a whole.

Since the digital TV application is stored as the plurality of the execution data, the transmission and the execution per execution data are possible.

Although not shown, the application providing server may store, in advance, a plurality of control profiles for extracting the execution data to correspond to the plurality of execution data constituting the digital TV application.

Each of the plurality of control profiles includes a plurality of control nodes corresponding to a plurality of scenarios. The control profile defines a scheme on extracting the plurality of execution data stored in the step S110.

The control profile may be configured for each channel.

For instance, a control profile A is stored for a channel A and a control profile B is stored for a channel B.

The control profile includes the plurality of control nodes corresponding to the plurality of scenarios for the application requesting event. The execution data to be transmitted is extracted based on the corresponding control node.

In addition, the control profile may be configured based on a user group information in order to provide a personalized service.

For instance, a control profile D may be stored for a user group D and a control profile E may be stored for a user group E.

The control profile based on the user group information may be configured to extract the execution data to be transmitted to the receiver, and be used in order to embody the personalized digital TV application.
The extraction of the execution data based on the control profile will be described in latter portion of specification.

Moreover, the control node included in the control profile includes an identification information of the corresponding execution data, and is configured to extract the execution data based thereon.

In addition, a first control node may be associated with the corresponding execution data in order to extract the execution data to be transmitted to the receiver.

Moreover, the first control node included in a first control profile may be associated with a second control profile.

In addition, the first control node may be associated with a second control node included the second control profile.

The association may be embodied by expressing the control profile or the control node as an identifier and representing the identifier as a link.

A detailed description will be given with reference to Fig. 4. When a configuration wherein a first control node included in a first control profile is associated with a second control profile or a second control node in the second control profile is employed, the limitation of the conventional art may be overcome. Therefore, the digital TV application for so-called "mega channel service" may be embodied.

Thereafter, the application providing server receives the application requesting event from the receiver that executes and provides the digital TV application (S130).

The application requesting event is generated by the receiver. The application requesting event is a request for the execution data provided by the application providing server in order to execute the digital TV application.

The application requesting event may include at least one of a channel identification information, a device identification information of the receiver, a user identification information of the receiver and the identification information of the execution data.

For instance, when a viewer changes the channel from the channel A to the channel B, the receiver should receive the digital TV application suitable for the channel B. In order to transmit the digital TV application suitable for the channel B, the application providing server requires the channel information of the changed channel.

Therefore, the application requesting event may include the channel identification information that tells which channel is the changed channel.

In addition, the application providing server requires an information of the viewer (user) or the receiver in order to transmit the personalized digital TV application suitable for the viewer.

Accordingly, the application requesting event may include the device identification information of the receiver or the user identification information of the user of the receiver.
Moreover, the receiver may display a scene based on a certain execution data of the
digital TV application and switch to another scene. In order to switch to another scene,
the receiver request the execution data for another scene. Correspondingly, the application
providing server transmits the execution data corresponding to another scene
to the receiver.

Accordingly, the application requesting event may include an information of the
execution data, i.e. the identification information of the execution data.

After receiving the application requesting event in the step S130, the application
providing server extracts one of the plurality of execution data, which is to be
transmitted to the receiver, stored in the step S110 (S150).

For instance, when the application requesting event includes at least one of the
channel identification information of the channel, the device identification information
of the receiver, the user identification information of the receiver and the identification
information of the execution data, the application providing server extracts the
execution data to be provided to the receiver based on at least one of the informations.

The extraction of the execution data in the step S150 is described in detail below.

In case that the control profile is stored based on the channel, the application
requesting event, includes at least one of the channel identification information of a
current channel, a user input information within a screen of the current channel and the
identification information of the execution data.

Therefore, the application providing server extracts the execution data to be
transmitted to the receiver by comparing at least one of the channel identification information of the current channel, the user input information within the screen and the
identification information of the execution data included in the application requesting
event with the corresponding control node included in the control profile based on the
channel.

For instance, when the channel is changed from the channel A to channel B, the
receiver transmits the application requesting event including the channel identification information to the application providing server. Thereafter, the application providing
server extracts the execution data for an initial screen of the digital TV application corresponding to the channel B by referring to the control profile of the channel B.

Alternately, when the user selects a certain function from the screen while watching
the channel B, the receiver transmits the application requesting event including the
user input information to the application providing server. Thereafter, the application
providing server extracts the execution data for the control node corresponding to the
user input information by referring to the control profile for the channel B.

In one embodiment, when the user request a certain execution data while watching
the channel B, the receiver transmits the application requesting event including the
identification information of the certain execution data to the application providing server. Thereafter, the application providing server extracts the execution data for the control node corresponding to the identification information by referring to the control profile for the channel B.

The similar may be applied to each user group.

In such case, the application requesting event may include at least one of the device identification information of the receiver, the user identification information of the receiver, the user input information within the current channel and the identification information of the execution data.

Therefore, the application providing server extracts the execution data to be transmitted to the receiver by comparing at least one of the device identification information of the receiver, the user identification information of the receiver, the user input information within the current channel and the identification information of the execution data in the application requesting event with the corresponding control node included in the control profile based on user group.

For instance, when the receiver transmits the application requesting event including the user identification information to the application providing server, the application providing server searches for the user group corresponding to the user identification information. When the user identification information belongs to the user group B, the application providing server extracts the execution data for the initial screen of the digital TV application corresponding to an initial connection by referring to the control profile for the user group B.

Alternately, when the user selects the certain function after the receiver executes the execution data, the receiver transmits the application requesting event including the user input information to the application providing server. Thereafter, the application providing server extracts the execution data corresponding to the control node corresponding to the user input by referring to the control profile for the user group B.

In one embodiment, when the user requests the certain execution data after the receiver executes the execution data, the receiver transmits the application requesting event including the identification information of the certain execution data to the application providing server. Thereafter, the application providing server extracts the certain execution data corresponding to the identification information by referring to the control profile for the user group B.

Thereafter, the application providing server transmits the execution data extracted in the step S150 to the receiver (S170).

That is, while the head-end system transmit the entirety of the digital TV application to the receiver in accordance with the conventional method, the application providing server only transmits the execution data extracted in the step S150 to the
receiver in accordance with the present invention.

[110] The receiver executes and provides the execution data transmitted in the step S170 by the application providing server. Thereafter, when the receiver requires an additional execution data, the receiver again transmits the application requesting event to the application providing server in the step S130. The receiver then receives the corresponding execution data and provides the received execution data to the viewer.

**Mode for the Invention**

[111] Fig. 2 is a flow diagram exemplifying another method for providing the digital TV application in accordance with the present invention, wherein the method is embodied in the receiver for receiving and providing the execution data from the application providing server.

[112] Referring to Fig. 2, the receiver generates the application requesting event for requesting the execution data divided according to the scene of the digital TV application (S210).

[113] The application requesting event is identical to the application requesting event described with reference to Fig 1.

[114] That is, the application requesting event may include at least one of the channel identification information of the current channel, the user input information within the screen of the current channel, the device identification information of the receiver, the user identification information of the receiver and the identification information of the execution data.

[115] Thereafter, the receiver transmits the application requesting event generated in the step S210 to the application providing server that provides the digital TV application (S230).

[116] That is, the receiver transmits the application requesting event to the application providing server such that the application providing server may extract a desired execution data.

[117] Thereafter, the receiver receives the execution data transmitted from the application providing server (S250).

[118] The application providing server extracts the execution data corresponding to the application requesting event transmitted in the step S230.

[119] The application providing server extracts the execution data based on the application requesting event including at least one of the channel identification information of the current channel, the user input information within the screen of the current channel, the device identification information of the receiver, the user identification information of the receiver and the identification information of the execution data. The application providing server transmits the extracted execution data
to the receiver, and the receiver receives the execution data in the step S250.

[120] Thereafter, the receiver executes the execution data received in the step S250 to provide the digital TV application (S270).

[121] That is, while the receiver receives the entirety of the digital TV application from the head-end system in accordance with conventional art, the receiver only receives the required execution data from the application providing server in accordance with the present invention.

[122] The receiver executes and provides the received execution data. When the receiver requires the additional execution data, the receiver generates the application requesting event for the additional execution data in the step S210.

[123] Thereafter, the receiver transmits the application requesting event to the application providing server in the step S230. The receiver then receives the corresponding additional execution data and provides the received additional execution data to the viewer.

[124] Therefore, the problem of the conventional method for providing the digital TV application may be overcome, and so-called "mega channel service" may be embodied.

[125] Fig. 3 is a diagram illustrating a concept of providing the digital TV application between the application providing server and the receiver in accordance with the method for providing a digital TV application of the present invention.

[126] Referring to Fig. 3, a plurality of data 110a through 110n, a plurality of control profiles 130a through 130m and a model 210 are shown.

[127] The plurality of data 110a through 110n and the plurality of control profiles 130a through 130m are embodied in the application providing server.

[128] The plurality of data 110a through 110n correspond to the executable code, the display data or resource data. The plurality of data 110a through 110n may include an information of the initial screen, additional screen of the digital TV application, i.e. an information of the scene or the resource.

[129] The plurality of control profiles 130a through 130m selects and provides the plurality of data 110a through 110n according to a request from the model 210.

[130] For instance, the plurality of control profiles 130a through 130m extracts the execution data of the digital TV application from the plurality of data 110a through 110n and carries out a control for a screen configuration.

[131] The plurality of control profiles 130a through 130m carry out the extraction of the digital TV application for each channel or the extraction a personalized digital TV application based on the device identification information or the user identification information. In addition, each of the plurality of control profiles 130a through 130m is capable of associating with other control profiles.

[132] The model 210 may include a property 213 and a control profile dispatcher 216, and
may be embodied in the receiver or the application providing server.

[133] While the model 210 may be embodied in the head-end system, a problem may occur due to the head-end system. Therefore, it is preferable that the model 210 is embodied in the receiver or the application providing server.

[134] The model 210 includes an information such as a predetermined property and a predetermined specification rather than a variable property. That is, the model 210 is a configuration for processing the digital TV application. The model 210 may comprise an information of a property 213 of the digital TV application or a control profile dispatcher 216.

[135] The property 213 may include an information of the execution of the digital TV application. The control profile dispatcher 216 may include an information of a control of the plurality of control profiles 130a through 130m.

