Title: PACKAGE IDENTIFICATION METHOD AND LOCATION RESOLUTION METHOD

Abstract: Provided are a package identification method and a location resolution method, more particularly, a package identification method for identifying a dependent package linked with a main AV and independent packages not linked with the main AV, and a location resolution method. Both when the package is dependent and linked with the main AV and when the package is independent and not linked with the main AV, a CRID is used as an identifier for the package. The present invention supports TVA-2 service scenarios by suggesting improved package identification and a location resolution mechanism.
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For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.
PACKAGE IDENTIFICATION METHOD AND LOCATION RESOLUTION

METHOD

Description

Technical Field

5 The present invention relates to a package identification and location resolution method; and, more particularly, to a method for identifying and resolving the location of a dependent package linked with a main audio/video (AV) and an independent package not linked with the main AV.

Background Art

15 As broadcasting is digitalized, broadcasting environments are changing rapidly from a conventional unidirectional broadcasting reception into more complicated forms such as multimedia, multichannel, and subscription through diverse receiving terminals by linking broadcasting networks with communication networks. An increasing number of viewers demand to directly participate in a broadcasting service out of a conventional passive attitude of receiving and watching a broadcasting program by selecting one among a limited number of channels, or to receive and watch a program they want at a desired time.

The change can be summarized that the broadcasting environments are developing into more complicated, diversified and personalized forms. Customized broadcasting makes it possible for viewers to consume desired broadcasting contents according to their preferences in diverse kinds of terminals more conveniently and efficiently in the complicated and diverse broadcasting environments. In short, the customized broadcasting provides customized broadcasting contents suitable for a usage environment including user preference, terminal
performance, network characteristics, and natural environment such as time, place and mood of a user.

Standards for customized broadcasting are divided into a Phase 1 (TVA-1) and a Phase 2 (TVA-2) in the respect of an assumed system environment and main functions to be provided. The TVA-1 makes it possible to provide application services such as retrieval, selection, acquisition and consumption of AV contents based on a personal digital recorder (PDR) in an environment where a main broadcasting program is transmitted on a uni-directional broadcasting channel and additional metadata can be obtained through a bi-directional network. The TVA-2 extends a consumption environment of the TVA-1 where a uni-directional broadcasting channel and a bi-directional network are assumed, shares contents among diverse terminals in a home network environment, provides services such as a targeting that provides contents suitable for diverse user environments, and accommodates not only TVA-1 AV contents but also diverse forms of contents as well.

A package is defined as a set of contents components. Herein, the components, which is a predetermined combination (a set of all or a subset), provide a consumer with experience and they are intended to be consumed altogether according to requirements for a business model, i.e., RQ001v20. Packages have been simply recognized to be dependent on AV contents. However, they need to be regarded at the same level as the AV contents to provide broader customized broadcasting. In short, packages can be not only dependent packages linked with a main AV but also independent packages not linked with the main AV. Therefore, required is a new method for identifying a package and resolving the location of the package.

Disclosure

Technical Problem
It is, therefore, an object of the present invention, which is devised to meet the demand, to provide a refined package identification mechanism using a content reference identifier (CRID) and a location resolution method.

Technical Solution

In accordance with one aspect of the present invention, there is provided a method for identifying a package, which includes the steps of: a) using a Content Reference Identifier (CRID) as an identifier for the package, when the package is a dependent package linked with a main audio/video (AV), and b) using a CRID as an identifier for the package, even when the package is an independent package not linked with a main AV.

In accordance with another aspect of the present invention, there is provided a method for resolving a location of an independent package not linked with a main AV, which includes the steps of: a) receiving package information metadata using a CRID as a package identifier; b) searching packages displayed to be available on a user terminal based on the package information metadata; c) selecting a desired package among searched packages; and d) acquiring package metadata on the selected package by using the CRID of the selected package.

