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(54) MULTIMEDIA CONTENTS PROVIDING SYSTEM AND A METHOD THEREOF

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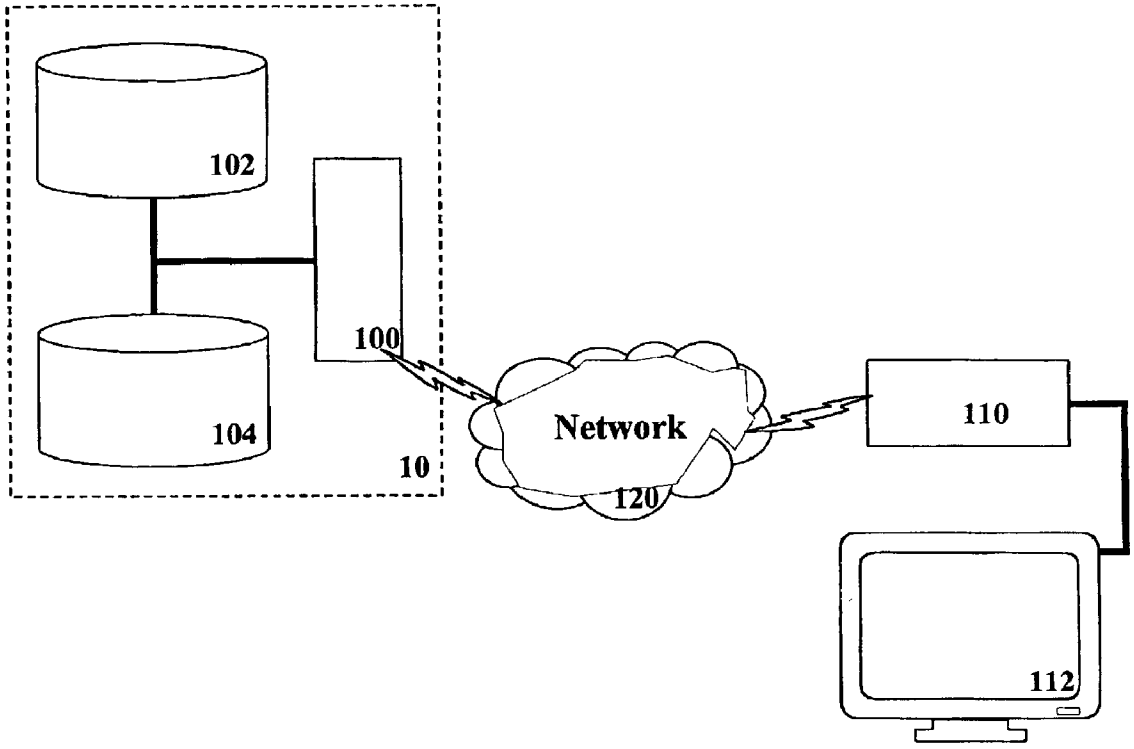
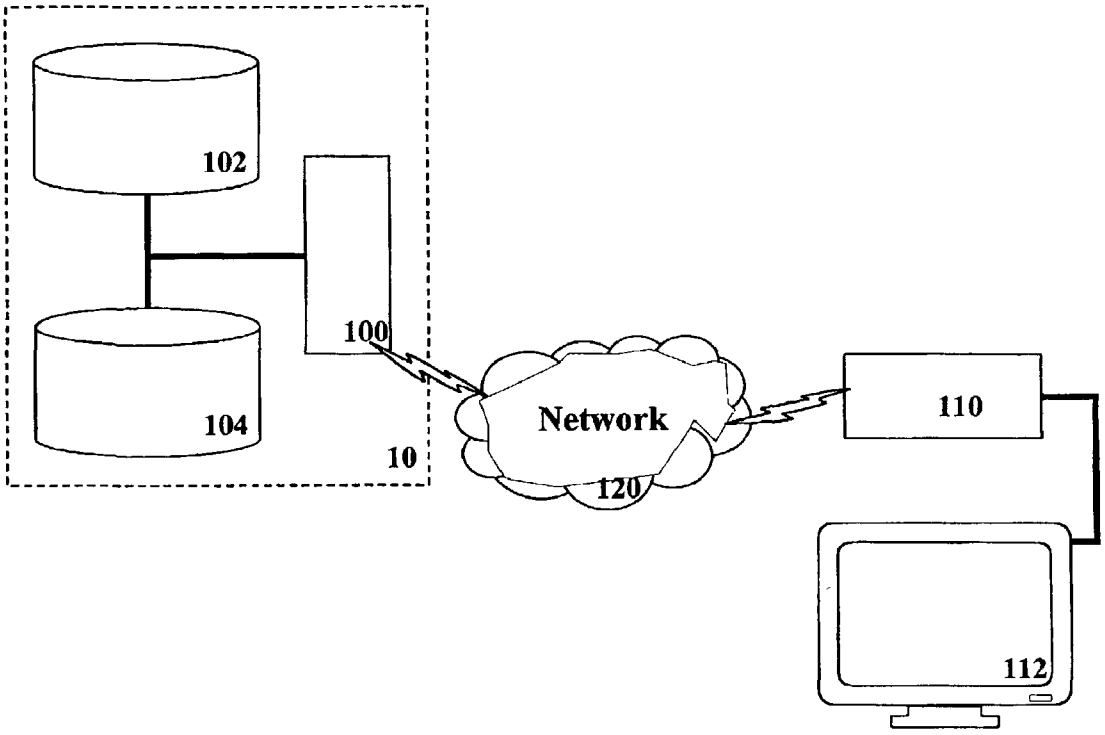
(57) **ABSTRACT**

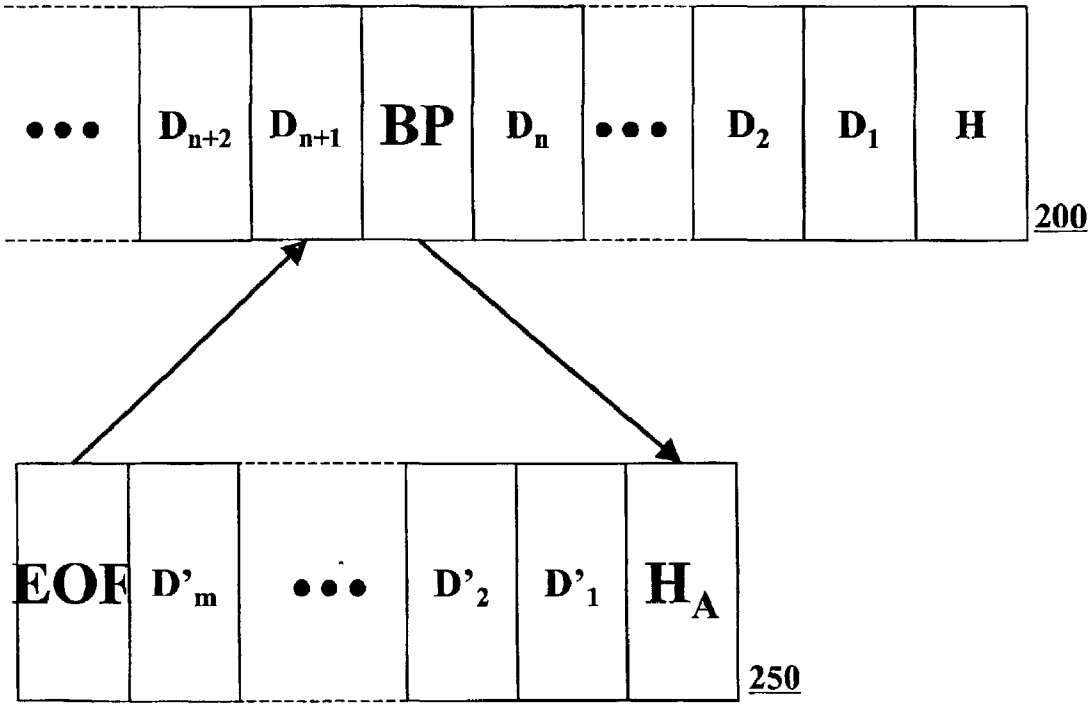
The present invention provides a video-on-demand system providing multimedia contents which activates advertising contents by detecting a break pointer, wherein the break pointer is included in the main multimedia contents. According to the present invention, it is easily performed to insert various kind of advertisements while the main content is played, so that the inserted advertisements are selected according to the playing time of the main content, the viewer information such as age, job, home address, etc.