[136] Fig. 4 is a diagram exemplifying the concept of the control profile in accordance with the method for providing the digital TV application of the present invention.

[137] Referring to Fig. 4, three control profiles 130a through 130c are shown.

[138] Each of the control profiles 130a through 130c comprises a plurality of control nodes, and each of the control nodes are denoted as a circle.

[139] For instance, let the control profile 130a be assumed as a profile for a channel A, the control profile 130b be assumed as a profile for a channel B, and the control profile 130c be assumed as a profile for a channel C.

[140] In accordance with conventional art, the digital TV application is executed independently for each channel.

[141] Therefore, only the digital TV application designated for the channel A is executable in the channel A, and the digital TV application designated for the channel C is not executable. In addition, since the entirety of the digital TV application is received and executed, the size and a function of the digital TV application are limited.

[142] However, in accordance with the present invention, the digital TV application is divided into the plurality of execution data according to the scene and the digital TV application for each of the designated channels is associated with each other such that the limitation of the size and the function of the digital TV application is minimized.

[143] For instance, a low-ranking control node 135a of the control profile 130a for the channel A may be associated with an intermediate-ranking control node 135b of the control profile 130b for the channel B.

[144] Accordingly, the execution of the digital TV application while watching the channel A may be switched to a screen provided by executing the digital TV application for the channel B based on the user input.

[145] This is referred to as a scene-to-scene jumping hereinafter.

[146] Therefore, a design of providing the digital TV application for one channel may be
carried out by considering the digital TV application for another channel.

In addition, an intermediate-ranking control node 135c of the control profile 130c for the channel C may be associated with a top-ranking control node 135b of the control profile 130b for the channel B in order to enable the scene-to-scene jumping.

On the other hand, the association may be expressed through an identifier.

For instance, the control profile 130a for the channel A may be expressed as "ncfc://ChaA" and the control profile 130b for the channel B as "ncfc://ChaB".

In addition, the low-ranking control node 135a of the control profile 130a may be expressed as "ncfc://ChaA/A/AA", and the intermediate-ranking control node 135b of the control profile 130b as "ncfc://ChaB/B".

The identifier is configured to correspond to the execution data, i.e. one of the plurality of data 110a through 110n of Fig. 3.

When an event corresponding to the low-ranking control node 135a occurs, the scene-to-scene jumping to the intermediate-ranking control node 135b of the control profile 130b because the low-ranking control node 135a is associated with the intermediate-ranking control node 135b of the control profile 130b.

In order to achieve this, the low-ranking control node 135a of the control profile 130a may be linked to "ncfc://ChaB/B", and the execution data corresponding to the intermediate-ranking control node 135b of the control profile 130b may thus be expressed.

In addition, the control profile may be configured according to a function thereof instead of the channel. While only the entirety of the digital TV application is executable in accordance with the conventional art, the digital TV application having various functions may be created by dividing the digital TV application into the plurality of execution data according to the function having the association with each other, i.e. by generating the plurality of control profiles capable of the scene-to-scene jumping.

The above-described configuration is useful when a portal function is embodied by the digital TV application.

For instance, in accordance with the conventional method, the size of the digital TV application is increased when the portal service function is embodied by the single digital TV application. Therefore, the receiver cannot provide the digital TV application due to the excessive receiving time and the limited resources.

However, in accordance with the present invention, because the portal service function is embodied by dividing into the plurality of execution data, the drawback due to the excessive receiving time and the limited resources is overcome.

For instance, each portal service function such as the T-commerce function, the game function, the stock service function and the financial service function is divided
into the execution data.

[159] Accordingly, the receiver receives and provides the desired execution data based on
the control profile for the portal service function.

[160] Even when such configuration is employed, the digital TV application is executable
without being limited by a resource of the receiver because each function is executed
based on the scene-by-scene execution data.

[161] In addition, the present invention provides a computer-readable medium having
thereon a program performing function embodying the method for providing the digital
TV application.

[162] The computer-readable medium refers to various storage mediums for storing a data
in a code or a program format that may be read by a computer system. The computer-
readable medium may include a memory such as a ROM and a RAM, a storage
medium such as CD-ROM and a DVD-ROM, a magnetic storage medium such as a
magnetic tape and a floppy disk, and an optical data storage medium. The computer-
readable medium may include a data transferred via the Internet. The computer-
readable medium may be embodied by a computer-readable data divided and stored
over computer systems connected through a network.

[163] Since the computer-readable medium in accordance with the present invention is
substantially identical to that of the method in accordance with the present invention
described with reference to Figs. 1 through 4, a detailed description thereof is omitted.

[164] 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

[165] As described above, the digital TV application including various functions may be
easily embodied using the scene-to-scene jumping.

[166] In addition, the transmission time and the loading time of the mobile application
and the limitation on the number and a size of the mobile application are minimized
using the scene-to-scene jumping in accordance with the method for providing the
mobile application.

[167] Moreover, the personalized mobile application may be provided based on the
device identification information of the receiver or the user information.
Claims

[1] A method for providing a digital TV application in an application providing server for providing the digital TV application, the method comprising steps of:
(a) dividing the digital broadcasting application into a plurality of execution data and storing the plurality of execution data;
(b) receiving an application requesting event transmitted from a receiver, the receiver executing and providing the digital broadcasting application;
(c) extracting one of the plurality of execution data to be provided to the receiver, the extracted execution data corresponding to the application requesting event; and
(d) transmitting the execution data extracted in the step (c) to the receiver.

[2] The method in accordance with claim 1, wherein each of the plurality of the execution data includes at least one of an executable code, a display data and a resource data for an initial screen of the digital TV application.

[3] The method in accordance with claim 1, wherein the step (b) comprises:
(b-1) receiving the application requesting event including at least one of a channel identification information for a channel, a device identification information for the receiver, a user identification information for a user of the receiver, and an identification information for the execution data.

[4] The method in accordance with claim 3, wherein the step (c) comprises (c-1) extracting one of the plurality of the execution data to be provided to the receiver based on at least one of the channel identification information, the device identification information, the user identification information and the identification information for the execution data.

[5] The method in accordance with claim 1, further comprising (e) storing a plurality of control profiles including a plurality of control nodes corresponding to a plurality of scenarios for the application requesting event, and the step (c) comprises (c-2) extracting one of the plurality of the execution data to be provided to the receiver based on one of the plurality of control profiles suitable for the application requesting event.

[6] The method in accordance with claim 5, wherein the control node includes an identification information for one of the plurality of the execution data to be provided to the receiver.

[7] The method in accordance with claim 5, wherein a first control node included in a first control profile of the plurality of control profiles is associated with one of: the execution data corresponding the first control node; a second control profile of the plurality of control profiles different from the first control profile; and a
second control node included in the second control profile different from the first control node.

[8] The method in accordance with claim 7, wherein each of the plurality of the control profile or each of the plurality of the control node is represented by an identifier, and the association is represented in a form of a link to the identifier.

[9] A method for providing a digital TV application in a receiver for receiving providing the digital TV application, the method comprising steps of:
(a) generating an application requesting event for requesting an execution data, the execution data classified according to a scene of the digital TV application for executing the digital TV application;
(b) transmitting the application requesting event to the application providing server for providing the digital broadcasting application;
(c) receiving the execution data corresponding to the application requesting event transmitted from the application providing server; and
(d) executing the execution data to provide the digital TV application.

[10] The method in accordance with claim 9, wherein the step (a) comprises:
(a-1) generating the application requesting event including at least one of a channel identification information of a current channel, a user input information within the current channel, a device identification information of the receiver, a user identification information of a user of the receiver, and an identification information of the execution data.

[11] The method in accordance with claim 9, wherein the execution data includes at least one of an executable code, a display data and a resource data for the scene of the digital TV application.

[12] A computer-readable medium having thereon a program performing a function embodying a method for providing a digital TV application in accordance with one of claims 1 through 11.
[Fig. 1]

START

1. DIVIDE AND STORE DIGITAL TV APPLICATION INTO PLURALITY OF EXECUTION DATA ~ S110

2. RECEIVE APPLICATION REQUESTING EVENT FROM RECEIVER ~ S130

3. EXTRACT EXECUTION DATA TO BE TRANSMITTED TO RECEIVER ~ S150

4. TRANSMIT EXTRACTED EXECUTION DATA TO RECEIVER ~ S170

END

[Fig. 2]

START

1. GENERATE APPLICATION REQUESTING EVENT FOR EXECUTION DATA ~ S210

2. TRANSMIT APPLICATION REQUESTING EVENT TO APPLICATION PROVIDING SERVER ~ S230

3. RECEIVE EXECUTION DATA FROM APPLICATION PROVIDING SERVER ~ S250

4. EXECUTE EXECUTION DATA TO PROVIDE DIGITAL TV APPLICATION ~ S270

END
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출원 인 : 주식회사 드라머
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2008 년 04 월 02 일

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【제출일자】 2007.03.22
【발명의 국문명칭】 디지털 방송 애플리케이션 제공 방법 및 이를 실행시키기 위한 프로그램을 기록한 컴퓨터로 판독 가능한 기록 매체
【발명의 영문명칭】 METHOD OF PROVIDING DIGITAL TV APPLICATION AND COMPUTER-READABLE MEDIUM HAVING THEREON PROGRAM PERFORMING FUNCTION EMBODYING THE SAME
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【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】 39 면 0 원
【우선권주정료】 0 건 0 원
【심사청구료】 12 항 493,000 원
【합계】 531,000 원
【감면사유】 소기업(70%감면)
【감면후 수수료】 159,300 원
【첨부서류】

1. 중소기업기본법 제2조의 규정에 따른 소기업에 해당할 수 있는 서류 1통
본 발명은 디지털 방송 애플리케이션을 제공하는 애플리케이션 제공 서비에 서의 디지털 방송 애플리케이션 제공 방법으로서, (a) 디지털 방송 애플리케이션을 다수의 실행 데이터로 구분하여 미리 저장하는 단계와, (b) 상기 디지털 방송 애플 리케이션을 실행하여 제공하는 수신기로부터 애플리케이션 요청 이벤트를 수신하는 단계와, (c) 상기 애플리케이션 요청 이벤트에 대응하여 상기 다수의 실행 데이터 중에서 상기 수신기에 제공할 수신기 전송 실행 데이터를 추출하는 단계와, (d) 추 출된 수신기 전송 실행 데이터를 상기 수신기에게 전송하는 단계를 포함하는 디 지털 방송 애플리케이션 제공 방법에 관한 것이다.