In accordance with another aspect of the present invention, there is provided a method for resolving a location of a package among a plurality of dependent packages linked with a main AV, which includes the steps of: a) selecting a package among the packages; and b) acquiring the package by using an identifier of the selected package, the identifier using a CRID. Herein, the metadata of the packages are not provided together with metadata of the main AV.
In accordance with another aspect of the present invention, there is provided a method for resolving a location of a package in a plurality of dependent package groups linked with a main AV, which includes the steps of: a) selecting any one package group among the package groups; b) acquiring a package group by using an identifier of the selected package group, the identifier using a CRID; and c) selecting and acquiring one package in the acquired package group. Herein, metadata of the package groups are not provided together with metadata of the main AV.

Advantageous Effects

The present invention has an effect of supporting TVA-2 service scenarios by suggesting refined package identification and location resolution mechanisms with respect to both dependent package linked with a main audio/video (AV) and independent package not linked with the main AV described by using TVA-1 schema.

Description of Drawings

The above and other objects and features of the present invention will become apparent from the following description of the preferred embodiments given in conjunction with the accompanying drawings, in which:

Fig. 1 is a flowchart describing a package consuming process under diverse conditions.

Best Mode for the Invention

Other objects and aspects of the invention will become apparent from the following description of the embodiments with reference to the accompanying drawings and accordingly those of ordinary skill in the art of the present invention
can easily implement the technological concept of the present invention.

Hereinafter, preferred embodiments of the present invention will be set forth in detail with reference to the accompanying drawings.

Packages can be categorized into dependent packages linked with a main audio/video (AV) or independent packages not linked with the main AV.

The dependent packages linked with the main AV can include supplementary materials, e.g., selectable resource instance of the main AV such as multiparallel streams from another view or web links related to the main AV, images, and games. When a package provides a useful scenario in consumption of the main AV, the package is regarded as a material in connection with the broadcasting main AV. Thus, the package is referred to by a 'RelatedMaterialType' element included in program information (ProgramInformation) of the main AV. However, since anyURI that the 'RelatedMaterialType' element uses is unique only in the same metadata document but the same anyURI may exist when documents are different, it does not provide an absolute packet identification function.

Therefore, the present invention uses Content Reference Identifier (CRID) as an identifier to identify a dependent package linked with a main AV due to a necessity for a unique identifier for package and a Group of Package (GOP).

Table 1 shows the main AV referring to a package combined with educational components. It presents an example of a package linked with a main AV and shows that the main AV described by using the 'ProgramInformation' element of the TVA-1 is linked with a package having an 'crid://www.imbc.com/educational_package1' identifier. Detailed description metadata on the package having the 'crid://www.imbc.com/educational_package1' identifier are
described by using a 'Container' which is a low-rank element of the 'PackageTable' element defined in the TVA-2.
Table 1

xsi:schemaLocation="urn:tva:metadata:phase2:2004 ./tva2_metadata_v1_2.xsd"
><ProgramDescription>

<Tva:ProgramInformation programId="crid://www.imbc.com/newnonstop103040700704">

<Tva:BasicDescription>

<Tva:Title>Sitcom Nonstop 706 – Three Beauties</Tva:Title>

<Tva:MediaTitle>

<mpeg7:TitleImage>

<mpeg7:MediaUri>file://C:/metadata/picture/Program/ImagesN/newnonstop.bmp</mpeg7:MediaUri>

</mpeg7:TitleImage>

</Tva:MediaTitle>

<Tva:Synopsis>Three friends go to café alternately for beautiful prof Kim Hyojin</Tva:Synopsis>

<Tva:Keyword>Miyoung Choi; Taewoo Jeong; Hana; Hansun Cho; Dabin Jeong; Jeen Lee; Dana; Hyebin</Tva:Keyword>