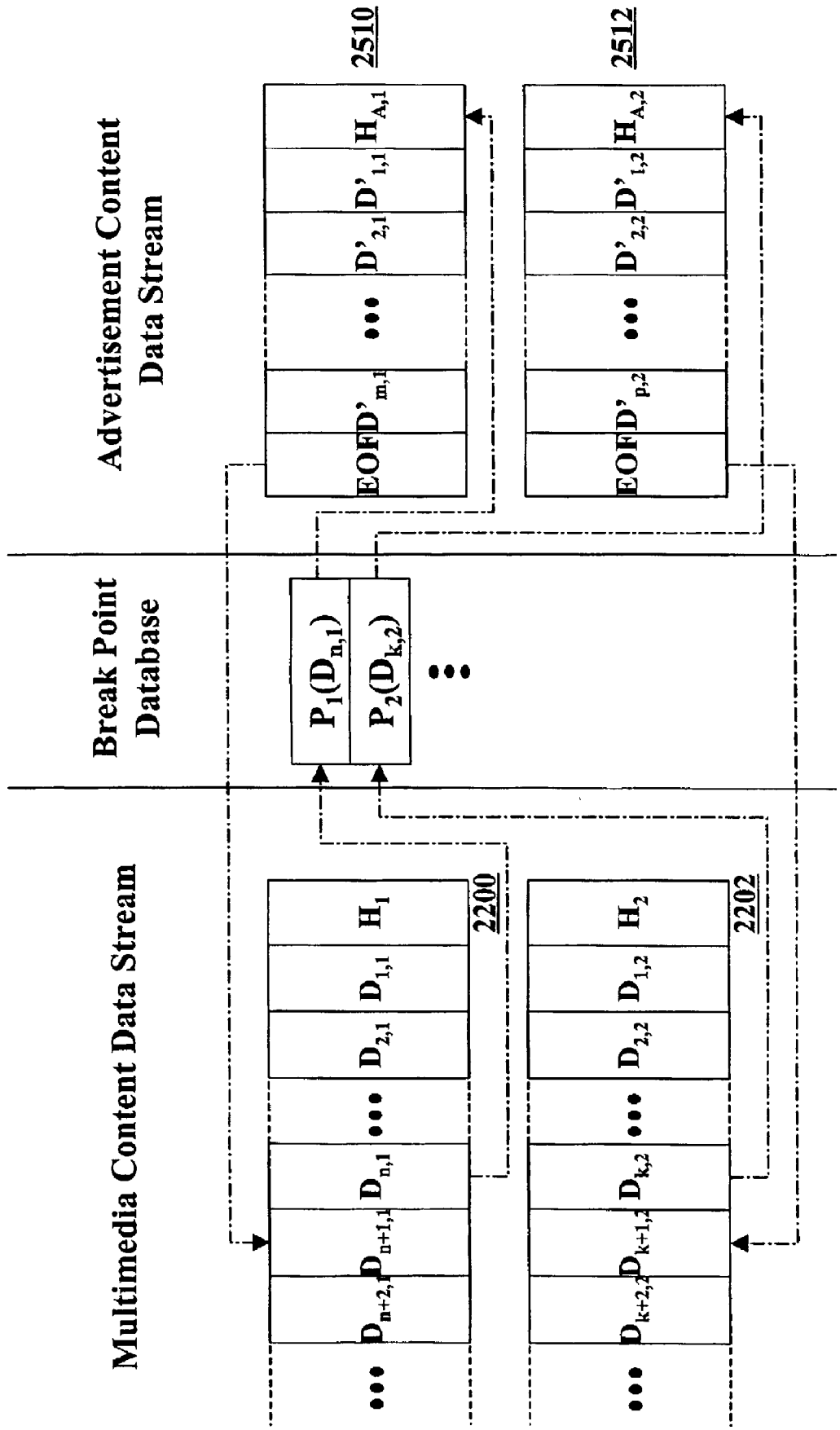
【Fig. 1】


102
100
104
10
Network
120
110
112

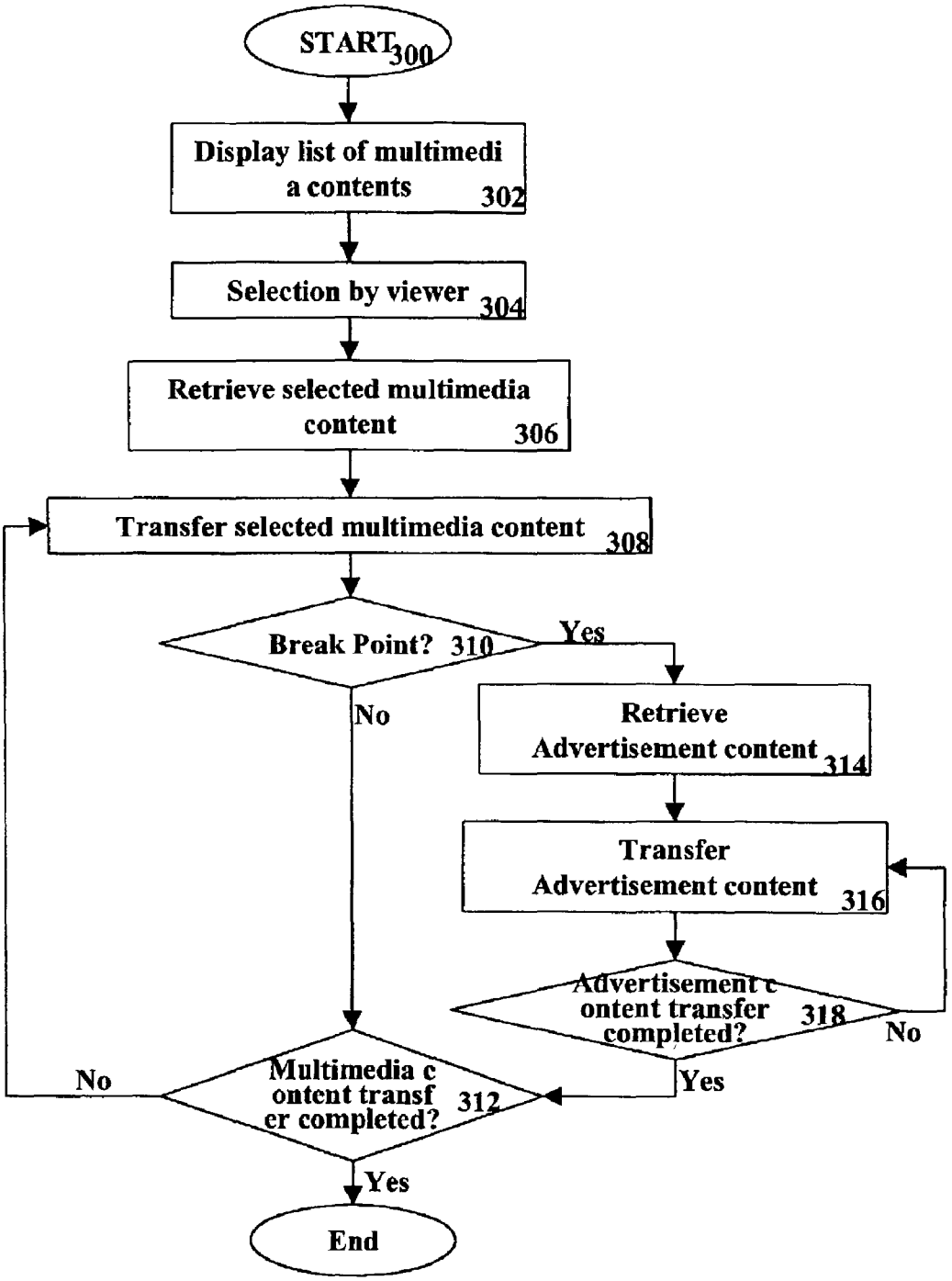
【Fig. 2a】


•••
D_{n+2}
D_{n+1}
BP
D_n
•••
D_2
D_1
H
200
EOF
D'_m
•••
D'_2
D'_1
H_A
250

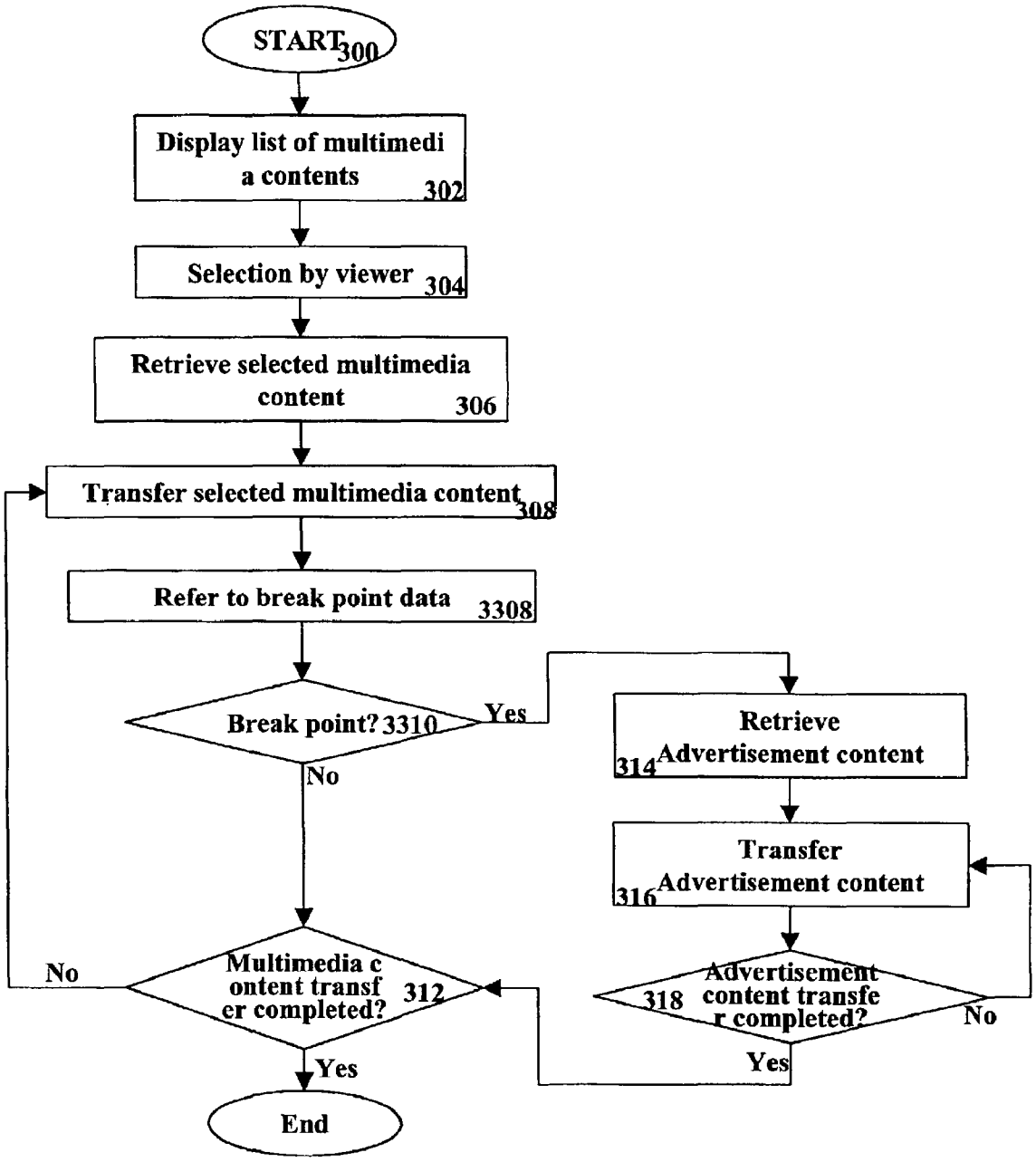
【Fig. 2b】


Advertisement Content Data Stream
Break Point Database
Multimedia Content Data Stream
2510
2512
2200
2202
EOFD'm,1
D'2,1
D'1,1
HA,1
EOFD'p,2
D'2,2
D'1,2
HA,2
P1(Dn,1)
P2(Dk,2)
Dn+2,1
Dn+1,1
Dn,1
D2,1
D1,1
H1
Dk+2,2
Dk+1,2
Dk,2
D2,2
D1,2
H2