본 발명에 따르면, 디지털 방송 애플리케이션을 제공하는 애플리케이션 제공 서비에서 디지털 방송 애플리케이션을 장면 단위의 실행 데이터 형태로 분할하여 저장하고 수신기 측의 요청에 따라서 미리 저장된 제어 프로파일을 기초로 디지털 방송 애플리케이션의 실행에 필요한 실행 데이터만을 추출하여 수신기 측에 제공하여 필요시 다른 제어 프로파일에 대응하는 실행 데이터를 장면-대-장면 점핑 (scene-to-scene jumping)을 통하여 추출하여 수신기 측에 제공하도록 디지털 방송 애플리케이션을 실행하도록 구성함으로써, 다양한 기능을 포함하는 디지털 방송 애플리케이션을 장면-대-장면 점핑을 통하여 간편하게 구현할 수 있으며, 장면-대-장 면 점핑을 통하여 디지털 방송 애플리케이션의 수신 및 실행에 필요한 시간을 최소 화하고 제공 가능한 디지털 방송 애플리케이션의 개수 또는 크기에 대한 제한을 최
소화할 수 있으며 수신기 또는 사용자 정보를 기초로 개인화된 디지털 방송 애플리케이션의 제공이 가능하다.

【대표도】

도 1

【설인어】

디지털 방송, 디지털 방송 애플리케이션, 애플리케이션 요청 이벤트, 실행 데이터, 메가 채널 서비스, 채어 프로파일, 수신기, 셋탑 박스, 애플리케이션 제공 서버, 장면-대-장면 점평
【명세서】

【발명의 명칭】

디지털 방송 애플리케이션 제공 방법 및 이를 실행시키기 위한 프로그램을 기록한 컴퓨터로 판독 가능한 기록 매체(Method of Providing Digital TV Application and Computer-readable Medium Having Thereon Program Performing Function Embodying the Same)

【도면의 간단한 설명】

<1>  도 1은 본 발명에 따른 디지털 방송 애플리케이션 제공 방법의 예시적인 흐름도.

<2>  도 2는 본 발명에 따른 디지털 방송 애플리케이션 제공 방법의 다른 예시적인 흐름도.

<3>  도 3은 본 발명에 따른 디지털 방송 애플리케이션 제공 방법에 있어서, 애플리케이션 제공 서버와 수신기 사이에서의 디지털 방송 애플리케이션 제공의 개념을 예시적으로 나타내는 도면.

<4>  도 4는 본 발명에 따른 디지털 방송 애플리케이션 제공 방법에 있어서 재어 프로파일 개념을 예시적으로 나타내는 도면.

<5>  <도면의 주요부분에 대한 부호의 설명>

<6>  110: 데이터          130: 재어 프로파일

<7>  135: 재어 노드        210: 모델

42-6
본 발명은 디지털 방송 애플리케이션 제공 방법 및 이를 실현시키기 위한 프로그램을 기록한 컴퓨터로 판독 가능한 기록 매체에 관한 것으로, 더욱 구체적으로는 디지털 방송 애플리케이션을 제공하는 애플리케이션 제공 서버에서 디지털 방송 애플리케이션을 장면 단위의 실행 데이터 형태로 분할하여 저장하고 수신기 측의 요청에 따라서 미리 지정된 제어 프로파일을 기초로 디지털 방송 애플리케이션의 실행에 필요한 실행 데이터만을 추출하여 수신기 측에 제공하며 필요시 다른 제어 프로파일에 대응하는 실행 데이터를 장면-대-장면 점핑을 통하여 추출하여 수신기 측에 제공하도록 디지털 방송 애플리케이션을 실행하도록 구성함으로써, 다양한 기능을 포함하는 디지털 방송 애플리케이션을 장면-대-장면 점핑을 통하여 간편하게 구현할 수 있으며, 장면-대-장면 점핑을 통하여 디지털 방송 애플리케이션의 수신 및 실행에 필요한 시간을 최소화하고 제공 가능한 디지털 방송 애플리케이션의 개수 또는 크기에 대한 제한을 최소화할 수 있으며 수신기 또는 사용자 정보를 기초로 개인화된 디지털 방송 애플리케이션의 제공이 가능한 디지털 방송 애플리케이션 제공 방법 및 이를 실현시키기 위한 프로그램을 기록한 컴퓨터로 판독 가능한 기록 매체에 관한 것이다.

기술의 발전과 시청자의 수요변화에 따라 방송 환경이 변화하고 있다. 종래
의 아날로그 방송에서 디지털 방송으로 전환되고, 지상파 위주에서 케이블 방송과 위성 방송, 그리고 초고속 통신 네트워크를 이용한 멀티미디어 데이터의 제공 방식인 소위 IP-TV 서비스, 지상파 및 위성 DMB 서비스 등으로 방송 매체가 다양화되고 있는 상황이다.

디지털 방송은 종래의 아날로그 방송 방식에 비해 용량을 4~8배로 늘릴 수 있어 스포츠, 영화, 훈련, 음악 등 다양한 분야의 부가 서비스를 제공할 수 있게 되었고, 또한 지상파 방송을 비롯하여 케이블 방송, 위성 방송, DMB 방송, IP-Tv, DMB 등의 다양한 방송 형태가 제공됨에 따라 시청자의 선호도가 넓어지게 된다.

또한 이러한 디지털 방송 환경 하에서는 종래의 단순한 방송 프로그램 신호의 전송뿐만이 아니라 다양한 디지털 방송 애플리케이션의 전송이 가능하며 또한 통신 네트워크와의 연동으로 양방향성(interactivity)의 구현도 가능하다. 이러한 디지털 방송 애플리케이션을 이용한 다양한 데이터 서비스들은 시청자가 간편하게 이용할 수 있다는 점에서 디지털 방송 보급에 중요한 역할을 할 수 있을 것으로 예상되고 있다.

그러나 종래의 디지털 방송 애플리케이션의 제공은 다음과 같은 문제점을 가지고 있다.

이러한 문제점에 대해서 디지털 방송 애플리케이션이 방송망을 통하여 헤드엔드 시스템으로부터 수신기에까지 전송되어 수신기에서 실행되어 시청자에게 제공되는 방식을 참조로 설명한다.

헤드엔드 시스템은 디지털 방송 사업자 측의 시스템이며, 오디오/비디오 테
이터를 포함하는 방송 프로그램과 디지털 방송 애플리케이션을 방송망을 통하여 수신기에게로 전송하기 위한 시스템이다.

본원 명세서에서의 "방송망"은 지상파 방송망, 케이블 방송망, 위성 방송망, IP-TV에서의 초고속 통신 네트워크 또는 DMB 방송망 등 다양한 방송 네트워크를 의미한다.

또한 수신기는 애드엔드 시스템으로부터 전송되는 방송 프로그램과 디지털 방송 애플리케이션을 수신하여 적절한 디코딩 등의 신호 처리를 수행하여 시청자에게 제공하는 단말이다. 수신기는 예전대 지상과 디지털 방송의 경우 ATSC 등의 지상과 방송 규격을 만족하며 DASE 등의 양방향 데이터 방송 규격을 지원하는 디지털 TV 또는 셋탑 박스일 수 있다. 또는 케이블 방송 또는 위성 방송의 경우 OpenCable 또는 DVB 등의 방송 규격과 각 방송망에 적합한 데이터 방송 규격, 예전대 OCAP 또는 MHP 등을 지원하는 셋탑 박스일 수 있다. 또한 IP-TV 또는 DMB 방송의 경우 수신기는 해당 데이터 방송 규격을 지원하는 셋탑 박스 또는 이동통신 단말기일 수도 있다.

현재 디지털 방송을 수신하여 제공하는 수신기는 예전대 셋탑 박스 형태 또는 디지털 방송을 수신하는 TV 또는 디스플레이 장치 형태로 구현될 수 있다. 셋탑 박스 형태인 경우에는 별도의 디스플레이 장치가 연결되어 방송을 제공하게 된다. 또한 예전대 수신기는 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.
그러나 특히 디지털 방송 애플리케이션의 전송에 있어서 방송망을 통하여 전송을 수행하는 경우에는 다수의 방송 채널에 대한 디지털 방송 애플리케이션이 동시에 전송된다.

에컨테 ATSC 등의 지상파 방송 규격에서는 DSM-CC 데이터/객제 카루셀(Data/Object Carousel)을 이용하여 전송되며, 또는 IP-TV 등에서는 IP 멀티캐스트 방식을 이용하여 전송된다.

따라서 전송할 수 있는 디지털 방송 애플리케이션의 개수에 제한이 있으며 또한 전송 가능한 디지털 방송 애플리케이션의 크기 또는 디지털 방송 애플리케이션의 구성에도 제한이 발생한다.

에컨테 HD 방송에 대응하는 디지털 방송 애플리케이션의 경우 SD 방송에 대응하는 디지털 방송 애플리케이션에 비해서 많은 데이터 크기가 필요로 한다.

따라서 전송 시에 많은 대역폭이 필요하게 되어 전송 가능한 디지털 방송 애플리케이션의 개수가 SD 방송에 대응하는 경우보다 작아지게 되며, 또한 대역폭 제한 때문에 디지털 방송 애플리케이션 구성의 사용 가능한 대역폭 내에서 전송 가능하도록 제한적으로 화면 구성이나 장면 구성은 최소화할 수밖에 없으므로 다양한 구성을 사용하지 못하는 단점이 있다.

즉 한정된 자원을 이용하여 전송하기 때문에 없으므로 제공 가능한 디지털 방송 애플리케이션의 개수와 구성이 제한받는 단점이 있다.

따라서 에컨테 시청자에 대하여 개인화된 디지털 방송 애플리케이션의 제공은 매우 어렵게 된다.
또한 디지털 방송 애플리케이션을 선택한 후 실제 디지털 방송 애플리케이션을 로딩하기까지 많은 시간이 소요되는 단점이 있다.