<Tva:Genre href="urn:tva:metadata.cs:Contents2:2002:3.4.2.1">Drama</Tva:Genre>

</Tva:Genre>

<Tva:RelatedMaterial>

<Tva:MediaLocator>

<mpeg7:MediaUriDcid://www.imbc.com/educational_package1</mpeg7:MediaUri>

</Tva:MediaLocator>

</Tva:RelatedMaterial>

</Tva:BasicDescription>

<Tva:OtherIdentifier type="URI" encoding="text">Seoul Korea</Tva:OtherIdentifier>

<Tva:MemberOf crid="crid://www.imbc.com/newnonstop"/>

</Tva:ProgramInformation>

</Tva:ProgramInformationTable>

<PackageTable>

<Container crid="crid://www.imbc.com/educational_package1"/>
When a plurality of packages are linked with the main AV and become available and the packages are identified independently by the CRID, the packages can be identified. Table 2 shows an example of a program having a program identifier 'crid://www.imbc.com/newsnonstop103040700704' and two related packages. It shows that the main AV described by using the 'ProgramInformation' element of the TVA-1 includes a package having an identifier 'crid://www.imbc.com/educational_package1' and an identifier 'crid://www.imbc.com/educational_package2' as supplementary data by using a low-rank element 'RelatedMaterial.'
Table 2

<TVAMain xmlns="urn:tva:metadata:2002">
  <ProgramDescription>
    <ProgramInformationTable>
      <ProgramInformation programId="crid://www.imbc.com
newnonstop1030407000704">"
        <BasicDescription>
          <Title>Sitcom Nonstop 3 706 - Three Beauties</Title>
          <Synopsis>Three friends go to café for beautiful Prof Kim Hyojin</Synopsis>
          <Keyword>Taewoo Jeong; Haha; Hansun Cho; Jean Lee; Dana; Hyebin</Keyword>
        </BasicDescription>
        <Genre href="urn:tva:metadata:cs:ContentCS:2002:3.4.2.1">
          <Name xml:lang="kr">drama</Name>
        </Genre>
        <ParentalGuidance>
          <mpeg7:ParentalRating href="urn:tva:metadata:cs:Intended
AudienceCS:2002:4.1">"
            <mpeg7:Name xml:lang="en">GENERAL AUDIENCE</mpeg7:Name>
          </mpeg7:ParentalRating>
        </ParentalGuidance>
        <Language type="original" supplemental="false">ko</Language>
        <CaptionLanguage closed="true" supplemental="false">
          ko</CaptionLanguage>
      </ProgramInformation>
      <RelatedMaterial>
        <MediaLocator>
          <mpeg7:MediaUri>crid://www.imbc.com/educational_package1</mpeg7:MediaUri>
        </MediaLocator>
      </RelatedMaterial>
      <RelatedMaterial>
        <MediaLocator>
          <mpeg7:MediaUri>crid://www.imbc.com/educational_package2</mpeg7:MediaUri>
        </MediaLocator>
      </RelatedMaterial>
    </ProgramInformationTable>
  </ProgramDescription>
</TVAMain>
Meanwhile, independent packages not linked with the main AV, e.g., a Linage game and a city tour guide package, use a CRID as a package identifier due to necessity for a unique identifier for package update and GOP.
Table 3 shows an independent package having educational components. This is an example of a package not linked with a main AV. It shows attractive metadata for a package composed of a package identifier and a package title provided to a user by using the 'PackageInformation' element of the TVA-2. Detailed description metadata for a package having an identifier 'crid://www.imbc.com/FrenchLearning_package' are described by using a low-rank element 'Container,' which is a low-rank element of the 'PackageTable' element, which is defined in the TVA-2.
Table 3