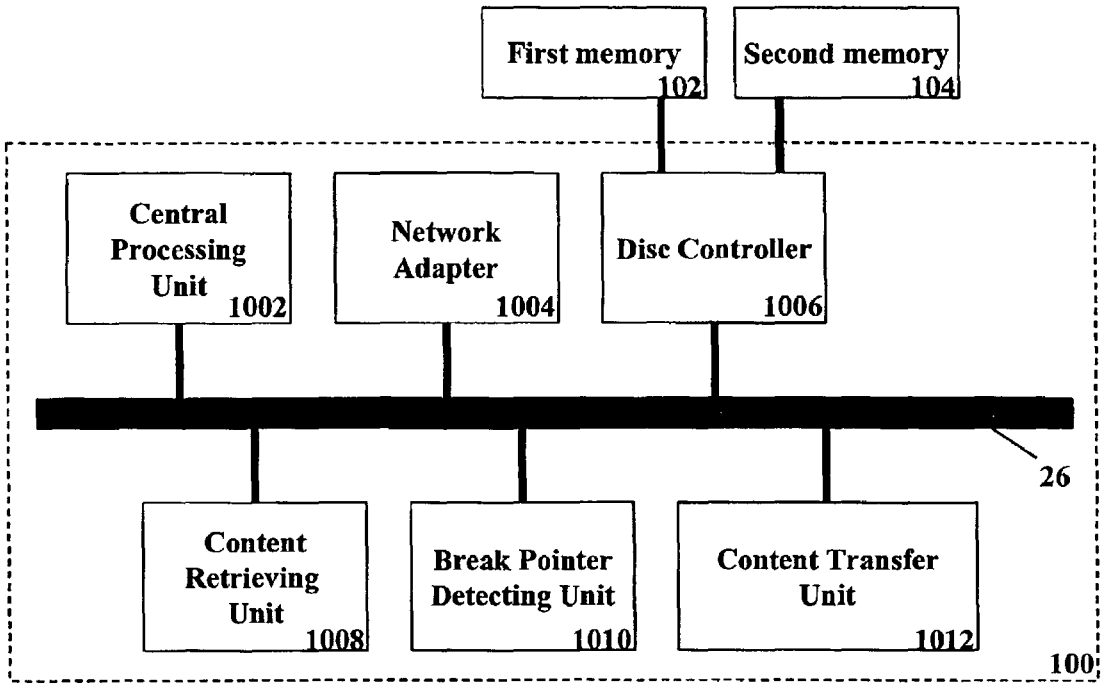
【Fig. 3a】


START 300
Display list of multimedia contents 302
Selection by viewer 304
Retrieve selected multimedia content 306
Transfer selected multimedia content 308
Break Point? 310
Yes
No
Retrieve Advertisement content 314
Transfer Advertisement content 316
Advertisement content transfer completed? 318
No
Yes
Multimedia content transfer completed? 312
No
Yes
End

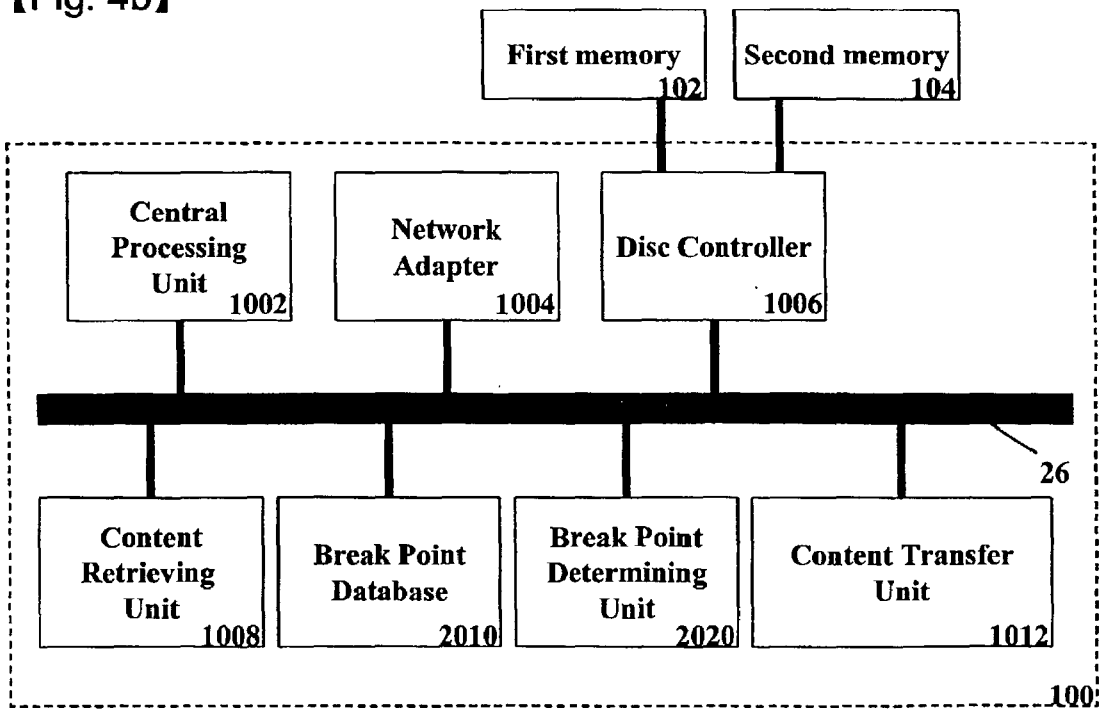
【Fig. 3b】


START 300
Display list of multimedia contents 302
Selection by viewer 304
Retrieve selected multimedia content 306
Transfer selected multimedia content 308
Refer to break point data 3308
Break point? 3310
Yes
No
Retrieve Advertisement content 314
Transfer Advertisement content 316
Advertisement content transfer completed? 318
No
Yes
Multimedia content transfer completed? 312
No
Yes
End

【Fig. 4a】


First memory
102
Second memory
104
Central Processing Unit
1002
Network Adapter
1004
Disc Controller
1006
26
Content Retrieving Unit
1008
Break Pointer Detecting Unit
1010
Content Transfer Unit
1012
100

【Fig. 4b】


First memory
102
Second memory
104
Central Processing Unit
1002
Network Adapter
1004
Disc Controller
1006
26
Content Retrieving Unit
1008
Break Point Database
2010
Break Point Determining Unit
2020
Content Transfer Unit
1012
100

MULTIMEDIA CONTENTS PROVIDING SYSTEM AND A METHOD THEREOF

TITLE OF THE INVENTION

[0001] A Multimedia Contents Providing System and a Method thereof

TECHNICAL FIELD OF THE ART

[0002] The present invention relates to a multimedia contents providing system and especially to a multimedia contents providing system for providing various kinds of multimedia contents by associating them.

BACKGROUND OF THE INVENTION

[0003] Technologies about Video On Demand ("VOD") system or Audio On Demand ("AOD") system are well known in the art. According to the conventional VOD or AOD system, a viewer can enjoy watching or listening desired multimedia contents at a desired time by connecting to a content provider's server system, which can provide video or audio contents, with his/her client device, such as a television set-top box or a personal computer, connected to a network and selecting at least one of the video or audio contents which can be provided by the content provider's server.

[0004] The above described conventional content provider stores video or audio contents ("multimedia contents") into a storage device of the server by digitalizing the multimedia contents, and then provides the digitalized multimedia contents through a network, where a digital communication is available, in the form of a digital data stream. According to the recent rapid development of digital data communication technology, digital data transfer rate is greatly increased, while the amount of transferred data is decreased as compression rate is increased. Therefore, it is expected so-called Contents On Demand system is commercialized in the near future.

[0005] According to the conventional system, the content provider charges a predetermined price for each and every multimedia content provided. However, the price per content is relatively high compared to the contents provided by broadcasting companies or cable network companies, and the competitions against them are not promising.