즉 헤드엔드 시스템에서에서 디지털 방송 애플리케이션을 전송하는 경우 기존의 방송 프로그램용 패킷의 전송과 마찬가지로 디지털 방송 애플리케이션을 고정 패킷 크기로 분할하여 전송하고 수신기 측에서 이를 다시 결합하여 디지털 방송 애플리케이션을 수신하게 된다. 이러한 경우 디지털 방송 애플리케이션 전송 속도가 감소하며 또한 중간에 패킷이 유실되어 디지털 방송 애플리케이션 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 디지털 방송 애플리케이션의 경우에는 이러한 패킷 유실의 경우 실행 자체가 불가능하다. 따라서 오류가 발생하면 다시 처음부터 디지털 방송 애플리케이션을 수신하여 실행시키야 할 경우도 발생한다.

또한 수신기 측에서 디지털 방송 애플리케이션 패킷을 수신하는 경우에는 각 패킷의 순서를 수신기 내에서 다시 조합하여야 하므로 패킷 조합에 따른 시간이 추가적으로 소요된다.

또한 패킷 조합이 완료된 이후에도 디지털 방송 애플리케이션을 분할하여 로딩하지 못하고 전체 디지털 방송 애플리케이션을 수신 완료한 이후 전체적으로 로딩하여 실행하여야 하므로 실행 속도가 느리지고 수신기 자원을 과다하게 사용하게 된다.
이러한 문제점들로 인하여 종래 수신기에서 디지털 방송 애플리케이션을 수신하여 실행하고 이를 시청자에게 제공하기까지의 시간은 대략 10조 내지 30조 정도가 소요된다. 그러나 이러한 종래의 디지털 방송 애플리케이션 실행에 과도한 시간이 소요되는 것은 사용자에게 많은 불편함을 가져오게 된다.

특히 IP-TV의 경우와 같이 방송망 중에서도 통신 네트워크를 이용하는 경우라면 전체 채널에 대한 방송 프로그램과 디지털 방송 애플리케이션이 해드엔드로부터 수신기로 제공되는 것이 아니라 수신기 측에서 요청한 채널에 대한 방송 프로그램과 해당 채널에 대응하는 디지털 방송 애플리케이션이 전송되는 구성을 취할 수 있다. 이러한 구성은 예전대 케이블 방송이나 리턴 채널을 이용하는 위성 방송, 지상파 방송, DMB 방송 등의 경우에서도 기존보다 많은 채널을 제공하기 위해서 사용 가능한 구성이다.

이 경우 수신기에서는 해드엔드 시스템에게로 채널 변경을 통지하고, 해드엔드 측에서는 이를 수신하는 경우 해당 채널에 대한 방송 프로그램과 디지털 방송 애플리케이션을 추출하며 다시 수신기 측에 전송하게 되며, 수신기에서는 해당 채널에 대한 방송 프로그램과 디지털 방송 애플리케이션을 수신하여 제공하게 된다.

즉 해드엔드 시스템에서 채널 변경에 대응하여 해당 채널에 대한 방송 프로그램과 디지털 방송 애플리케이션에 대한 스위칭이 부가적으로 필요하다.

이러한 경우 채널 변경에 대응하여 디지털 방송 애플리케이션을 수신하고 이를 실행하여 시청자에게 제공하기까지의 시간은 해드엔드 시스템에서의 스위칭까지를 더 포함하여 스위칭 처리에 필요한 시간까지 고려하면 대략 30조 내지 40조 이다.
상의 긴 시간이 소요된다. 그러나 이러한 중래의 디지털 방송 애플리케이션 실행에
과도한 시간이 소요되는 것은 사용자에게 많은 불편함을 가져오게 된다.

또한 수신기 내의 처리 용량이나 저장 용량 상의 제한에 의해서 디지털 방송
애플리케이션의 실행에 있어서 제한을 받는다.

즉 수신기 내의 자원이 한정되므로 디지털 방송 애플리케이션의 크기가 너무
 큰 경우 등에 있어서는 디지털 방송 애플리케이션 실행이 불가능하게 되므로 이러
한 사항 역시 제공 가능한 디지털 방송 애플리케이션의 개수와 구성에 제한을 가져
온다.

또한 중래의 경우 디지털 방송 애플리케이션은 각 채널 별로 독립적으로 제
공된다.

예전에 방송 프로그램과 연동된 디지털 방송 애플리케이션의 경우 해당 방송
프로그램에 대해서만 전송이 된다.

또한 데이터 채널로 독립적인 형태로 제공되는 디지털 방송 애플리케이션의
경우에도 해당 데이터 채널에서만 사용이 가능하다.

전술하였듯이 대역폭과 수신기 자원 등의 문제로 인하여 따라서 수신기 측에
서 실행 가능한 디지털 방송 애플리케이션의 크기는 제한된다.

예전에 디지털 방송 애플리케이션이 포털에 대응하는 경우를 가정하자.

이 경우 포털 서비스의 제공을 위해서는 디지털 방송 애플리케이션에 다수의
기능이 포함되어야 한다.

즉 포털 디지털 방송 애플리케이션에 예전에 T-커버스 기능, 게임 기능, 중
권 또는 금융 서비스 기능 등의 다양한 기능을 포함하여야 할 것이다.

그러나 하나의 디지털 방송 애플리케이션에 이러한 기능을 모두 포함하도록 구성하는 경우에는 디지털 방송 애플리케이션의 크기가 너무 커져서 수신기 측에서 실행이 불가능하며 또한 수신기의 자원이 충분하여 이러한 디지털 방송 애플리케이션의 실행이 가능한 경우라도 헤드엔드로부터 수신기까지의 전송 시간이 매우 증가하고 또한 수신기 측에서 로딩하여 실행하는 시간 역시 증가하기 때문에 실용적인 구현이 불가능하다.

또한 이러한 기능을 각각 분리하여 예컨대 포털 디지털 방송 애플리케이션과, T-커머스 디지털 방송 애플리케이션과, 게임 디지털 방송 애플리케이션과, 종권 또는 금융 서비스 디지털 방송 애플리케이션을 동일한 또는 별도의 채널을 통하여 제공하는 경우에는 수신기 측의 자원에 대한 제한은 최소화할 수 있지만, 각각의 디지털 방송 애플리케이션을 사용자의 임력에 따라서 수신하고 이를 제공하게 됨으로써 헤드엔드로부터 디지털 방송 애플리케이션의 수신에 필요한 시간에 대한 문제점은 그대로 존재한다.

이러한 문제점으로 인하여 다수의 기능을 포함하는 소위 "메가 채널 서비스"
디지털 방송 애플리케이션의 제공은 불가능하다.

【발명이 이루고자 하는 기술적 과제】

본 발명의 목적은 디지털 방송 애플리케이션을 제공하는 애플리케이션 제공 서비스에서 디지털 방송 애플리케이션을 장면 단위의 실행 데이터 형태로 분할하여 저장하고 수신기 측의 요청에 따라서 미리 저장된 채어 프로파일을 기초로 디지털
방송 애플리케이션의 실행에 필요한 실행 데이터만을 추출하여 수신기 측에 제공하며 필요시 다른 제어 프로파일에 대응하는 실행 데이터를 장면 단위 전환을 통하여 추출하여 수신기 측에 제공하도록 디지털 방송 애플리케이션을 실행하도록 구성함으로써, 다양한 기능을 포함하는 디지털 방송 애플리케이션을 장면-대-장면 전환을 통하여 간편하게 구현할 수 있으며, 장면-대-장면 전환을 통하여 디지털 방송 애플리케이션의 수신 및 실행에 필요한 시간을 최소화하고 제공 가능한 디지털 방송 애플리케이션의 개수 또는 크기에 대한 제한을 최소화할 수 있으며 수신기 또는 사용자 정보를 기초로 개인화된 디지털 방송 애플리케이션의 제공이 가능한 디지털 방송 애플리케이션 제공 방법을 제공하는 데 있다.

본 발명의 다른 목적은 상기 디지털 방송 애플리케이션 제공 방법의 각 단계를 실현시키기 위한 프로그램을 기록한 컴퓨터로 판독 가능한 기록 매체를 제공하는 데 있다.

【발명의 구성】

상기 기술적 과제를 달성하기 위하여, 본 발명은 디지털 방송 애플리케이션을 제공하는 애플리케이션 제공 서버에서의 디지털 방송 애플리케이션 제공 방법으로서, (a) 디지털 방송 애플리케이션을 다수의 실행 데이터로 구분하여 미리 저장하는 단계와, (b) 상기 디지털 방송 애플리케이션을 실행하여 제공하는 수신기로부터 애플리케이션 요청 이벤트를 수신하는 단계와, (c) 상기 애플리케이션 요청 이벤트에 대응하여 상기 다수의 실행 데이터 중에서 상기 수신기에 제공할 수신기 전송 실행 데이터를 추출하는 단계와, (d) 추출된 수신기 전송 실행 데이터를 상기
수신기에게 전송하는 단계를 포함하는 디지털 방송 애플리케이션 제공 방법을 제공한다.

본 발명에 따른 디지털 방송 애플리케이션 제공 방법에 있어서, 상기 단계의 실행 데이터 각각은 상기 디지털 방송 애플리케이션의 장면에 대한 실행 코드, 화면 데이터 또는 리소스 데이터를 포함할 수 있다.

또한 본 발명에 따른 디지털 방송 애플리케이션 제공 방법에 있어서, 상기 단계 (b)는, (b-1) 계널에 대한 계널 전체 정보 또는 상기 수신기에 대한 장치 식별 정보 또는 상기 수신기의 사용자 식별 정보 또는 상기 실행 데이터에 대한 식별 정보 중 어느 하나 이상을 포함하는 상기 애플리케이션 요청 이벤트를 수신하는 단계를 포함할 수 있다.

또한 본 발명에 따른 디지털 방송 애플리케이션 제공 방법에 있어서, 상기 단계 (c)는, (c-1) 상기 계널 전체 정보 또는 상기 장치 식별 정보 또는 상기 사용자 식별 정보 또는 상기 실행 데이터에 대한 식별 정보를 기초로 상기 수신기 전송 실행 데이터를 추출하는 단계를 포함할 수 있다.