<PackageInformationTable>
</PackageInformationTable>

<PackageInformation>
</PackageInformation>

<PackageInformation>
</PackageInformation>

<PackageInformation>
</PackageInformation>

<PackageInformation>
</PackageInformation>

<PackageInformation>
</PackageInformation>

<PackageInformation>
</PackageInformation>

<PackageTable>
<Container crid="crid://www.imbc.com/SpanishLearning_package">
<did:Item>
<did:Component>
<did:Condition require="Audio_WAV"/>
<did:Resource mimeType="audio/wav" crid="crid://www.imbc.com/SpanishLearning">
<imi:"imi:1 imi:2"/>
</did:Component>
</did:Item>
</Container>
<Container crid="crid://www.imbc.com/FrenchLearning_package">
<did:Item>
<did:Component>
<did:Condition require="Audio_MP3"/>
</did:Item>
</Container>
Hereinafter, a method for consuming a package through a location resolution mechanism based on the above-described package identification method will be described.

Table 4 summarizes a method of consuming subordinate packages linked with the main AV under diverse conditions, and Fig. 1 is a flowchart for consuming the packages under diverse conditions.

Both levels 1 and 2 show packages linked with the main AV and package metadata provided with the metadata of the main AV.

In case of the level 1, one package is linked with the main AV, which is shown in Table 1 and package metadata are provided with the metadata of the main AV. At step S1, when one package linked with the main AV is searched and, at step S2, components that fit to a usage environment are selected by a user among a plurality of components that belong to the package. At steps S3 and S4, the selected components are acquired by a location resolution mechanism extended from the TVA-1 using component CRID and, at steps S5 and S6, consumed by the user. The selection and acquisition are carried out once.

Herein, the location resolution mechanism extended from the TVA-1 is acquired by extending the doctrine resolution mechanism of the TVA-1. Whereas the location resolution mechanism of the TVA-1 is formed of a location analysis process and an acquisition process using CRID of selected contents, the location resolution mechanism
extended from the TVA-1 is formed in the same method as the TVA-1 location resolution mechanism but with a difference only in the subject, which is a package group, package or component.

In case of the level 2, a plurality of packages or one package group (GOP) is linked with the main TV, and metadata for the packages or the package group are provided with the metadata of the main AV. At the step S1, a plurality of packages or one package group linked with the main AV is searched and, at the step S2, one package is selected by the user and components that fit to the user environment are selected out of the components that belong to the selected package. The package and the component are selected in the same selection step. At the steps S3 and S4, the selected components are acquired through the location resolution mechanism extended from the TVA-1 by using the component CRID and, at the steps S5 and S6, the acquired components are consumed by the user. The selection and the acquisition are carried out once.

In levels 3 to 5, one or more package groups (GOP) are linked with the main AV and package metadata are not provided with the metadata of the main AV.

In the level 3, a plurality of packages are linked with the main AV and the package metadata are not provided with the metadata of the main AV. At the step S1, a plurality of packages linked with the main AV are searched and, at the step S2 to S4, one package is selected by the user and acquired through the location resolution mechanism extended from the TVA-1 by using a package CRID. In other words, the package acquisition using the package identifier is carried out by figuring out an actual locator of a package through location analysis from the identifier of the selected package and acquiring package metadata in the location. Since a component needs to be selected at the step S5, a component pre-stored in a local storage is
consumed by going through the location resolution process of the steps S2 to S4 at the steps S5 and S6. The selection and the acquisition are performed twice.

In the level 4, one or more package groups (GOP) are linked with the main AV, and metadata for the one or more package groups are not provided with the metadata of the main AV. At the step S1, one or more package groups linked with the main AV are searched and, at the steps S2 to S4, one package group is selected by the user and acquired through the location resolution mechanism extended from the TVA-1. Since the package selection is necessary at the step S5, the package is acquired by going through the location resolution process again at the steps S2 to S4. Since a component selection is necessary at the step S5, the location resolution process is carried out again at the steps S2 to S4 and a component pre-stored in the local storage is consumed at the steps S5 and S6. The selection and acquisition is carried out three times.