[0006] As for one conventional solution for this problem, the content provider inserts commercial advertisements before, after or while the selected multimedia content is provided. However, viewers seem so reluctant to watch advertisements before their multimedia contents start that the effect of advertisements could be even negative. Further, advertisements played after the multimedia contents have little effect because viewers generally do not watch them. Therefore, most effective method for advertising is inserting advertisements while each of the multimedia contents selected by the viewers (also called as "main contents") is being played (hereinafter, this method is called as "intermediate advertisement"). According to the conventional intermediate advertisement method for inserting the advertisement while the main content is being played, each of the main contents must be edited to include advertisements which are played at a desired time. This kind of editing task takes a lot of time and effort, and when the advertisements are updated, the whole contents must be re-edited to include new advertisements. Further, it is impossible for the conventional VOD or AOD system to change inserted advertisements according to playing parameters, such as playtime, viewer information, viewer location, etc., of the selected multimedia contents.

DETAILED DESCRIPTION OF THE PRESENT INVENTION

BRIEF DESCRIPTION OF THE PRESENT INVENTION

[0007] The present invention was made to improve above described conventional systems or method, it is an object of the present invention to provide various kind of advertisement contents independently to one another according to playing parameters, such as playtime, viewer information, viewer location, etc., of the multimedia contents and to easily update the advertisement contents to be provided to viewers by providing a multimedia contents providing system and method which can insert advertisement contents while a main content is being played.

[0008] In order to achieve above and other objects, the present invention provides a multimedia content providing system for providing a multimedia content which is selected by a viewer through a communication network including: a first memory for storing at least one multimedia content in a digital data stream format, the multimedia content including a break pointer at a predetermined position thereof; a second memory for storing at least one advertisement content in a digital data stream format as a separate file from the multimedia content, the advertisement content being activated by the break pointer of the multimedia content and played during playing of the multimedia content; and a server for retrieving at least selected one of the multimedia contents from the first memory according to the viewer's selection and providing the retrieved multimedia content to the viewer through the communication network, wherein the server stops retrieving the multimedia content and starts retrieving one of the advertisement content when the break pointer is detected during retrieving of the multimedia content.

[0009] Further, the present invention also provides a multimedia content providing method for providing a multimedia content which is selected by a viewer through a communication network including steps of: storing at least one multimedia content in a digital data stream format, the multimedia content being provided to the viewer according to the viewer's selection; inserting a break pointer into the multimedia content including at a predetermined position thereof; storing at least one advertisement content in a digital data stream format as a separate file from the multimedia content, the advertisement content being activated by the break pointer of the multimedia content and played during playing of the multimedia content; retrieving at least selected one of the multimedia contents according to the viewer's selection and providing the retrieved multimedia content to the viewer through the communication network; and stopping retrieval of the multimedia content and retrieving one of the advertisement content when the break pointer is detected during retrieving of the multimedia content.

BRIEF DESCRIPTION OF THE DRAWINGS

[0010] **FIG. 1** is a schematic block diagram of an example of devices for a multimedia contents providing system according to the present invention.

[0011] **FIG. 2***a* is a schematic diagram of an example of data format of a multimedia content according to the present invention.

[0012] **FIG. 2***b* is a schematic diagram of an example of break point data of a multimedia content according to the present invention.

[0013] **FIG. 3***a* is a flow chart of an embodiment of the multimedia contents providing method according to the present invention.

[0014] **FIG. 3***b* is a flow chart of another embodiment of the multimedia contents providing method according to the present invention.

[0015] **FIG. 4***a* is a schematic block diagram of an embodiment of the multimedia contents providing system according to the present invention.

[0016] **FIG. 4***b* is a schematic block diagram of another embodiment of the multimedia contents providing system according to the present invention.

PREFERRED EMBODIMENTS

[0017] By referring to the attached drawings, preferred embodiments and operations of the present invention are described in detail.

[0018] **FIG. 1** is a schematic block diagram of an example of devices for a multimedia contents providing system according to the present invention. The multimedia contents providing system **10** of the present invention includes a server **100** connected to a communication network **120** and a first and second memories **102** and **104** maintained by the server **100**. The first memory **102** stores one or more of multimedia contents having conventional digital data stream format. The second memory **104** stores one or more of advertisement contents, ordered from a sponsor, also having conventional digital data stream format.

[0019] An ordinary skilled person in the art of the present invention can readily recognize that the first and second memories **102** and **104** may be embodied in a hardware device and that they are not necessarily have logically different identifications. This is because, as described in detail below, both the multimedia contents and advertisement contents are in the form of files readable by a computer system. The only requirement of the multimedia contents and advertisement contents to be used for the present invention is to have independent accessibility by a computer system. Therefore, it is not required for the first and second memories **102** and **104** to be located outside of the server **100** as shown in **FIG. 1**. The above described software or hardware technologies are already well known in the art, and more detailed descriptions about these technologies can be omitted.

[0020] The server **100** may be a computer system which can be connected to the communication network **120**, display a list of available multimedia contents to a viewer, receive a selection of the viewer and provide at least one multimedia content to the viewer according to the selection of the viewer by accessing the first memory **102**. Therefore, almost all kind of computer system used for conventional VOD or AOD system can be used as the server **100** of the present invention.

[0021] The server **100** transfers a multimedia content from the first memory **102** according to the viewer's selection and detects retrieval of a break pointer (described in detail below) included in data stream of the multimedia content being transferred. If a break pointer is detected, the server **100** stops transfer of the multimedia content, and retrieve and transfer one or more of advertisement contents from the second memory **104**. After transfer of the advertisement content(s) is(are) completed, the server resumes retrieval of the multimedia content and transfer data streams of the multimedia content after the break pointer. In other words, when the server **100** detects a break pointer included in data stream of a multimedia content, the server **100** temporarily stops transfer of the multimedia content, provides an advertisement content and then resumes transfer of the multimedia content.

[0022] The above described operation of the server **100** can be embodied by a simple software programmed using conventional file retrieval operation of a computer system. An operator of the multimedia content providing system of the present invention can insert advertisement while a main multimedia content is played only by placing a break pointer at a desired location of the main multimedia content.

[0023] The present invention is not limited to a case when a multimedia content is displayed on a viewer's display device **112** of the client **110** by decoding the multimedia content when the multimedia content is received. The present invention can be applicable to a case when the multimedia content is played at a viewer's desired time after the client **110** has stored whole data stream of the multimedia content because, once the server **100** detects a break pointer during retrieving the multimedia content, the advertisement content is retrieved and transferred by the server **100** to the client **110**.

[0024] Now, referring to **FIG. 2***a*, data format of a multimedia content and an advertisement content is described in detail.

[0025] **FIG. 2***a* is a schematic diagram of an example of data format of a multimedia content according to the present invention. The multimedia content may be produced as digital content from the beginning, or originally produced as conventional analog content (i.e. video or audio content recorded on a magnetic cassette tape) and then converted as digital content. The multimedia content as digital content may be a data stream compressed according to a compression algorithm such as MPEG-4. The data stream **200** is shown in **FIG. 2***a*.

[0026] As shown in **FIG. 2***a*, the data stream **200** of the multimedia content may include a header according to the applied compression algorithm or production method. Next, the data stream **200** may further include image or audio information data D_1, D_2, . . . D_n retrieved from the first memory **102** under the control of the server **100**. The server **100** transfers the retrieved data D_1, D_2, . . . D_n to the client **110** through the network **120**, and the client **110** receives and decodes the transferred data, and display them on the display device **112**.

[0027] The data stream **200** D_1, D_2, . . . D_n may be retrieved by a predetermined unit, for example, by the bit, by the packet or by the block, according to the type of the server **100**, the type of the multimedia being retrieved, or the type of the compression algorithm used, etc.

