Title Banner

<table>
<thead>
<tr>
<th>825</th>
<th>Customized Media List</th>
<th>815</th>
</tr>
</thead>
<tbody>
<tr>
<td>24 minutes</td>
<td>My Friends – Rose’s Second Wedding</td>
<td></td>
</tr>
<tr>
<td>103 minutes</td>
<td>NBA Finals 1991 – Lakers vs. Bulls</td>
<td></td>
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<tr>
<td>26 minutes</td>
<td>Entertainment Today – Feb 3, 2000</td>
<td></td>
</tr>
<tr>
<td>54 minutes</td>
<td>NYPD Red – Crisis in Chinatown</td>
<td></td>
</tr>
<tr>
<td>112 minutes</td>
<td>Star Wars</td>
<td></td>
</tr>
<tr>
<td>29 minutes</td>
<td>The Coach – Hank Joins a Florida College</td>
<td></td>
</tr>
</tbody>
</table>

Running Preview


910


20

910

(57) Abstract: A customized media interface is described for visually presenting a customized media list (800) to a user. The customized media interface consists of displaying a personalized list of content (825) for a specific user or users, and the duration (805) associated with each content.
CUSTOMIZED MEDIA INTERFACE

BACKGROUND OF THE INVENTION

Field of the Invention

The present invention relates generally to the transmission of broadcast media over a data network and, more particularly, to a method and system for providing a customized media list to a user over that data network.

Description of the Related Art

Conventional broadcast media (including visual and audio media over a television) has been provided to viewers and listeners for decades and typically falls under the paradigm illustrated in prior art FIG. 1. Prior art FIG. 1 is a block diagram view of a conventional broadcast media paradigm. In prior art FIG. 1, media 5, includes both content 10 (e.g. television shows, sports, news, weather, movies, concerts, etc.) and advertising 15. The content 10 is provided to the viewer and listener for entertainment or information purposes, while the advertising 15 is typically used to provide revenues for the broadcaster 20. The broadcaster 20 also shares the advertising revenues with the content 10 providers. Thus, from FIG. 1, the broadcaster 20 is the distributor 25 of the content 10 and the advertising 15 to the viewer and listener 30 through a distribution means 35. The distribution means 35 includes public broadcast 40, cable 45 distribution and satellite 50 distribution. In essence, the broadcaster 20 distributes the content 10 and advertising 15 through the distribution means 35 and generally shares the costs of distributing such content 10 and advertising 15 with the viewer and listener 30 through the distribution means 35.

Several disadvantages exist with the paradigm of prior art FIG. 1. These disadvantages are shared by the advertisers of the advertising 15, the broadcasters 20 and the viewer and listener 30. A first disadvantage is that the viewer and listener 30 has
few options as to the content 10 and advertising 15 that the viewer and listener 30 may view. That is, such content 10 and advertising 15 has already been scheduled by the distributor 25 and the viewer and listener 30 may only watch (or listen to) such content 10 and advertising 15 that has been scheduled. The viewer and listener's only option is to change the channel on the television or turn off the television. Either option limits the viewing audience for the broadcasters 20, advertisers 15 and content 10 providers.

A second disadvantage is that advertisers can only guess as to the number of the target audiences viewing the content 10. Well known audience estimators only estimate the number of actual viewers and listeners that watch and listen to the content 10 and advertising 15. The advertisers 15 base their targeted audiences on such estimated ratings. Thus, advertisers are paying for advertising that may never reach the full target audience. This is because the advertisement is not reaching 100 percent of the target audience. Also, the current estimate of viewers and listeners only provide a guess on the number of actual viewers and listeners.

A third disadvantage with the paradigm of prior art FIG. 1 is that no one television channel is customized to each viewer and listener. A viewer and listener must therefore search the various contents throughout the television channels which takes time and may result in little or no content and advertising being watched.

A fourth disadvantage is that specific television content 10 is only shown at a specified schedule, which a viewer and listener may not always be available to adhere to. Thus, a viewer is forced to either miss the scheduled content or otherwise must record the content which takes planning and time.

A fifth disadvantage is that the ratings for the audience of a particular content is delayed in the paradigm of prior art FIG.
1. Further, such ratings are imperfect in that only an estimate rather than an actual number of viewers may be given. A need therefore exists for a method and system for providing media that alleviates many of these disadvantages.