또한 본 발명에 따른 디지털 방송 애플리케이션 제공 방법에 있어서, (e) 상기 애플리케이션 요청 이벤트에 대한 다수의 시나리오에 대응한 다수의 제어 노드를 포함하는 다수의 제어 프로파일을 미리 저장하는 단계를 더 포함하고, 상기 단계 (c)는, (c-2) 상기 다수의 제어 프로파일 중에서 상기 애플리케이션 요청 이벤트에 적합한 제어 프로파일을 기초로 상기 수신기 전송 실행 데이터를 추출하는 단계를 포함할 수 있다.
또한 본 발명에 따른 디지털 방송 애플리케이션 제공 방법에 있어서, 상기 제어 노드는 상기 라우터의 실행 데이터 중에서 대응하는 실행 데이터에 대한 식별 정보를 포함하여 상기 수신기 전송 실행 데이터를 추출할 수 있다.

또한 본 발명에 따른 디지털 방송 애플리케이션 제공 방법에 있어서, 상기 제어 노드는 상기 수신기 전송 실행 데이터의 추출을 위하여 대응하는 실행 데이터에 연관되거나 다른 제어 프로파일에 연관되거나 다른 제어 프로파일의 다른 제어 노드와 연관될 수 있다.

또한 본 발명에 따른 디지털 방송 애플리케이션 제공 방법에 있어서, 상기 제어 프로파일 또는 상기 제어 노드 각각은 식별자 형태로 표현되고, 상기 연관은 상기 식별자에 대한 링크 형태로 표시될 수 있다.

또한 본 발명은 디지털 방송 애플리케이션을 수신하여 제공하는 수신기에서의 디지털 방송 애플리케이션 제공 방법으로서, (a) 디지털 방송 애플리케이션의 실행을 위하여 상기 디지털 방송 애플리케이션의 장면 단위로 구분된 실행 데이터를 요청하는 애플리케이션 요청 이벤트를 생성하는 단계와, (b) 상기 애플리케이션 요청 이벤트를 디지털 방송 애플리케이션을 제공하는 애플리케이션 제공 서버에게로 전송하는 단계와, (c) 상기 애플리케이션 제공 서버로부터 전송되는 상기 애플리케이션 요청 이벤트에 대응한 상기 실행 데이터를 수신하는 단계와, (d) 수신한 상기 실행 데이터를 실행하여 상기 디지털 방송 애플리케이션을 제공하는 단계를 포함하는 디지털 방송 애플리케이션 제공 방법을 제공한다.

본 발명에 따른 디지털 방송 애플리케이션 제공 방법에 있어서, 상기 단계
(a)는, (a-1) 현재 채널에 대한 채널 식별 정보 또는 상기 현재 채널 내에서의 사용자 입력 정보 또는 상기 수신기에 대한 장치 식별 정보 또는 상기 수신기의 사용자 식별 정보 또는 상기 실행 데이터에 대한 식별 정보 중 어느 하나 이상을 포함하는 상기 애플리케이션 요청 이벤트를 생성하는 단계를 포함할 수 있다.

또한 본 발명에 따른 디지털 방송 애플리케이션 제공 방법에 있어서, 상기 실행 데이터는 상기 디지털 방송 애플리케이션의 장면에 대한 실행 코드, 화면 데이터 또는 리소스 데이터를 포함할 수 있다.

또한 본 발명은 전술한 디지털 방송 애플리케이션 제공 방법의 각 단계를 실행시키기 위한 프로그램을 기록한 컴퓨터로 관독 가능한 기록 매체를 제공한다.

이하, 본 발명의 디지털 방송 애플리케이션 제공 방법 및 이를 실행시키기 위한 프로그램을 기록한 컴퓨터로 관독 가능한 기록 매체의 설치예를 참조한 도면을 참조로 보다 구체적으로 설명한다.

도 1은 본 발명에 따른 디지털 방송 애플리케이션 제공 방법의 예시적인 흐름도이다.

도 1은 수신기의 요청에 의해서 디지털 방송 애플리케이션을 제공하는 애플리케이션 제공 서버에서의 본 발명에 따른 디지털 방송 애플리케이션 제공 방법의 예시적인 흐름도를 나타낸다.

우선 애플리케이션 제공 서버에서는 디지털 방송 애플리케이션을 다수의 실행 데이터로 구분하여 미리 저장한다(S110).

다수의 실행 데이터는 예컨대 디지털 방송 애플리케이션의 각 장면에 대한
실행 코드, 화면 데이터 또는 리소스 데이터를 포함할 수 있다.

이 경우 실행 데이터는 디지털 방송 애플리케이션의 실행에 있어서 장면 단위로 구분이 되어 장면 단위로 수신기 측에서 실행되도록 구성되며, 따라서 실행 코드와, 화면에 대한 이미지 등을 포함하는 화면 데이터, 기타 화면 제어 구성이 포함하는 리소스 데이터일 수 있다.

리소스 데이터는 예전대 화면 이외에 예전대 콘트롤 박스 또는 텍스트 박스, 이미지 등 화면에 부가하여 표시할 수 있는 데이터를 의미한다.

종래의 경우 이러한 화면 데이터와 화면 리소스 데이터 등이 통합적으로 저장되어 하나의 디지털 방송 애플리케이션에서 하나의 실행 코드를 기초로 생성되고 이러한 디지털 방송 애플리케이션이 전체적으로 헤드엔드로부터 수신기에게로 전송되나, 본 발명에 따른 디지털 방송 애플리케이션 제공 방법의 경우 별도의 애플리케이션 제공 서버에서 디지털 방송 애플리케이션의 전송 처리가 수행되며, 이러한 디지털 방송 애플리케이션을 전체적으로 저장하지 않고 화면 데이터 또는 리소스 데이터 등과 이에 대한 실행 코드를 포함하는 다수의 실행 데이터로 구분하여 저장하는 것을 특징으로 한다.

이러한 저장은 이후 실행 데이터 단위의 전송을 가능하게 한다.

한편 도시되지는 않았지만 이러한 디지털 방송 애플리케이션을 구성하는 다수의 실행 데이터를 구분하여 미리 저장하는 것과 대응하여 실행 데이터의 추출을 위한 다수의 제어 프로파일을 미리 저장할 수 있다.

제어 프로파일은 수신기 측의 애플리케이션 요청 이벤트에 대한 다수의 시나
리오에 대응한 다수의 제어 노드를 포함하며, 단계 S110을 통하여 저장된 다수의 실행 데이터를 어떠한 형식으로 추출하는 지에 대한 프로파일이다.

제어 프로파일은 예컨대 채널 별로 다수개의 채널 기초 제어 프로파일이 존제할 수 있다.

예컨대 채널 A에 대해서 제어 프로파일 A가 저장되고, 채널 B에 대해서 제어 프로파일 B가 미리 저장되어 있을 수 있다.

이러한 채널을 기초로 한 제어 프로파일 구성에 있어서 사용자의 입력에 따른 시나리오와 이에 대응하는 제어 노드를 기초로 수신기에 전송할 실행 데이터를 추출하도록 구성된다.

또한 제어 프로파일은 특히 개인화 서비스의 제공을 위하여 사용자 그룹 정보를 기초로 한 제어 프로파일 형태로 저장될 수도 있다.

예컨대 사용자 그룹 D에 대해서는 제어 프로파일 D가 저장되고, 사용자 그룹 E에 대해서 제어 프로파일 E가 미리 저장되어 있을 수 있다.

이러한 사용자 그룹을 기초로 한 제어 프로파일 역시 사용자의 입력에 대응한 시나리오를 기초로 수신기에 전송할 실행 데이터를 추출하도록 구성된다.

이러한 제어 프로파일을 기초로 하는 전송할 실행 데이터의 추출은 이후에서 상세히 설명한다.

또한 이러한 제어 프로파일 내의 제어 노드는 다수의 실행 데이터 중에서 대응하는 실행 데이터에 대한 섹벌 정보를 포함하여 수신기에 전송할 실행 데이터를 추출할 수 있다.
또한 제어 노드는 수신기에 전송할 실행 데이터의 추출을 위하여 대응하는 실행 데이터에 연관되거나 또는 다른 제어 프로파일에 연관되거나 또는 다른 제어 프로파일의 다른 제어 노드와 연관되도록 구성이 가능하다.

이 경우 제어 프로파일 또는 제어 노드 각각은 석별자 형태로 표현될 수 있으며, 이러한 연관 관계는 석별자에 대한 링크 형태로 표시될 수 있다.

이러한 사항은 도 4를 참조로 상세히 설명하며, 이러한 제어 프로파일의 제어 노드가 다른 제어 프로파일 또는 다른 제어 프로파일 내의 제어 노드에 연관되도록 구성하여 디지털 방송 애플리케이션의 구성에 있어서 종래의 제한점을 개선할 수 있어서, 소위 "메가 채널 서비스" 디지털 방송 애플리케이션의 구현이 가능하다.

이후 디지털 방송 애플리케이션을 실행하여 제공하는 수신기로부터 애플리케이션 요청 이벤트를 수신한다(S130).

애플리케이션 요청 이벤트는 수신기 측에서 생성된다. 애플리케이션 요청 이벤트는 디지털 방송 애플리케이션의 실행을 위한 실행 데이터를 애플리케이션 제공 서버로부터 제공받기 위한 요청으로서, 채널에 대한 채널 식별 정보 또는 수신기에 대한 장치 식별 정보 또는 수신기의 사용자 식별 정보 또는 실행 데이터에 대한 식별 정보 중 어느 하나 이상을 포함할 수 있다.

예컨대 시청자가 채널 A에서 채널 B로 전환하는 경우에는 채널 B에 적합한 디지털 방송 애플리케이션을 수신하여야 한다. 이러한 채널에 적합한 디지털 방송 애플리케이션을 애플리케이션 제공 서버에서 수신기로 제공하려면 채널 정보가 됨
요하다.

따라서 이러한 경우 애플리케이션 요청 이벤트는 채널 변경이 수행되어 변경된 채널이 어떤 채널이라는 것을 알려주도록 구성된다.

또한 에진대 시청자에게 적합한 개인화된 디지털 방송 애플리케이션을 제공하는 경우에 개인화된 디지털 방송 애플리케이션을 애플리케이션 제공 서버에서 수신기로 제공하려면 사용자 또는 수신기에 대한 정보가 필요하다.

 이를 위하여 애플리케이션 요청 이벤트는 수신기의 장치 식별 정보 또는 수신기 사용자의 식별 정보를 알려주도록 구성된다.