[0028] While the multimedia content **200** is being retrieved, the break pointer BP included in the multimedia content **200** by an operator is retrieved at a predetermined moment. According to the embodiment shown in **FIG. 2***a*, after the n-th data (or data packet) D_n is retrieved, the break pointer BP is retrieved. In response to the retrieval of the break pointer BP, the server **100** stops transferring (or retrieving) the multimedia content **200** being transferred (or retrieved), and starts retrieving the advertisement content **250** from the second memory **104**, and then transfers the retrieved advertisement content **250** to the client **110**. The break point BP may be formed in any kind of data format only if it can be uniquely identified from the data (or data packet) D_1, D_2, . . . D_n of the multimedia content **200**. The format of the break pointer can be selected by the operator according to the type of the server **100**, the type of the multimedia being retrieved, or the type of the compression algorithm used, etc.

[0029] For example, in case the multimedia content **200** is formed in a conventional mono-type wave file format, the break pointer can be embodied by inserting "extraordinary" consecutive two bytes, such as (FF)(**00**), at a predetermined position on the multimedia content **200**. The occurrence of these two bytes, (FF)(**00**) is "extraordinary" in that each of them represents the loudest or the lowest sound and this kind of sound reproduction pattern, that is the lowest sound is reproduced just after the loudest sound is reproduced, is "extraordinarily" rare in reproducing a general sound file. Therefore, it is possible to program the sever **100** to recognize that a break pointer BP is retrieved when the "extraordinary" two bytes, (FF)(**00**), are retrieved.

[0030] For another example, in case the multimedia content **200** is uncompressed moving picture file format, the break pointer can be embodied by inserting consecutive three frames, which respectively have their own unique data bytes, such as (**00**), (FF) and (**00**), at a predetermined position on the multimedia content **200**. The amount of data bytes included in a frame may vary according to the format or type of the multimedia content. In the uncompressed moving picture file format, the frames having data bytes of (**00**) and (FF) may respectively represent a "white-colored" and a "black-colored" frame. Therefore, if the consecutive three frames respectively having data bytes of (**00**), (FF) and (**00**) are retrieved, image of the reproduced moving picture may show an abrupt transition from white-colored image to black and then to white again. This kind of abrupt color transition is very rare in a general moving picture. Therefore, the server **100** can also be programmed to recognize this is a break pointer BP.

[0031] Of course, a break pointer BP does not necessarily have the same amount of data bytes corresponding to amount of three frames, and the amount of data bytes of a break pointer may vary according to the format and type of the multimedia contents as described above.

[0032] The operator may insert the above described break pointer at a most desirable position on the multimedia content **200** according to his own decision during previewing the multimedia content **200**. The insertion of the break pointer can be easily performed by using a user interface programmed on the server **100**. For example, a conventionally used software program, such as Hexa Editor (tm), or a multimedia content player, can be used to insert the break pointer in the multimedia content **200**. The present invention is most effective for the intermediate advertisement, but if the break pointer is located just after the header H of the multimedia content data stream **200**, the present invention also can be used for the "starting advertisement", and if the break pointer is located just before the end of file ("EOF") data of the multimedia content data stream **200**, the present invention further can be used for the "ending advertisement".

[0033] If the second memory **104** includes two or more of advertisement contents, the server **100** can be programmed to select one of the plurality of advertisement contents based on a predetermined criterion (criteria) when it detects the retrieval of the break pointer BP. For example, if the multimedia content selected by the user has a story for preschool children, the server may be programmed to select an advertisement content on clothes for the preschool children. Alternatively, if the playing time of the selected multimedia content designated by the user is in midnight, an advertisement content for adults only can be selected. Or, an advertisement content of a specific local sponsor can be selected if the user selecting a multimedia content lives in the same area with the sponsor, so that the effect of advertisement can be maximized.

[0034] The advertisement content data stream **250** may include a header H_A in order that the server **100** can easily access to the advertisement content **250**, which is selected according to the above described criterion (criteria), after the server **100** detects the retrieval of the break pointer BP. After the header H_A, the advertisement content **250** includes data stream D'_1, D'_2, . . . D'_m formed in the same format with those of the multimedia content **200**. Further, the advertisement content **250** includes EOF at the end of it. Of course, it is preferable that the header H_A and EOF of the advertisement content **250** may not be transferred to the client **110** so that the received data stream is treated as one multimedia content by the client **110**. Therefore, after the break pointer is detected, the server **100** may insert a frame(s) of black or white image (in case of video content) or silence (in case of audio content) for a predetermined period, i.e. 2 or 3 seconds before the selected advertisement content is retrieved.

[0035] After the advertisement content data stream **250** is completely transferred, the server **100** resumes transfer of the multimedia content **200**. The resumption of transfer of the multimedia content **200** begins at the very next data (or data packet) D_{n+1} of the break pointer BP. However, note that it is also possible that the resumption of transfer of the multimedia content **200** may begin at those data, which has been already transferred, located before the break pointer BP according to the format or type of the multimedia content **200**. For example, in case of a moving picture data file compressed in the well-known MPEG2 standard, since the difference between the consecutive two frames is used as compression information, it is preferable that the resumption of data transfer begins at a data corresponding to a reference frame (so-called "I-Picture") of a group-of-picture where the data retrieved before or after the retrieval of the break pointer BP is included. On the other hand, it may be possible

to locate the break pointer BP between the groups-of-picture, but, in this case, it is difficult to precisely start playing the advertisement content at a predetermined desired point of the multimedia content. Therefore, in order to precisely start playing the advertisement content, it is preferable to allow the break pointer BP to be located in a group-of-picture. Further, since users generally have a tendency to watch again the previous portions played before the advertisement content, it may be preferable to intentionally transfer the data located before the break pointer BP once more.

[**0036**] According to another conventional method of RealNetwork Co. for transferring so-called "real audio" contents, the audio contents stored in the server **100** comprised of a plurality of audio blocks, every predetermined number of the audio blocks has a stop marker ("SM") and an acknowledge marker ("AM") is included between every pair of stop markers. Both of the stop marker SM and acknowledge marker AM are not allowed to be located in an audio block. When the server **100** detects the stop marker SM during transfer of the audio blocks, the server **100** stops transferring the audio block and waits for reception of the acknowledge marker AM sent from the client **110**. If the acknowledge marker AM sent from the client **110** is received, then the server **100** resumes transfer of the audio block after the stop marker SM. If the server **100** again detects the stop marker SM, it again stops and waits for the reception of the acknowledge marker AM from the client **110**. In this case, it is also preferable that the break pointer BP of the present invention is allowed to be located in an audio block. Note that, according to the present invention, the server **100** retrieves and transfers the advertisement content when the break pointer BP is detected regardless of the reception of the acknowledge marker AM, and when the advertisement content is completely transferred, the server **100** resumes transfer of the audio block where the break pointer BP of the present invention is included. In this case, though the resumption of the audio block may begin at a data next to the break pointer BP, it is also possible that a data located before the break pointer BP may be transferred to the client **110** once again. Of course, the server **100** may be programmed to retrieve the data located before the break pointer BP once again.