In the level 5, a plurality of packages or package groups are linked with the main AV, and package metadata are not provided with the metadata of the main AV. After one package is acquired through the location resolution mechanism of the level 3 or 4, and then components that fit to the user environment selected by the user among the components of the package. The selected components are acquired by the location resolution mechanism extended from the TVA-1 and consumed by the user. The selection and the acquisition are carried out twice or three times according to the kind of package.

CREDIT of the acquisition step of Table 4 can indicate a component or a package. If the CREDIT indicates a component, the package is provided together with the metadata of the main AV and the CREDs of some components among the components of the package will become the targets of acquisition.
On the contrary, if the CRID indicates a package, it means that the package metadata are not provided with the metadata of the main AV while the package is linked with the main AV or that the package is independent from the main AV. Herein, a package can be acquired from the CRID by performing the location resolution mechanism once, and it is possible to acquire components by repeating the location resolution mechanism.

### Table 4

<table>
<thead>
<tr>
<th>Level</th>
<th>Search</th>
<th>Selection</th>
<th>Acquisition</th>
<th>Consumption</th>
<th>Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Package</td>
<td>Component</td>
<td>Component</td>
<td>Consumption of Component</td>
<td>Package is linked with main AV. Package metadata is provided with metadata of main AV.</td>
</tr>
<tr>
<td>2</td>
<td>Package (multiple packages/ one package group)</td>
<td>Package—&gt; component</td>
<td>Component</td>
<td>Consumption of Component</td>
<td>Packages or one package group are/is linked with main AV. Metadata for packages or one package group are provided with metadata of main AV.</td>
</tr>
<tr>
<td>3</td>
<td>Package (multiple packages)</td>
<td>Package (Package ID —&gt; Package locator)</td>
<td>Package</td>
<td>Consumption of Pre-stored component</td>
<td>Multiple packages are linked with main AV. Package metadata are not provided with metadata of main AV.</td>
</tr>
<tr>
<td>4</td>
<td>Packages (one/more package groups)</td>
<td>Packages (GOP ID—&gt; Package ID —&gt; Package locator)</td>
<td>Packages</td>
<td>Consumption of Pre-stored component</td>
<td>One or more package group are linked with main AV. Metadata for one or more package groups are not provided with metadata of main AV.</td>
</tr>
<tr>
<td>5</td>
<td>Package</td>
<td>Package</td>
<td>Component</td>
<td>Consumption of component</td>
<td>Level 3/4 Level 1</td>
</tr>
</tbody>
</table>
A process of consuming an independent package not linked with the main AV, which is shown in Table 3, will be described as follows with reference to Fig. 1 (Level 6).

First, package information metadata are delivered to a user terminal through a unidirectional broadcast channel or a bidirectional networks based on SP006. The package information metadata are attractive metadata on packages such as the package ID, package title, and package synopsis.

When the package information metadata are delivered to the user terminal, the presence of an available package is notified to the user through a user interface such as electronic program guide. Then, at the steps S1 and S2, the user searches and selects a package he wants to consume.

Subsequently, at the steps S3 and S4, the user acquires package metadata on the package selected based on the location resolution mechanism extended from the TVA-1 by using the package CRID. At the steps S5 and S2, components that satisfy the conditions for a given user environment based on the acquired package metadata are selected automatically manually or by an agent. At the steps S3 and S6, the selected components are acquired and consumed based on the location resolution mechanism extended from the TVA-1 by using the package CRID.

The aforementioned package identification and location resolution mechanism supports main AV-dependent or independent packages with TVA-2 service scenarios very well. The examples of the scenarios include 'Non-linear multi-parallel stream A/V service, Service Scenario 6.2.4' using an independent package and 'Broadcast movie trailer' using a package linked with a main AV.

Meanwhile, the location resolution mechanism extended from the TVA-1 needs to identify when a CRID indicates a package or a component. To identify this, a flag called
‘package/component identifier’ is added to a message format of a location resolution table (LRT) of the TVA-1, which is shown in Table 5.