또한 수신기 측에서 디지털 방송 애플리케이션의 특정 실행 데이터를 기초로 장면이 실행되다가 추가적으로 다른 장면으로 전환하는 경우가 있을 수 있다. 이 경우 전환되는 장면에 대한 실행 데이터를 요청하게 되며, 이 경우 애플리케이션 제공 서버는 해당 실행 데이터를 수신기에게 제공하여야 한다.

 이를 위하여 애플리케이션 요청 이벤트는 수신하여야 할 실행 데이터에 대한 정보, 즉 식별 정보를 애플리케이션 제공 서버에 알려주도록 구성된다.

이후 단계 S130에서 수신한 애플리케이션 요청 이벤트에 대응하여 단계 S110을 통하여 미리 저장된 다수의 실행 데이터 중에서 수신기에 제공할 실행 데이터, 즉 수신기 전송 실행 데이터를 추출한다(S150).

예전대 애플리케이션 요청 이벤트가 채널에 대한 채널 식별 정보 또는 수신기에 대한 장치 식별 정보 또는 수신기의 사용자 식별 정보 또는 실행 데이터에 대한 식별 정보 중 어느 하나 이상을 포함하는 경우라면 해당 정보들을 기초로 수신
기에게 제공할 수신기 전송 실행 데이터를 추출하는 것이다.

예컨대 전송한 제어 프로파일이 저장되어 있는 경우라면, 제어 프로파일을 기초로 수신기 전송 실행 데이터의 추출이 수행된다.

이에 대해서 좀 더 상세히 설명하면 다음과 같다.

예컨대 채널을 기초로 제어 프로파일이 저장되어 있는 경우이다.

이 경우 애플리케이션 요청 이벤트는 수신기의 현재 채널에 대한 채널 식별 정보 또는 현재 채널 내에서의 사용자 입력 정보 또는 실행 데이터에 대한 식별 정보를 포함한다.

따라서 단계 S130에서 수신한 애플리케이션 요청 이벤트 내에 포함되는 수신기의 현재 채널에 대한 채널 식별 정보 또는 현재 채널 내에서의 사용자 입력 정보 또는 실행 데이터 식별 정보를 채널 기초 제어 프로파일 내의 대응하는 제어 노드와 비교하여 수신기 전송 실행 데이터를 추출하게 된다.

예컨대 채널 A에서 채널 B로 전환한 경우라면, 채널 식별 정보가 애플리케이션 요청 이벤트에 포함되어 애플리케이션 제공 서버에 전송되며, 애플리케이션 제공 서버에서는 채널 B에 대한 제어 프로파일을 참조하여 최상위, 즉 채널 전환에 대응하는 디지털 방송 애플리케이션의 최초 화면에 대한 실행 데이터를 추출할 수 있다.

또는 채널 B 내에서 예컨대 사용자가 특정 기능을 선택하는 경우라면, 사용자 입력 정보가 애플리케이션 요청 이벤트에 포함되어 애플리케이션 제공 서버에 전송되며, 애플리케이션 제공 서버에서는 채널 B에 대한 제어 프로파일을 참조하여
또는 채널 B 내에서 예컨대 사용자가 특정 실행 데이터의 제공을 원하는 경우라면, 특정 실행 데이터에 대한 섹별 정보가 애플리케이션 요청 이벤트에 포함되어 애플리케이션 제공 서버에 전송되며, 애플리케이션 제공 서버에서는 채널 B에 대한 제어 프로파일을 참조하여 해당 섹별 정보에 대응하는 실행 데이터를 추출할 수 있다.

마찬가지로 사용자 그룹 별에 대해서도 동일하게 적용될 수 있다.

이 경우 애플리케이션 요청 이벤트는 수신기의 장치 섹별 정보 또는 수신기의 사용자 섹별 정보 또는 현재 채널 내에서의 사용자 입력 정보 또는 실행 데이터에 대한 섹별 정보를 포함한다.

따라서 단계 S130에서 수신한 애플리케이션 요청 이벤트 내에 포함되는 수신기의 장치 섹별 정보 또는 수신기의 사용자 섹별 정보 또는 현재 채널 내에서의 사용자 입력 정보 또는 실행 데이터에 대한 섹별 정보를 사용자 그룹을 기초로 한 제어 프로파일 내의 대응하는 제어 노드와 비교하여 수신기 전송 실행 데이터를 추출하게 된다.

예컨대 사용자 섹별 정보가 애플리케이션 요청 이벤트에 포함되어 애플리케이션 제공 서버에 전송되며, 애플리케이션 제공 서버에서는 사용자 섹별 정보에 대응하는 사용자 그룹을 검색한다. 예컨대 사용자 섹별 정보가 사용자 그룹 B에 속하는 경우 사용자 그룹 B에 대한 제어 프로파일을 참조하여 최상위, 즉 초기 접속에
대응하는 디지털 방송 애플리케이션의 최초 화면에 대한 실행 데이터를 추출할 수 있다.

또는 예컨대 이러한 접속 이후에 사용자가 특정 기능을 선택하는 경우라면, 사용자 입력 정보가 애플리케이션 요청 이벤트에 포함되어 애플리케이션 제공 서버에 전송되며, 애플리케이션 제공 서버에서는 사용자 그룹 B에 대한 제어 프로파일을 참조하여 해당 사용자 입력에 대응하는 제어 노드에 대응하는 실행 데이터를 추출할 수 있다.

또는 이러한 접속 이후 에 애플리케이션 제공 서버에 요청 이벤트에 포함되어 애플리케이션 제공 서버에 전송되며, 애플리케이션 제공 서버에서는 사용자 그룹 B의 제어 프로파일을 참조하여 해당 실행 데이터 식별 정보에 대응하는 실행 데이터를 추출할 수 있다.

이후 단계 S150에서 추출한 수신기 전송 실행 데이터를 수신기에에게 전송한다(S170).

즉 종래의 경우 디지털 방송 애플리케이션 전체를 하드웨어로부터 수신기에게 전송하지만, 본원 발명의 경우 수신기 전송 실행 데이터만을 전송하게 된다.

수신기에서는 수신기 전송 실행 데이터를 수신하여 이를 실행하여 시청자에게 제공하게 되며, 수신기 측에서 추가적으로 필요한 실행 데이터가 있는 경우 단계 S130을 통하여 다시 애플리케이션 요청 이벤트를 애플리케이션 제공 서버로 전송하여 해당 실행 데이터를 수신하여 다시 시청자에게 제공이 가능하다.
따라서 종래의 문제점인 수신기 측에서 실행 가능한 디지털 방송 애플리케이션의 크기가 제한되고 헤드엔드 시스템으로부터 채널에 대응한 디지털 방송 애플리케이션의 수신 및 실행에 과다한 시간이 소요되고 대역폭 또는 자원 제한에 따른 디지털 방송 애플리케이션의 제공 가능 개수 또는 제공 가능 크기가 제한되는 단점을 개선할 수 있고 따라서 베가 재널 구현이 용이해진다.

도 2는 본 발명에 따른 디지털 방송 애플리케이션 제공 방법의 다른 예시적인 환경도이다.

도 2는 디지털 방송 애플리케이션을 제공하는 애플리케이션 제공 서버에서 실행 데이터를 수신하여 제공하는 수신기에서의 본 발명에 따른 디지털 방송 애플리케이션 제공 방법의 예시적인 환경도를 나타낸다.

우선 디지털 방송 애플리케이션의 실행을 위하여 디지털 방송 애플리케이션의 실행을 위하여 상기 디지털 방송 애플리케이션의 장단 단위로 구분된 실행 데이터를 요청하는 애플리케이션 요청 이벤트를 생성한다(S210).

애플리케이션 요청 이벤트는 전술한 바와 같다.

즉 애플리케이션 요청 이벤트는 현재 채널에 대한 채널 식별 정보 또는 현재 채널 내에서의 사용자 입력 정보 또는 수신기에 대한 장치 식별 정보 또는 수신기의 사용자 식별 정보 또는 실행 데이터에 대한 식별 정보 중 어느 하나 이상을 포함할 수 있다.

이후 단계 S210에서 생성한 애플리케이션 요청 이벤트를 디지털 방송 애플리케이션을 제공하는 애플리케이션 제공 서버에게로 전송한다(S230).
즉 원하는 실행 데이터의 추출 및 수신을 위해서 엠폴리케이션 요청 이벤트를 엠폴리케이션 제공 서버에게 전송하는 것이다.

이후 엠폴리케이션 제공 서버로부터 전송되는 엠폴리케이션 요청 이벤트에 대응한 실행 데이터를 수신한다(S250).

이러한 실행 데이터는 엠폴리케이션 제공 서버에서 현재 채널에 대한 채널 식별 정보 또는 현재 채널 내에서의 사용자 입력 정보 또는 수신기에 대한 장치 식별 정보 또는 수신기의 사용자 식별 정보 또는 실행 데이터에 대한 식별 정보 중 어느 하나 이상을 기초로 추출되며, 추출된 실행 데이터가 수신기에게로 전송되고, 단계 S250에서 이를 수신하는 것이다.

이후 단계 S250을 통하여 수신한 실행 데이터를 실행하여 디지털 방송 엠폴리케이션을 제공한다(S270).

즉 종래의 경우 수신기에서는 디지털 방송 엠폴리케이션 전체를 해드엔드로부터 수신하지만, 본원 발명의 경우 필요한 실행 데이터만을 엠폴리케이션 제공 서버로부터 수신하게 된다.

이 경우 수신기에서는 실행 데이터만을 수신하여 이를 실행하여 시청자에게 제공하게 되며, 수신기 측에서 추가적으로 필요한 실행 데이터가 있는 경우 해당 실행 데이터에 대해서 단계 S210을 통하여 엠폴리케이션 요청 이벤트를 생성하고 단계 S230을 통하여 다시 엠폴리케이션 요청 이벤트를 엠폴리케이션 제공 서버로 전송하여 해당 실행 데이터를 수신하여 다시 시청자에게 제공이 가능하다.