[**0037**] Now, referring to **FIG. 2***b*, another embodiment of the present invention will be described in detail. As shown in **FIG. 2***b*, according to this embodiment of the present invention, instead of inserting the break pointer BP in the multimedia content, a break point database is provided to store information ("break point data") on a position of a multimedia content where the server **100** temporarily stops the retrieval of the multimedia content. The break point database may be embodied on the first or second memories **102** or **104**, or an additional third memory (not shown). Alternatively, the server **100** may include the break point database in it memory device (not shown).

[**0038**] The break pint database may include one or more of break point data P_1 or P_2 corresponding to each of the multimedia content **2200** or **2202**. For example, as shown in **FIG. 2***b*, after the n-th data ($D_{n,1}$) of the first multimedia content **2200** is retrieved, the retrieval of the first multimedia content **2200** is stopped and a first advertisement content **2510** is retrieved. The first break point data P_1 informs the server **100** of this information. After the first advertisement content **2510** is completely retrieved, the server **100** resumes retrieval of the first multimedia content **2200**. The resumption of retrieval of the first multimedia content **2200** begins at the next data or the (n+1)-th data ($D_{n+,1\ 1}$) of the n-th data ($D_{n,1}$) where the retrieval was stopped. The above description can be applied to the second multimedia content **2202**, the second break point data P_2 and a second advertisement content **2512**.

[**0039**] Further, different advertisement contents **2510** and **2512** may be retrieved corresponding to the different multimedia contents **2200** and **2202** after the server **100** temporarily stops retrieving one of the multimedia contents **2200** and **2202**. The server **100**, however, may be programmed to retrieve the same advertisement content **2510** or **2512** even though retrieved multimedia contents are different. Further, in this embodiment, the server **100** may also be programmed to select an advertisement content out of various advertisement contents according to various situations as described above.

[**0040**] There is no need to limit the format of the break point data P_1 or P_2 to a specific one. It can be selected by an ordinary skilled person in the art according to the type of the server **100** and/or the operating system for the server **100**. For example, the break point data P_1 or P_2 may be a predetermined time from the start of playing a multimedia content **2200** or **2202** or a number of a specific frame of a multimedia content **2200** or **2202**. The server **100** stops retrieving the multimedia content **2200** or **2202** at the time or the frame designated by the break pointer **2200** or **2202**, and retrieves and transfers the designated or selected advertisement content **2510** or **2512**. As in the case of the above described first embodiment, after the transfer of the advertisement content **2510** or **2512** is completed, the transfer of the multimedia content **2200** or **2202** is resumed based the position, where the transfer of the multimedia content **2200** or **2202** is stopped, as a reference.

[**0041**] Now, referring to **FIG. 3***a*, the operation of the multimedia content providing system **10** according to an embodiment of the present invention is described in detail. **FIG. 3***a* is a flow chart of an embodiment of the multimedia contents providing method according to the present invention. As shown in the drawing, the operation is started at step **300** by a user connected to the server **100**. Then, the server provides a list of available multimedia contents to the client **110** and the list is displayed on the display device **112** of the client **110** (step **302**). The list of multimedia contents may be in the form of a plurality of thumbnails or video clips as well as listed texts.

[**0042**] Then, after the user selects a multimedia content to watch (step **304**), the server **100** retrieves the selected multimedia content from the first memory **102** (step **306**) and transfers the retrieved multimedia content to the client **110** (step **308**). The server **100** determines if a break pointer BP is retrieved during the retrieval of the multimedia content (step **310**), and if not, the server **100** continues to retrieve and transfer the multimedia content (step **312** and step **308**).

[**0043**] However, if the break pointer BP is determined to be retrieved, the server stops retrieval of the multimedia content, and retrieves and transfers data stream of an advertisement content (step **314** and step **318**). After the advertisement content is completely transferred, the server **100** resumes the retrieval and transfer of the multimedia content

selected by the user (steps **312**, **308** and **310**). After the multimedia content is completely transferred, the operation of the server **100** is completed.

[**0044**] Now, referring to **FIG. 3***b*, the operation of the multimedia content providing system **10** according to another embodiment of the present invention is described in detail. **FIG. 3***b* is a flow chart of another embodiment of the multimedia contents providing method according to the present invention. Similar operation steps are designated by same reference numbers and the detailed descriptions thereof are omitted. As shown in drawing, the server **100** refers to the break point data i.e. P_1 assigned to each of the multimedia contents (step **3308**) while it transfers the selected multimedia content (step **308**). The server **100** determines if the retrieval of the multimedia content arrives at the break point designated by the break point data (step **3310**). If it is determined that the retrieval does not arrive at the break point, the server **100** determines if the multimedia content is completely transferred (step **312**). However, if it is determined at step **3310** that the retrieval of the multimedia content has arrived at the break point, the server **100** stops retrieving the multimedia content, and retrieves and transfers the designated or selected advertisement content (for example, advertisement content **2510** shown in **FIG. 2***b*), to the client **110**. Other operation steps are analogous to those shown in **FIG. 3***a*.

[**0045**] Now, referring to **FIG. 4***a*, an embodiment of the multimedia content providing system according to the present invention is described in detail. **FIG. 4***a* is a schematic block diagram of an embodiment of the multimedia contents providing system according to the present invention. As shown in drawing, the server **100** includes conventional hardware devices and software units like a central processing unit **1002**, a network adapter **1004** and a disc controller **1006**. The server **100** further includes softwares like interfacing applications for operators or viewers (users) and operating system software for these applications.

[**0046**] Further, the server **100** of the present invention includes a content retrieving unit **1008** for retrieving data stream of a multimedia content in response to the selection of the viewer (user), a break pointer detecting unit **1010** for detecting the break pointer BP from the retrieved data stream and a content transferring unit **1012** for transferring the retrieved data. The above units and other elements of the server **100** perform data communication with among others via a bus **26**.

[**0047**] If the break pointer detecting unit **1010** detects the break pointer BP, it notifies the detection of the break pointer BP to the content retrieving unit **1008**. The content retrieving unit **1008** received the notification controls the disc controller **1006** to stop retrieving the multimedia content and to retrieve the designated or selected advertisement content. The retrieved advertisement content is transferred to the client **110** under the control of the content transferring unit **1012** and the network adapter **100** through the communication network **120**.

[**0048**] When the transfer of the advertisement content is completed, the content transferring unit **1012** again notifies this completion of transfer to the content retrieving unit **1008**, and the content retrieving unit **1008** resumes retrieval of the multimedia content.

[**0049**] Now, referring to **FIG. 4***b*, another embodiment of the multimedia content providing system according to the present invention is described in detail. **FIG. 4***b* is a schematic block diagram of another embodiment of the multimedia contents providing system according to the present invention. Same elements are designated by the same reference numbers, and detailed description of the same or similar functions with those of the first embodiment are omitted. As shown in **FIG. 4***b*, according to the second embodiment of the present invention, the server **100** includes a break point database **2010** for storing break point data (i.e. P_1 or P_2) designating the break point of each of the multimedia contents, and a break point determining unit **2020** for determining if retrieval of a multimedia content arrives at the break point by referring to the break point data instead of the break pointer detecting unit **1010** of the first embodiment. When the break point determining unit **2020** determines that the retrieval of the multimedia content has arrived at the break point designated by the break point data (i.e. P_1 or P_2), it notifies the content retrieving unit **1008** of this arrival. As in the case of the first embodiment, the content retrieving unit **1008** received this notification controls the disc controller **1006** to stop retrieving the multimedia content and to retrieve the designated or selected advertisement content. The retrieved advertisement content is transferred to the client **110** under the control of the content transferring unit **1012** and the network adapter **100** through the communication network **120**. Other operations are the same with those of the first embodiment.