**SUMMARY OF THE INVENTION**

A system and method is disclosed for generating a customized media interface. The method includes the steps of providing a display means; receiving data defining a first region of the customized media interface; receiving data for generating a customized media list within the first region of the customized media interface, the customized media list representing a customized content and a customized media and being based on personalized data of a user; and displaying the customized media interface on the display means.

The step of receiving data for generating a customized media list may further include the step of receiving data for generating a customized media list that is independent of a viewing channel. The step of receiving data for generating a customized media list may alternatively include the step of receiving data for generating a customized media list that is independent of an absolute time. The step of receiving data for generating a customized media list may alternatively include the step of receiving data for generating a customized media list that is dependent on a relative time. The step of receiving data for generating a customized media list may alternatively include the step of receiving data for generating a customized media list that is dependent on a length of time. The step of receiving data for generating a customized media list may alternatively include the step of receiving data for generating a customized media list that is in a viewing order.

The method may further include the step of receiving data defining a second region of the customized media interface, the second region displaying a preview of a highlighted content of the customized media list. The method may further include the
step of receiving data defining a third region of the customized media interface, the third region displaying a textual description of a highlighted content of the customized media list. The method may further include the step of receiving data defining a fourth region of the customized media interface, the fourth region displaying a modification toolbar for modifying the customized media list.

The method may further include the step of receiving data defining an add button within the modification toolbar, the add button enabling the user to add content to the customized media list. The method may further include the step of receiving data defining a remove button within the modification toolbar, the remove button enabling the user to remove content from the customized media list. The method may further include the step of receiving data defining a move-up button within the modification toolbar, the move-up button enabling the user to move content in the customized media list up the customized media list. The method may further include receiving data defining a move-down button within the modification toolbar, the move-down button enabling the user to move content in the customized media list down the customized media list. The method may further include receiving data defining a scroll button within the modification toolbar, the scroll button enabling the user to scroll content in the customized media list.

These and other features of the system and method of the subject invention will become more readily apparent to those having ordinary skill in the art from the following detailed description of the invention taken in conjunction with the drawings appended hereto.

**BRIEF DESCRIPTION OF THE DRAWINGS**

A more complete appreciation of the invention and many of the advantages thereof will be readily obtained as the same becomes better understood by reference to the detailed
description when considered in connection with the accompanying drawings, wherein:

FIG. 1 is a prior art block diagram view of a broadcast media industry paradigm;

FIG. 2 is a block diagram view of an embodiment of the computer system of the present invention;

FIG. 3 is a block diagram view of an embodiment of the server of the present invention;

FIG. 4 is a block diagram view of an embodiment of the client of the present invention;

FIG. 5 is a flow chart of an embodiment of the method of the present invention;

FIG. 6 is a flow chart of an embodiment of the method of the present invention;

FIG. 7 is a block diagram view of a general purpose computer that may be used to implement an embodiment of the method and system of the present invention;

FIGS. 8a and 8b are layouts of an embodiment of the user interface of the present invention;

FIG. 9 is a layout of an embodiment of the user interface of the present invention;

FIGS. 10a - 10c are add examples of an embodiment of the user interface of the present invention;

FIGS. 11a and 11b are delete examples of an embodiment of the user interface of the present invention;

FIGS. 12a and 12b are move-up examples of the an embodiment of the user interface of the present invention; and

FIGS. 13a and 13b are move-down example of an embodiment of the user interface of the present invention.

**DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS**

**System Overview**

FIG. 2 is a block diagram view of an embodiment of the computer system of the present invention. In FIG. 2, a computer system 200 is shown having a server storage medium 205. The
server storage medium 205 may be any type of storage device as are well known in the art, for example, any type of disc including floppy disc, optical disc, DVD, CD-ROMS, magnetic optical discs, RAM, EPROM, EEPROM, magnetic or optical cards, or any type of storage media that is suitable for storing electronic instructions/data. The server storage medium 205 contains individual databases including an entire content media 210, an entire advertising media 215 and a personalized data database 220 of a user 240. It is noted that the personalized database 220 may also contain personalized data of multiple users. Each of these databases store either content 210, advertising 215 or personalized data 220 for use in the computer system 200 using an embodiment of the method of the present invention as described below. The computer system 200 further includes a server 225, which may have the embodiment of any general purpose computer as shown in FIG. 7 described below. It is noted that the computer system 200, as shown in the embodiment of FIG. 2, shows a server 225 and client 235 as two separate general purpose computers (FIG. 7). However, as is apparent to one skilled in the art, the server 225 and client 235 connected by the data network 230 may, in fact, be a single general purpose computer, where the data network 230 is a bus (FIG. 7) rather than a data network such as the Internet. That is, while the embodiment of FIG. 2 shows the server and client as separate entities, those entities may in fact be one general purpose computer as shown in FIG. 7.

Still in FIG. 2, a data network 230 connects the server 225 and the client 235. The data network 230 may be an Internet, an Intranet, an ethernet-type bus, or any type of connection that is able to transfer data between the server 225 and client 235. In one embodiment, the data network 230 is the Internet, where data is transmitted from different geographical locations where the server 225 and the client 235 are located. The server 225 includes a server processor (not shown), which may be any well-known central processing unit (CPU) or a microprocessor (whether
a single microprocessor or a plurality of microprocessors). The server processor, in one embodiment of the present invention, generates a customized media list 226 from personalized data 241 that is entered by the user 240 to the client 235. Thus, as more fully described below, a user 240 will provide personalized data 241 to the client 235. Again, the client 235 is a computer system 200, which may be any general purpose computer as described below in FIG. 7.

After the user provides the personalized data 241 to the client 235, that personalized data 241 is transferred through the data network 230 to the server 225, which is also part of the computer system 200. Once at the server 225, a server processor generates a customized media list 226 from the personalized data by reviewing the entire content media in the content media 210 and the entire advertising media 215 to match the entire content media 210 and the entire advertising media 215 to the personalized data 241 to create a customized media list 226. By match, it is understood that two particular algorithms are provided, within the server 225, in order to provide a customized media list. The match occurs using properties of the content 210 and advertising 215 as described below. A first algorithm, implemented by a personalized content service module 310 (FIG. 3), generates a customized content portion of the customized media list while a second algorithm, a personalized advertising service module 305 (FIG. 3), generates a customized advertising media for the customized media list 226. These algorithms are created using software programming techniques that may be programmed using languages such as Java, C++ or any basic conditional programming language. Any such algorithm would attempt to optimize the entire content media 210 and the entire advertising media 215 that is generated onto the customized media list so as to personalize the content based on the user's 240 preference while minimizing the advertising media 215 based on an optimal profit to the provider of the content media 210.
Once the customized media list 226 is generated by the server 225 using the two algorithms described above, the customized media list is transmitted through the data network 230 by any transmitting means. In one embodiment, the transmitting means would be any means of data communications including modem lines, cable, satellite, DSL, fiber optic lines or other well-known similar means for transmitting data between two remote locations. In a further embodiment, the transmitting means may be the bus described in the general purpose computer of FIG. 7.

Furthermore, the client 235 may be a single client, or a single general purpose computer such as the computer of FIG. 7, or may be multiple clients as shown in FIG. 2. A client processor (not shown) retrieves customized media from the entire customized content media 210 that is represented on the customer media list. That is, the client 235 receives the customized media list from the server 225 over the data network 230 and then the client processor may retrieve the customized media, from other locations, based on the customized media list 226. Once at the client 235, the customized media list 226 is stored on a client storage medium that also may store the customized media transmitted from the server processor at the server 225. Again, the client storage medium may be any type of medium as described with regard to the server storage medium and the general purpose computer of FIG. 7.

In a further embodiment, the client processor (not shown) further provides an option to a user 240 of modifying the customized media list 226 received from the server 225. For example, the user may remove or add shows to the customized media list 226, or may rearrange the customized media list 226. It is further understood that the user may modify the customized media list not only to modify the customized media, but also to modify the customized advertising that is part of the customized media list 226. In a still further embodiment, the user may remove
customized advertising by paying the content provider a premium fee.