따라서 종래의 문제점인 수신기 측에서 실행 가능한 디지털 방송 엠폴리케이
선의 크기가 제한되고 해드ਐнд 시스템으로부터 채널에 대응한 디지털 방송 애플리케이션의 수신 및 실행에 과다한 시간이 소요되고 대역폭 또는 자원 제한에 따른 디지털 방송 애플리케이션의 제공 가능 개수 또는 제공 가능 크기가 제한되는 단점을 개선할 수 있고 따라서 배가 채널 구현 서비스가 용이해진다.

도 3은 본 발명에 따른 디지털 방송 애플리케이션 제공 방법에 있어서, 애플리케이션 제공 서비스와 수신기 사이에서의 디지털 방송 애플리케이션 제공의 개념을 예시적으로 나타내는 도면이다.

도시화동이 다수의 데이터(110a 내지 110n)와, 다수의 제어 프로파일(130a 내지 130m)과, 모델(210)이 도시된다.

데이터(110a 내지 110n)와 제어 프로파일(130a 내지 130m)은 애플리케이션 제공 서비스 측에서 구현된다.

데이터(110a 내지 110n)는 전송한 실행 코드, 화면 데이터 또는 리소스 데이터를 포함하는 실행 데이터에 대응하며, 디지털 방송 애플리케이션의 초기 화면이나 추가적인 화면, 즉 장면에 대한 정보, 또는 리소스에 대한 정보를 포함한다.

제어 프로파일(130a 내지 130m)은 모델(210)로부터의 요청에 의해서 데이터(110a 내지 110n)를 선택하여 제공하기 위한 구성이며, 전송한 제어 프로파일에 대응한다.

예컨대 다수의 데이터(110a 내지 110n) 중에서 디지털 방송 애플리케이션의 주춤이나 실행 데이터의 주춤, 화면 구성 등에 대한 제어를 수행한다.

제어 프로파일(130a 내지 130m)은 다수 개가 포함되어 예컨대 디지털 방송
애플리케이션의 채널 별 주출이나, 장치 식별 정보 또는 사용자 식별 정보를 기초로 한 디지털 방송 애플리케이션의 개인화된 주출을 가능하게 한다. 또한 전송하듯이 다른 제어 프로파일과의 연계도 가능하다.

모델(210)은 속성(213) 및 제어 프로파일 디스패치(216)를 포함할 수 있으며, 수신기 측 또는 애플리케이션 제공 서버 측에서 구현될 수 있다.

또한 예컨대 헤드엔드 시스템에서 구현될 수도 있으나, 이러한 경우에는 헤드엔드 시스템의 개입으로 인하여 단점이 있을 수 있으므로 바람직하게는 수신기 측에서 또는 애플리케이션 제공 서버 측에서 구현될 수 있다.

모델(210)은 디지털 방송 애플리케이션의 처리를 수행하기 위하여 가변적인 속성보다는 미리 정해진 속성이나 규격 등의 정보를 포함한다. 즉 디지털 방송 애플리케이션의 처리를 수행하기 위한 구성이다. 모델(210)은 예컨대 디지털 방송 애플리케이션의 속성(213) 정보나 제어 프로파일 디스패치(216)를 포함할 수 있다. 속성(213)은 디지털 방송 애플리케이션의 실행을 위한 정보를 포함할 수 있다. 제어 프로파일 디스패치(216)는 제어 프로파일(130a 내지 130m)의 제어를 위한 정보를 포함할 수 있다.

도 4는 본 발명에 따른 디지털 방송 애플리케이션 제공 방법에 있어서 제어 프로파일 개념을 예시적으로 나타내는 도면이다.

도 4에서는 3개의 제어 프로파일(130a 내지 130c)이 예시적으로 도시된다.

각 제어 프로파일(130a 내지 130c) 내에는 다수의 제어 노드가 포함되며, 각 제어 노드는 동그라미로 표시되어 있다.
예컨대 제어 프로파일(130a)이 채널 A에 대한 제어 프로파일이고, 제어 프로파일(130b)이 채널 B에 대한 제어 프로파일이고, 제어 프로파일(130c)이 채널 C에 대한 제어 프로파일인 경우를 가정하자.

종래의 경우 디지털 방송 애플리케이션은 채널 별로 독립적이었다.

따라서 채널 A에서는 채널 A에 대해서 지정된 디지털 방송 애플리케이션의 실행만이 가능하고, 채널 C에 대해서 지정된 디지털 방송 애플리케이션의 실행은 불가능하다. 또한 디지털 방송 애플리케이션은 전체적으로 수신되어 실행되므로 디지털 방송 애플리케이션의 크기 및 기능에 제한이 있었다.

그러나 본 발명에 따른 경우 디지털 방송 애플리케이션은 예컨대 장면 단위로 분할하여 실행 데이터 형식으로 실행 가능하도록 구성하며, 또한 각 채널에 대해서 지정된 디지털 방송 애플리케이션이라도 서로 연관성이 있도록 구성함으로써 디지털 방송 애플리케이션의 크기 및 기능에 대한 제한을 최소화할 수 있다.

즉 채널 A에 대한 제어 프로파일(130a)의 하위 제어 노드(135a)는 채널 B에 대한 제어 프로파일(130b)의 중간 순위 제어 노드(135b)와 연관된다.

이 경우 채널 A에서 디지털 방송 애플리케이션을 실행하다가 사용자 입력 등을 기초로 채널 B에서 실행 가능한 디지털 방송 애플리케이션의 중간 화면으로 전환할 수 있는 것이다.

이러한 경우를 본원 발명에서는 "장면-대-장면 점프(scene-to-scene jumping)"이라고 지정한다.

따라서 디지털 방송 애플리케이션의 제공을 위한 설계에 있어서 다른 채널에
대한 디지털 방송 애플리케이션까지도 고려하여 설계가 가능하다.

또한 에렌데 채널 C에 대한 제어 프로파일(130c)의 중간 순위 제어 노드 (135d)는 채널 B에 대한 제어 프로파일(130b)의 최우선 순위 제어 노드(135c)와 연관되어 장면-대-장면 점령이 가능하다.

현편 이러한 연관은 식별자를 통하여 표현될 수 있다.

예컨대 채널 A에 대한 제어 프로파일(130a)은 "ncfc://ChaA"라고 표현하고, 채널 B에 대한 제어 프로파일(130b)을 "ncfc://ChaB"라고 표현하는 것으로 가정하자.

그리고 제어 프로파일(130a)의 하위 제어 노드(135a)는 "ncfc://ChaA/A/AA" 라 표시가 가능하고, 제어 프로파일(130b)의 중간 순위 제어 노드(135b)는 "ncfc://ChaB/B"라고 표시가 가능하다고 가정하자.

이러한 식별자는 원칙적으로 실행 데이터, 즉 도 3의 데이터(110a 내지 110n) 중의 어느 하나에 대응하도록 구성된다.

이 경우 제어 프로파일(130a)의 하위 제어 노드(135a)는 제어 프로파일 (130b)의 중간 순위 제어 노드(135b)와 연관되므로, 하위 제어 노드(135a)에 대응하는 이벤트가 발생하면 이는 제어 프로파일(130b)의 중간 순위 제어 노드(135b)에 게로의 장면-대-장면 점령이 수행된다.

이러한 사항을 위해서 제어 프로파일(130a)의 하위 제어 노드(135a)에 대해서는 "ncfc://ChaB/B"로 링크가 가능하도록 표시될 수 있으며, 따라서 제어 프로파일(130b)의 중간 순위 제어 노드(135b)에 대응하는 실행 데이터가 추출될 수 있다.
또한 이러한 채널 단위가 아니라 기능 단위로 제어 프로파일을 구성하는 경우도 가능하다. 예컨대 종래의 경우 하나의 디지털 방송 애플리케이션을 전체적으로 실행하는 것만이 가능하였지만, 본원 발명의 경우 기능 단위로 디지털 방송 애플리케이션을 실행 데이터로 분리하고, 각 실행 데이터에 대해서 연관 관계를 가지도록, 즉 장면-대-장면 절명이 가능하도록 다수의 제어 프로파일을 생성하는 것에 의해서 다양한 기능을 가지는 디지털 방송 애플리케이션의 제작이 가능하다.

이러한 구성은 특히 포털 기능을 디지털 방송 애플리케이션으로 구현하는 경우 유용하다.

예컨대 전술한 디지털 방송 애플리케이션이 포털에 대응하는 경우를 보면, 종래의 경우 포털 기능을 디지털 방송 애플리케이션으로 구현하는 데 있어서 많은 어려움이 있다.

그러나 본원 발명의 경우 실행 데이터를 기초로 포털 자체 기능에 대한 디지털 방송 애플리케이션을 개발하고, 이러한 디지털 방송 애플리케이션에 대한 제어 프로파일 내에서 다른 기능, 예컨대 이미 개발되어 있는 T-커버스 기능, 게임 기능, 중권 또는 금융 서비스 기능에 대한 디지털 방송 애플리케이션에 대해서 연관되도록, 즉 포털 자체 기능에 대한 제어 프로파일에 있어서 각 시나리오에 대응한 제어 노드 중의 일부를 다른 T-커버스 기능, 게임 기능, 중권 또는 금융 서비스 기능 등의 디지털 방송 애플리케이션에 대한 제어 프로파일의 일부 또는 전부에 대응되도록 구성하여 복잡한 기능을 가지는 디지털 방송 애플리케이션을 간편하게 구현이 가능하다. 이러한 구성을 취하더라도 각 기능이 장면 단위로 실행 데이터를
기초로 실행되므로 수신기 측에서의 자원에 제한되지 않고 실행이 가능하다.

또한 본 발명은 전술한 본 발명에 따른 디지털 방송 애플리케이션 제공 방법의 각 단계를 실현시키기 위한 프로그램을 기록한 컴퓨터로 판독 가능한 기록 매체를 제공한다.

컴퓨터로 판독 가능한 기록 매체는 컴퓨터 시스템에 의하여 읽혀질 수 있도록 데이터, 즉 코드 또는 프로그램 형태의 데이터가 저장되는 모든 종류의 기록 장치를 저장한다. 이러한 컴퓨터로 판독 가능한 기록 매체는 예컨대 ROM, RAM 등의 메모리와, CD-ROM, DVD-ROM 등의 저장 매체, 자기 테이프, 플로피 디스크 등의 자기 저장 매체, 광 데이터 저장 장치 등이며, 예컨대 인터넷을 통한 전송 형태로 구현되는 경우도 포함한다. 또한 이러한 컴퓨터로 판독 가능한 기록 매체는 네트워크로 연결된 컴퓨터 시스템에 분산되어 분산 방식으로 컴퓨터가 판독 가능한 데이터가 저장되고 실행될 수 있다.