Also, when a package searched out based on keyword-based search is linked with the main AV, the user is in need of a method for identifying whether the package is linked with the main AV. To identify whether the package is linked with the main AV, a flag called ‘related to main AV’, which indicates whether the package is linked with the main AV, is added to a message format of the location resolution table (LRT) of the TVA-1, which is shown in Table 4.

Table 5

<table>
<thead>
<tr>
<th>CRID</th>
<th>Message</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Each message shall at least include:

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Status</td>
<td>“CRID is resolved” (resolution list follows).</td>
</tr>
<tr>
<td></td>
<td>“discard CRID” (E.g., CRID is valid no longer).</td>
</tr>
<tr>
<td></td>
<td>“resolve after date &lt;xxx&gt;” (keep CRID, try later)</td>
</tr>
</tbody>
</table>

If the status is “CRID is resolved”:

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acquisition directive</td>
<td>“all” (all items of the following list must be acquired.)</td>
</tr>
<tr>
<td></td>
<td>“Any” (any item from the following list may be acquired as they are alternative locations for the same content)</td>
</tr>
<tr>
<td>A list of CRIDs a list of locator(s)</td>
<td>CRIDs will conform to the syntax given in section Locators will conform to the syntax given in section Optionally, each locator can have an associated instance metadata identifier</td>
</tr>
</tbody>
</table>
Meanwhile, in connection with a targeting mechanism of box types of packages, e.g., MHP, ACAP, ARIB and the like, or middleware-based packages, the targeting mechanism for a box type of packages or a middleware-based package is not needed before the acquisition of a package. However, a targeting mechanism for a box-type or middleware-based item or component that extends a usage environment description (UED) descriptor in the inside of the package is needed. This is because of the two cases.

First, when a package is delivered through a broadcasting channel, a data broadcasting standard such as the MHP and the ACAP is fixed with respect to a region, and since the other standards, e.g., standards for the box type, except the fixed standard are not used, a broadcasting service provider already knows the target box type and middleware.

Second, when the package is delivered to a bi-directional network such as the Internet and the package
includes an application program for data broadcasting, the application program should be consumed in the middleware of the data broadcasting. Herein, the package needs to identify the box type so that the user terminal can select a program according to the box type. This signifies that it needs not add a box-type descriptor to the UED.

As described above, the method of the present invention can be realized as a program and stored in a computer-readable recording medium. Also, those of ordinary skill in the art can embody the system for providing a package by using the afore-described package identification and location resolution method, and a user terminal that consumes the package.

While the present invention has been described with respect to certain preferred embodiments, it will be apparent to those skilled in the art that various changes and modifications may be made without departing from the scope of the invention as defined in the following claims.
What is claimed is:

1. A method for identifying a package, comprising the steps of:
   a) using a Content Reference Identifier (CRID) as an identifier for the package, when the package is a dependent package linked with a main audio/video (AV); and
   b) using a CRID as an identifier for the package, even when the package is an independent package not linked with a main AV.

2. The method as recited in claim 1, wherein when the package is a dependent package linked with the main AV, the package is linked with the main AV by an element 'RelatedMaterial' which is a lower ranked element of a 'ProgramInformation' element of the TVA-1.

3. The method as recited in claim 2, wherein detailed description metadata on the package is described by an element 'Container' which is a lower ranked element of an element 'PackageTable' of TVA-2.

4. The method as recited in claim 1, wherein when the package is independent not linked with the main AV, attractive metadata composed of a package identification (ID) and a package title is provided by using an element 'PackageInformation' of the TVA-2.

5. The method as recited in claim 4, wherein the detailed description metadata on the package are described by an element 'Container' which is a lower ranked element of an element 'PackageTable' of TVA-2.

6. The method as recited in claim 1, wherein when there are a plurality of packages, each package is
identified by a unique CRID.

7. A package providing system for providing a user terminal with a package, comprising:
   a metadata generator for generating metadata by using
   a Content Reference Identifier (CRID) as a package identifier;
   an encoder for encoding the metadata; and
   a transmitter for transmitting the encoded metadata to the user terminal.