In another embodiment, a display means (not shown) is provided to the user 240 in order to view the customized media list 226 and the customized media. Further, the display means is used to transmit other information such as the personalized data 241 and other information described herein to the user. In a still further embodiment, an audio means is provided whereby the user may listen to the content media and advertising media being transmitted. Both the display means and audio means are implemented using devices described in the general purpose computer of FIG. 7 below.

FIG. 3 is a block diagram view of the server 225 shown in FIG. 2. In FIG. 3, various software layers or modules are shown within the server 225. As is well known to one skilled in the art, these layers or modules are implemented in computer code to perform the functions described herein. It is noted that while the server 225 is shown with the layers or modules depicted in FIG. 3, various other hardware and software modules may exist within server 225 including, for example, the server processor, storage means, etc. to make the server a general purpose computer as exemplified in the embodiment shown in FIG. 7.

Still in FIG. 3, the server 225 is in communication with the data network 230 as depicted in FIG. 2. Within the server 225 are multiple software modules and/or layers. A client communication layer 300 manages the manner in which the server 225 communicates with the client 235. The client communications layer 300 is replaceable depending on the type of data network 230 utilized as well as the type of client utilized. Also in the server 225 is a personalized advertisement service module 305. The personalized advertisement service module 305 performs the service of the first algorithm discussed above that matches the advertisement contained in the entire advertising media 215 to the customized content of 210. Likewise, the personalized
content service module 310 is the second algorithm described above used to match or optimize the content contained in the entire content media 210 to the users’ personalized data. It is noted that these modules are implemented using software programming languages as described above. Also contained on the server 225 is the inventory management module 315. This module 315 works in conjunction with the personalized advertisement service module 305 and the personalized content service module 310 to efficiently provide those services 305 and 310 to a user.

That is, the inventory management module 315 is shared by the modules 305 and 310 for common routines or procedures that are run by the modules 305 and 310. For example, it is anticipated that certain routines or procedures will be reiterated throughout the method of the present invention in providing the customized media list, and therefore, the algorithms of the modules 305 and 310 may use the module 315 to efficiently provide the services of those modules 305 and 310 to the user 240 (FIG. 2).

The user management module 320 is used by the server 235 to receive the personalized data 241 of FIG. 2 and store such information on typical storage mediums. The user management module 320 takes the personalized data that consists of the personal profile of the user, the television show preference of the user and the past viewing habits of the user and stores that data on a storage medium in the server 225. That information is later transmitted to the personalized advertisement service module 305 and the personalized content service module 310 that is later used to generate the customized media list being returned to the user. The media transport service module 325 is also located in the server 225 and performs the function of retrieving the customized media that is based on the customized media list 226. The media transport service module 325 communicates with the entire content media 210 and the entire advertising media 215 to deliver the customized media to the user based on the customized media list 226. It is noted that the
server storage medium 205 contains the entire content media 210, the entire advertising media 215 and the personalized data of the user may be physical databases contained within the server or, in a further embodiment, may be databases located throughout remote data networks or remote servers that may be retrieved by the server 225. The database service module 330, much like the client communication layer 300, facilitates the communication between the server storage medium 205 and the modules 305, 310, 315, 320 and 325.

In use, the server 225 receives the personalized data 241 through the data network 230 using the client communication layer 300 to interface with the data network 230 and the client 235. Once the personalized data 241 is received by the server 225, the personalized data 241 is stored in the user management module 320. Thereafter, the personalized data may be retrieved from the user management module 320 to be used by the personalized advertisement service module 305 and the personalized content service module 310, in conjunction with the inventory management module 315, to generate a customized media list 226 based on the personalized data 241. Again, as discussed previously, the personalized data 241 is based on the personal profile of the user, the television show preference of the user and the past viewing habit of the user that is provided by the user to the computer system at a first point in time where the user uses the computer system 200.

After the customized media list 226 is generated by the server 225, the customized media list 226 is transmitted through the data network 230 to the client 235. At the time the customized media list reaches the client 235, the client 235 requests, from the server storage medium 205, through the data network 230 and the client 235, the customized content and customized advertising contained within the entire content media 210 and entire advertising media 215 which is then returned to the client 235. It is noted that in the server storage medium
205, the personalized data database 220 contains the personal profile, television show preference and past viewing habits of the user. The customized content retrieved from the entire content media 210 represents television shows, movies, news, sports, weather, and other content that is not advertising information. The customized advertising contains advertising commercials that are sequenced within the customized content in a predetermined order. The predetermined order is determined by the content itself and the user’s personalized data.