[**0050**] It should be noted that the above descriptions are examples of elements, operations or performances which can be embodied by the multimedia content providing system and method of the present invention, and that the present invention is not limited to what described here. Especially, the present invention can be preferably applied to the on-demand multimedia content providing services, but also can be applied to any type of multimedia content providing services only if the multimedia contents and advertisement contents provided are digitized.

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[**0051**] According to the present invention, the multimedia contents and advertisement contents can be separately stored in a memory or separate memories, so that memory utility efficiency is increased.

[**0052**] Further, according to the present invention, the time, cost and efforts for editing the multimedia contents to insert various advertisement contents into them can be drastically decreased.

[**0053**] Further, according to the present invention, since it is possible to select proper advertisement content to be inserted based on the nature of viewers or the available multimedia contents, the effectiveness of advertising is greatly increased.

1. A multimedia content providing system for providing a multimedia content which is selected by a viewer through a communication network comprising:

a first memory for storing at least one multimedia content in a digital data stream format, said multimedia content comprising a break pointer at a predetermined position thereof;

a second memory for storing at least one advertisement content in a digital data stream format as a separate file

from said multimedia content, said advertisement content being activated by said break pointer of said multimedia content and played during playing of said multimedia content; and

a server for retrieving at least selected one of said multimedia contents from said first memory according to said viewer's selection and providing said retrieved multimedia content to said viewer through said communication network, wherein said server stops retrieving said multimedia content and starts retrieving one of said advertisement content when said break pointer is detected during retrieving of said multimedia content.

2. A multimedia content providing system as claimed in claim 1, wherein said server further comprises:

a content retrieving unit for controlling retrieval of data stream of said multimedia content according to said viewer's selection;

a break pointer detecting unit for detecting said break pointer from said retrieved data stream; and

a content transferring unit for controlling transfer of retrieved data stream.

3. A multimedia content providing system as claimed in claim 1, wherein said server resumes providing said multimedia content, of which retrieval has been stopped, after said advertisement content is completely provided.

4. A multimedia content providing system as claimed in any one of claims 1 to 3, wherein said server further comprises:

a first database for storing information of said multimedia content stored in said first memory; and

a second database for storing information of said advertisement content stored in said second memory, and

said content retrieving unit receives said information of said advertisement content stored in said second memory from said second database and selects at least one advertisement content which will be activated in response to detection of said break pointer in said data stream of said multimedia content which is selected by said viewer.

5. A multimedia content providing system as claimed in claim 4, wherein said server selects at least one advertisement content from said second memory according to information of said viewer's place, age or watching time and provides said selected advertisement content to said viewer.

6. A multimedia content providing system for providing a multimedia content which is selected by a viewer through a communication network comprising:

a first memory for storing at least one multimedia content in a digital data stream format;

a second memory for storing at least one advertisement content in a digital data stream format as a separate file from said multimedia content, said advertisement content being played during playing of said multimedia content;

a break point database for storing break point data on a break point of said multimedia content; and

a server for retrieving said multimedia content from said first memory according to said viewer's selection and providing said retrieved multimedia content to said viewer through said communication network, wherein said server stops retrieving said multimedia content and starts retrieving one of said advertisement content when retrieval of said multimedia content arrives at said break point.

7. A multimedia content providing system as claimed in claim 6, wherein said server further comprises:

a content retrieving unit for controlling retrieval of data stream of said multimedia content according to said viewer's selection;

a break point determining unit for determining if retrieval of a multimedia content arrives at said break point by referring to said break point data; and

a content transferring unit for controlling transfer of retrieved data stream.

8. A multimedia content providing system as claimed in claim 6, wherein said server resumes providing said multimedia content, of which retrieval has been stopped, after said advertisement content is completely provided.

9. A multimedia content providing system as claimed in any one of claims 6 to 8, wherein said server further comprises:

a first database for storing information of said multimedia content stored in said first memory; and

a second database for storing information of said advertisement content stored in said second memory, and

said content retrieving unit receives said information of said advertisement content stored in said second memory from said second database and selects at least one advertisement content which will be activated in response to a determination that retrieval of said multimedia content has arrived at said break point.

10. A multimedia content providing system as claimed in claim 9, wherein said server selects at least one advertisement content from said second memory according to information of said viewer's place, age or watching time and provides said selected advertisement content to said viewer.

11. A multimedia content providing method for providing a multimedia content which is selected by a viewer through a communication network comprising steps of:

storing at least one multimedia content in a digital data stream format, said multimedia content being provided to said viewer according to said viewer's selection;

inserting a break pointer into said multimedia content comprising at a predetermined position thereof;

storing at least one advertisement content in a digital data stream format as a separate file from said multimedia content, said advertisement content being activated by said break pointer of said multimedia content and played during playing of said multimedia content;

retrieving at least selected one of said multimedia contents according to said viewer's selection and providing said retrieved multimedia content to said viewer through said communication network; and

stopping retrieval of said multimedia content and retrieving one of said advertisement content when said break pointer is detected during retrieving of said multimedia content.

12. A multimedia content providing method as claimed in claim 11 further comprising a step of resuming providing said multimedia content, of which retrieval has been stopped, after said advertisement content is completely provided.

13. A multimedia content providing method as claimed in claim 11 or claim 12 further comprising steps of:

storing information of said multimedia content in a first database;

storing information of said advertisement content in a second database; and

selecting at least one advertisement content, which will be activated in response to detection of said break pointer in said data stream of said multimedia content selected by said viewer, by receiving said information of said advertisement content from said second database.

14. A multimedia content providing method as claimed in claim 13 further comprising steps of:

selecting at least one advertisement content according to information of said viewer's place, age or watching time; and

providing said selected advertisement content to said viewer.

15. A multimedia content providing method for providing a multimedia content which is selected by a viewer through a communication network comprising steps of:

storing at least one multimedia content in a digital data stream format, said multimedia content being provided to said viewer according to said viewer's selection;

determining a break point of said digital data stream of said at least one of multimedia content;

storing break point data of said break point in a break point database;

storing at least one advertisement content in a digital data stream format as a separate file from said multimedia content, said advertisement content being played during playing of said multimedia content;

retrieving at least selected one of said multimedia contents according to said viewer's selection and providing said retrieved multimedia content to said viewer through said communication network; and

retrieving one of said advertisement content when retrieval of said multimedia content arrives at said break point.

16. A multimedia content providing method as claimed in claim 15 further comprising a step of resuming providing said multimedia content, of which retrieval has been stopped, after said advertisement content is completely provided.

17. A multimedia content providing method as claimed in claim 15 or claim 16 further comprising steps of:

storing information of said multimedia content in a first database;

storing information of said advertisement content in a second database; and

selecting at least one advertisement content, which will be activated in response to a moment when retrieval of said multimedia content selected by said viewer arrives at said break point, by receiving said information of said advertisement content from said second database.

18. A multimedia content providing method as claimed in claim 17 further comprising steps of:

selecting at least one advertisement content according to information of said viewer's place, age or watching time; and

providing said selected advertisement content to said viewer.

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