8. A user terminal, comprising:
   a receiver for receiving metadata generated by using
   a Content Reference Identifier (CRID) as a package identifier;
   a decoder for decoding the received metadata,
   wherein the user terminal acquires and consumes a predetermined component by using the package identifier of the decoded metadata.

9. A method for resolving a location of an independent package not linked with a main audio/video (AV), comprising the steps of:
   a) receiving package information metadata using a
      a Content Reference Identifier (CRID) as a package identifier;
   b) searching packages displayed to be available on a user terminal based on the package information metadata;
   c) selecting a desired package among searched packages; and
   d) acquiring package metadata on the selected package by using the CRID of the selected package.

10. The method as recited in claim 9, wherein the package information metadata are transmitted to the user
terminal through a uni-directional broadcasting channel or a bi-directional network.

11. The method as recited in claim 9, wherein the available packages are displayed in a form of an electronic program guide.

12. The method as recited in claim 9, wherein the package metadata are acquired through location analysis in a locator based on the package CRID.

13. The method as recited in claim 9, further comprising a step of: acquiring and consuming a component that fits to a user environment condition based on the acquired package metadata.

14. A method for resolving a location of a package among a plurality of dependent packages linked with a main audio/video (AV), comprising the steps of:
   a) selecting a package among the packages; and
   b) acquiring the package by using an identifier of the selected package, the identifier using a CRID, wherein metadata of the packages are not provided together with metadata of the main AV.

15. The method as recited in claim 14, wherein the step b) includes the steps of:
   b1) finding an actual locator of the selected package through location analysis based on the identifier of the selected package, the identifier using the CRID; and
   b2) acquiring metadata of the package from the locator.

16. The method as recited in claim 14, further comprising the step of:
c) acquiring and consuming a component that fits to a user environment condition from the acquired package.

17. The method as recited in claim 14, further comprising the step of:
   d) acquiring and consuming a component pre-stored in a local storage according to the acquired package.

18. The method as recited in claim 14, wherein a flag for identifying whether the CRID indicates a package or a component is added to a message format of a location resolution table (LRT).

19. The method as recited in claim 14, wherein a flag for identifying whether the package is linked with the main AV is added to a message format of an LRT.

20. A method for resolving a location of a package in a plurality of dependent package groups linked with a main AV, comprising the steps of:
   a) selecting any one package group among the package groups;
   b) acquiring a package group by using an identifier of the selected package group, the identifier using a Content Reference Identifier (CRID); and
   c) selecting and acquiring one package in the acquired package group,
   wherein metadata of the package groups are not provided together with metadata of the main AV.

21. The method as recited in claim 20, wherein the step b) includes the steps of:
   b1) finding an actual locator of the selected package group through location analysis based on the identifier of the selected package group, the identifier using the CRID;
and

b2) acquiring metadata of the package group from the locator.
INTERNATIONAL SEARCH REPORT

A. CLASSIFICATION OF SUBJECT MATTER

IPC7 H04N 7/24

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 H04N

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Korean Patents and Applications for Inventions since 1975

Electronic database consulted during the international search (name of database and, where practical, search terms used)

NPS: "content reference identifier, TV-Anytime, personal digital recorder, package identification, location resolution"

C. DOCUMENTS CONSIDERED TO BE RELEVANT

<table>
<thead>
<tr>
<th>Category</th>
<th>Citation of document, with indication, where appropriate, of the relevant passages</th>
<th>Relevant to claim No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Y</td>
<td>EP 01475702 A2 (Samsung Electronics Co.) 10 November 2004</td>
<td>1-6, 14-21</td>
</tr>
<tr>
<td>A</td>
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Further documents are listed in the continuation of Box C.

See patent family annex.

Date of the actual completion of the international search
27 APRIL 2005 (27.04.2005)

Date of mailing of the international search report

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