To match particular content and advertisements to a user, specific properties of the content and advertisements are stored in the server storage medium 205 of FIG. 3. For example, an advertiser may link certain properties, such as target audience, genre, age of user, income of the user, recreational interests of the user, etc., to particular advertisements and may send those advertisements to a user whose personalized data matches those properties. Again, the match is performed in the modules 305 (for advertisements) and 310 (for content) of FIG. 3. It is noted that these properties may be saved in any database, not only the server storage database 205.

Similarly, content may contain properties saved on a database that describe the content. The properties are, for example, title, genre, actors, length of the content, recommended audience and other properties that describe the content. In a further embodiment, the properties may be embedded in the actual content or advertisement itself. Alternatively, in a still further embodiment, the properties may be embedded in the audio portions of the content or advertisement and any type of speech recognition device may be used to locate those properties in the audio portions of the content or advertisement. In essence, the properties may be placed in any location as long as the properties may be matched with the personalized data of the user.

FIG. 4 is a block diagram view of the client 235 of FIG. 2. In FIG. 4, the client 235 is shown with various modules contained
therein. Much like the server 225 of FIG. 3, these modules are implemented using software code or other types of computer instructions to implement the functionality of these modules as described below. It is understood that the client 235 may be multiple clients as shown in FIG. 2, may be a single client as shown in FIG. 4 or even be the same as the server 225 as part of one computer system 200. The devices that comprise the client are standard general purpose computer devices as depicted in FIG. 7 below.

In FIG. 4, a user service module 400 is contained within the client 235 and serves to interact with the user 240 to transmit the personalized data 241 from the user 240 to the server 225 in order to generate the customized media list (not shown). The user service module 400 further provides the functions of interfacing with the user to provide preferences to the user on television shows. In essence, the user service 400 is used for all interactions with the user 240 that may be implemented by the computer system of the present invention. Also in client 235 is the customized media service module 405 that handles the reception of the customized media from the server 225 through the data network 230. The customized media service module 405 receives the customized media that is based on the customized media list and sends the customized media to the media cache service module 410 that contains a storage medium (not shown) to hold the customized media. Again, the client 235 contains multiple devices for a general purpose computer such as that shown in FIG. 7 below. The server communication layer 415 enables a client 235 to communicate with the data network 230 and the server 225, and is interchangeable with various types of servers and data networks.

In use, the client 235 of FIG. 4 receives the personalized data 241 that provides a personal profile of the user 240 containing data that describes the user 240. This type of data includes information regarding the user 240 such as name, age, income, address, hobbies, hours of television watched per day,
profession, and any other type of information that is suitable
for purposes of marketing content or advertising to a user 240.
The personalized data 241 further includes television show
preferences from the user 240 (either by category or particular
shows), movies, news, sports or other types of television
broadcast. It is noted that the personalized data 241 of the
user 240 may also include audio preferences of the user in order
to transmit customized media and a customized media list
specifically directed to audio preferences of the user. Thus,
the present invention as claimed below, is not limited to purely
visual content. The preference of a user may include audio
preferences, in alternative embodiments.

Returning to FIG. 4, the personalized data 241 is received
by the user service module 400 of the client 235 and the
interaction between the user 240 and the client 235 is performed
by the user service module 400. Thus, a user 240 may receive
prompts such as questions asking “please insert your name”,
“please provide your address”, etc. depending on the data
described above that is being requested. After the user service
module 400 receives that information, that personalized data is
transmitted through the data network 230 to the server 225 where
the customized media list is generated by the server 225 as
described in FIG. 3. The customized media list is then returned
from the server 225 through the data network 230 to the client
235 where it is received by the user service module 400 and
transmitted to the user 240. Concurrently with receiving the
customized media list by the user 240, the customized media is
retrieved from the server 225 through the data network 230 from
the server storage medium 205 and returned to the customized
media service module 405 and the client 235 where it is stored in
media cache service module 410 by a storage medium as described
below in FIG. 7.
Methodology