그러나 이러한 컴퓨터로 판독 가능한 기록 매체에 대한 상세한 설명은 도 1 내지 도 4를 참조로 설명한 본 발명에 따른 디지털 방송 애플리케이션 제공 방법과 동조되므로 생략한다.

비록 본 발명의 구성이 구체적으로 설명되었지만 이는 단지 본 발명을 예시적으로 설명한 것에 불과한 것으로, 본 발명이 속하는 기술분야에서 통상의 지식을 가지는 자라면 본 발명의 본질적인 특성에서 벗어나지 않는 범위 내에서 다양한 변형이 가능할 것이다.

따라서 본 명세서에 개시된 실시예들은 본 발명을 한정하기 위한 것이 아니
라 설명하기 위한 것이고, 이러한 실시에 의하여 본 발명의 사상과 법위가 한정되는 것은 아니다. 본 발명의 범위는 아래의 청구범위에 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 디지털 방송 애플리케이션을 제공하는 애플리케이션 제공 서버에서 디지털 방송 애플리케이션을 장면 단위의 실행 데이터 형태로 분할하여 저장하고 수신기 측의 요청에 따라서 미리 저장된 제어 프로파일을 기초로 디지털 방송 애플리케이션의 실행에 필요한 실행 데이터만을 수출하여 수신기 측에 제공하며 필요시 다른 제어 프로파일에 대응하는 실행 데이터를 장면-대-장면 점평을 통하여 추출하여 수신기 측에 제공하도록 디지털 방송 애플리케이션을 실행하도록 구성함으로써, 다양한 기능을 포함하는 디지털 방송 애플리케이션의 장면-대-장면 점평을 통하여 간편하게 구현할 수 있으며, 장면-대-장면 점평을 통하여 디지털 방송 애플리케이션의 수신 및 실행에 필요한 시간을 최소화하고 제공 가능한 디지털 방송 애플리케이션의 개수 또는 크기에 대한 제한을 최소화할 수 있으며 수신기 또는 사용자 정보를 기초로 개인화된 디지털 방송 애플리케이션의 제공이 가능하다.
【특별허용범위】

【정구항 1】

디지털 방송 애플리케이션을 제공하는 애플리케이션 제공 서버에서의 디지털 방송 애플리케이션 제공 방법으로서,

(a) 디지털 방송 애플리케이션을 다수의 실행 데이터로 구분하여 미리 저장하는 단계와,

(b) 상기 디지털 방송 애플리케이션을 실행하여 제공하는 수신기로부터 애플리케이션 요청 이벤트를 수신하는 단계와,

(c) 상기 애플리케이션 요청 이벤트에 대응하여 상기 다수의 실행 데이터 중에서 상기 수신기에 제공할 수신기 전송 실행 데이터를 추출하는 단계와,

(d) 추출된 수신기 전송 실행 데이터를 상기 수신기에게 전송하는 단계를 포함하는 디지털 방송 애플리케이션 제공 방법.

【정구항 2】

제1항에 있어서.

상기 다수의 실행 데이터 각각은 상기 디지털 방송 애플리케이션의 장면에 대한 실행 코드, 화면 데이터 또는 리소스 데이터를 포함하는 것이 디지털 방송 애플리케이션 제공 방법.

【정구항 3】

제1항에 있어서.
상기 단계 (b)는, (b-1) 채널에 대한 채널 섹션 정보 또는 상기 수신기에 대한 장치 섹션 정보 또는 상기 수신기의 사용자 섹션 정보 또는 상기 실행 데이터에 대한 섹션 정보 중 어느 하나 이상을 포함하는 상기 에플리케이션 요청 이벤트를 수신하는 단계

를 포함하는 것인 디지털 방송 에플리케이션 제공 방법.

【정구항 4】

제3항에 있어서,

상기 단계 (c)는, (c-1) 상기 채널 섹션 정보 또는 상기 장치 섹션 정보 또는 상기 사용자 섹션 정보 또는 상기 실행 데이터에 대한 섹션 정보를 기초로 상기 수신기 전송 실행 데이터를 추출하는 단계

를 포함하는 것인 디지털 방송 에플리케이션 제공 방법.

【정구항 5】

제1항에 있어서,

(c) 상기 에플리케이션 요청 이벤트에 대한 다수의 시나리오에 대응한 다수의 제어 노드를 포함하는 다수의 제어 프로파일을 미리 저장하는 단계

을 더 포함하고,

상기 단계 (c)는, (c-2) 상기 다수의 제어 프로파일 중에서 상기 에플리케이션 요청 이벤트에 적합한 제어 프로파일을 기초로 상기 수신기 전송 실행 데이터를 추출하는 단계

42-36
그 포 함하는 것인 디지털 방송 애플리케이션 제공 방법.

【청구항 6】

제5항에 있어서,

상기 제어 노드는 상기 다수의 실행 데이터 중에서 대응하는 실행 데이터에 대한 식별 정보를 포함하여 상기 수신기 전송 실행 데이터를 추출하는 것이 디지털 방송 애플리케이션 제공 방법.

【청구항 7】

제5항에 있어서,

상기 제어 노드는 상기 수신기 전송 실행 데이터의 추출을 위하여 대응하는 실행 데이터에 연관되거나 다른 제어 프로파일에 연관되거나 다른 제어 프로파일의 다른 제어 노드와 연관되는 것인 디지털 방송 애플리케이션 제공 방법.

【청구항 8】

제7항에 있어서,

상기 제어 프로파일 또는 상기 제어 노드 각각은 식별자 형태로 표현되고,

상기 연관은 상기 식별자에 대한 링크 형태로 표시되는 것인 디지털 방송 애플리케이션 제공 방법.

【청구항 9】

디지털 방송 애플리케이션을 수신하여 제공하는 수신기에서의 디지털 방송 애플리케이션 제공 방법으로서,
(a) 디지털 방송 애플리케이션의 실행을 위하여 상기 디지털 방송 애플리케이션의 장면 단위로 구분된 실행 데이터를 요청하는 애플리케이션 요청 이벤트를 생성하는 단계와,

(b) 상기 애플리케이션 요청 이벤트를 디지털 방송 애플리케이션을 제공하는 애플리케이션 제공 서버에게 전송하는 단계와,

(c) 상기 애플리케이션 제공 서버로부터 전송되는 상기 애플리케이션 요청 이벤트에 대응한 상기 실행 데이터를 수신하는 단계와,

(d) 수신한 상기 실행 데이터를 실행하여 상기 디지털 방송 애플리케이션을 제공하는 단계

를 포함하는 디지털 방송 애플리케이션 제공 방법.

【청구항 10】

제9항에 있어서,

상기 단계 (a)는, (a-1) 현재 채널에 대한 채널 섹티 정보 또는 상기 현재 채널 내에서의 사용자 입력 정보 또는 상기 수신기에 대한 장치 섹티 정보 또는 상기 수신기에의 사용자 섹티 정보 또는 상기 실행 데이터에 대한 섹티 정보 중 어느 하나 이상을 포함하는 상기 애플리케이션 요청 이벤트를 생성하는 단계

를 포함하는 것이 디지털 방송 애플리케이션 제공 방법.

【청구항 11】

제9항에 있어서,
상기 실행 데이터는 상기 디지털 방송 애플리케이션의 장면에 대한 실행 코드, 화면 데이터 또는 리소스 데이터를 포함하는 것인 디지털 방송 애플리케이션 제공 방법.

【정구항 12】

제1항 내지 11항 중 어느 한 항에 따른 디지털 방송 애플리케이션 제공 방법의 각 단계를 실현시키기 위한 프로그램을 기록한 컴퓨터로 판독 가능한 기록 매체.
【도면】

【도 1】

시작

디지털 방송 애플리케이션의 실행 데이터를 구분하여 저장 ～ S110

수신기로부터 애플리케이션 요청 이벤트 수신 ～ S130

수신기에 전송할 수신기 전송 실행 데이터 추출 ～ S150

수신기 전송 실행 데이터를 수신기에게로 전송 ～ S170

종료

【도 2】

시작

실행 데이터에 대한 애플리케이션 요청 이벤트 생성 ～ S210

애플리케이션 요청 이벤트를 애플리케이션 제공 서버에게로 전송 ～ S230

애플리케이션 제공 서버로부터 실행 데이터 수신 ～ S250

실행 데이터를 실행하여 디지털 방송 애플리케이션 제공 ～ S270

종료
【도 3】
【도 4】

130a

130b

135c

135b

135d

135a

130c
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### PATENT APPLICATION FEE DETERMINATION RECORD

Effective October 2, 2008

#### CLAIMS AS FILED - PART I

<table>
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<tr>
<th>U.S. NATIONAL STAGE FEES</th>
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<tr>
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<td>FEE FOR EXTRA SPEC. PGS.</td>
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<td>INDEPENDENT CLAIMS</td>
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MULTIPLE DEPENDENT CLAIM PRESENT [x]

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

#### CLAIMS AS AMENDED - PART II

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<th>AMENDMENT A</th>
<th>CLAIMS REMAINING AFTER AMENDMENT</th>
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<tr>
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FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM [x]

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<tr>
<td>Independent</td>
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FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM [x]

* 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.

---

FORM PTO-875 (Rev. 02/2005)
PATENT APPLICATION FEE DETERMINATION RECORD
Substitute for Form PTO-875

APPLICATION AS FILED – PART I
(Column 1) (Column 2) SMALL ENTITY OR OTHER THAN SMALL ENTITY

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<th>NUMBER FILED</th>
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<th>FEE ($)</th>
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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(s).

MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))

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

APPLICATION AS AMENDED – PART II

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<tr>
<th>AMENDMENT</th>
<th>CLAIMS REMAINING AFTER AMENDMENT</th>
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Application Size Fee (37 CFR 1.16(s))

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

TOTAL ADD'L FEE

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Application Size Fee (37 CFR 1.16(s))

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

TOTAL ADD'L FEE

Legal Instrument Examiner: DIANE WILLIAMS/

* 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”.

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 1-866-PTO-9199 and select option 2.