FIG. 5 is a flow chart of an embodiment of the method of the present invention. In FIG. 5, a first step 500 begins where a user provides personalized data to a computer system. From FIGS. 2-4, it is described that the user 240 provides personalized data to the computer system 200 that includes the client 235 and the server 225 through a data network 230. The computer system 200 includes the client 235, server 225 and the server storage medium 205, or, in alternative embodiments, separate computer systems contained remotely at the client location and the server location. The user typically provides the personalized data to the computer system through some type of display means (not shown) such as a television set, a personal computer or other type of display means that allows the user to interface with the computer system (FIG. 7). In another embodiment, the user can enter the personalized data through other means that are not visual, such as audio means, or other input devices such as those listed with regard to the general purpose computer of FIG. 7.

Once the user provides the personalized data to the computer system, a customized media list for the user is generated based on the user's personalized data at step 505. At step 505, the customized media list 226 is generated by the server 225 using the personalized advertisement service module 305 and the personalized content service module 310, in conjunction with the inventory management module 315. As described above, the customized media list 226 is based on the personal profile, the television show preference, the past viewing habits and a predetermined list of available television shows that the user provides as personalized data and is also provided from the entire content media 210 of the service storage medium 205. Again, the customized media list 226 is generated by the modules 305 and 310 of FIG. 3. After the customized media list 226 is generated at step 505, the customized media list is provided to the user and automatically utilized by the user via the computer.
system 200. The customized media list 226 represents the customized content contained in the entire content media 210 and the customized advertising contained in the entire advertising media 215. The customized media list 226 is provided to the user through the user service module 400 of the client 235 and instantaneously the customized media service module 405 of the client 235 requests the customized content and the content advertising to be sent to the client and stored in memory using the media cache service module 410.

**Comprehensive Example**

FIG. 6 is a flow chart of an embodiment of the method of the present invention. In FIG. 6, the comprehensive example of one embodiment of the methodology and system of the present invention begins at step 600 where a user, such as user 240 of FIGS. 2-4, turns a television on. It is noted that this comprehensive example relates specifically to providing visual content to a user, that is, customized content and customized advertising that is visually received by a user on a television. However, note that the present method and system of the present invention is not limited to visual content or televisions, but is also inclusive of receiving audio or other stimulus through other means visual, audio or otherwise, using the method and system of the present invention as claimed below.

Returning to the embodiment of the example of FIG. 6, after turning on the television, the computer system determines whether a personalized data of the user has been set up in the computer system. Note that multiple users may use a common system of the present invention, and therefore the computer system implementing the method and system of the present invention may request to know which user of a particular television, for example, is implementing the method and system of the present invention. Thus, at step 605, the computer system determines whether the user has a personalized data by either asking the user's name or other identification, or if no other users are able to use the
system, then the computer system automatically pulls up the personalized data of the user. If the computer system does not have a personalized data of the user, the user enters the personalized data if desired at step 610. After the user enters the personalized data, the television transmits the personalized data to the computer system 200 of FIG. 2 at step 615. If the user does have personalized data already in the computer system, the personalized data is automatically sent to the computer system at step 615 and step 610 is skipped. At step 615, the user has already provided a personal profile of the user, a television show preference and a past viewing habit. This is combined with a predetermined list of television shows that are contained in the entire content media 210 of the server storage medium 205, all shown in FIGS. 2 and 3. At step 615, the personalized data goes from the user’s television to the client 235 of FIG. 2 as shown in FIG. 4. Once at the client, the personalized data, which used the user service module 400 to interact with the user, is sent through the server communication layer 415, through the data network 230 and to the server 225 which is shown in FIG. 3. Upon arriving at the server 225, the personalized data 241 goes through the client communication layer 300 and to the user management module 320. The user management module 320 contains logic that stores the personalized data in the personalized data database 220 and further communicates with the personalized advertisement service module 305 and the personalized content service module 310 in order to generate a customized media list 226, using the inventory management module 315, where the customized media list 226 is based on the personalized data 241. Again, the customized media list 226 is generated by matching properties of the content and advertisements with the personalized data 241 of the user. When the customized media list 226 is generated by the server 225, the customized media list 226 is sent through the client communication layer 300 through the data network 230 to the
client 235 where the customized media list 226 is sent through the server communication layer 415 to the customized media service module 405. Once at the customized media service module 405, the customized media list 226 is sent to the media cache service module 410 while simultaneously sent to the user service module 400. At the user service module 400, the customized media list is displayed to the user, in this embodiment, through a television.

Simultaneously, when the customized media service module 405 sends the customized media list 226 to the media cache service module 410, the media cache service module 410 interacts with the server communication layer 415 and goes through the data network 230 to the server 225, and through the client communication layer 300, to retrieve the customized content and customized advertising that is contained in the server storage medium 205. The customized content and the customized advertising is then sent back through the server 225, the data network 230 and is cached at the media cache service module 410 of the client 235 on a storage medium.

Thus, at this step, the computer system has generated the customized media list 226 and sent that list to the user’s television at step 620. Now that the customized media list 226 has been sent to the user at step 620, the television retrieves the customized content and the customized advertising that has been cached in the storage medium through the media cache service module 410 on the client 235 at step 625.

Now, at step 630, the user views the customized content and the customized advertising being shown on the television. Next, at step 635, the user is given an option to modify the customized media list 226. If the user so chooses, the user may customize the media list to add, remove, or otherwise rearrange the customized content on the customized media list at 640. If the user so chooses to modify the customized media list 226 at step 635, the personal data of the user is updated in view of such
modification at step 645. If the user does not choose to modify the customized media list 226 at step 635, or after the user has modified the customized media list, the user merely views the customized content and customized advertising on the television at step 650.

FIG. 7 illustrates a high-level block diagram of a general purpose computer which is used, in one embodiment, to implement the method and system of the present invention. The general purpose computer, in one embodiment, acts as either the server 225 or client 235 of FIGS. 2-4, or both.

The general purpose computer 746 of FIG. 7 includes a processor 730 and memory 725. Processor 730 may contain a single microprocessor or a plurality of microprocessors for configuring the computer system as a multi-processor system. In alternative embodiments described above, the processor 730 includes the server processor and client processor of FIGS. 2-4 above. Memory 725, stores, in part, instructions and data for execution by processor 730. If the system of the present invention is wholly or partially implemented in software, including computer instructions, memory 725 stores the executable code when in operation. Memory 725 may include banks of dynamic random access memory (DRAM) as well as high speed cache memory.

The computer of FIG. 7 further includes a mass storage device 735, peripheral device(s) 740, audio means 750, input device(s) 755, portable storage medium drive(s) 760, a graphics subsystem 770 and a display means 785. For purposes of simplicity, the components shown in FIG. 7 are depicted as being connected via a single bus 780 (i.e. transmitting means). However, the components may be connected through one or more data transport means (e.g. Internet, Intranet, etc.). For example, processor 730 and memory 725 may be connected via a local microprocessor bus, and the mass storage device 735, peripheral device(s) 740, portable storage medium drive(s) 760, and graphics
subsystem 770 may be connected via one or more input/output (I/O) buses.

Mass storage device 735, which is typically implemented with a magnetic disk drive or an optical disk drive is, in one embodiment, a non-volatile storage device for storing data and instructions for use by processor 730. The mass storage device 735 includes the storage medium of embodiments of the present invention, and the server storage medium and client storage medium in alternative embodiments.

In another embodiment, mass storage device 735 stores the first and second algorithms of the server in an embodiment of the present invention. The computer instructions that implement the method of the present invention also may be stored in mass-storage device 735.

Portable storage medium drive 760 operates in conjunction with a portable non-volatile storage medium, such as a floppy disk, or other computer-readable medium, to input and output data and code to and from the computer system of FIG. 7. In one embodiment, the method of the present invention that is implemented using computer instructions is stored on such a portable medium, and is input to the computer system 746 via the portable storage medium drive 760. Peripheral device(s) 740 may include any type of computer support device, such as an input/output (I/O) interface, to add additional functionality to the computer system 746. For example, peripheral device(s) 740 may include a network interface card for interfacing computer system 746 to a network, a modem, and the like.

Input device(s) 755 provide a portion of a user interface. Input device(s) 755 may include an alpha-numeric keypad for inputting alpha-numeric and other key information, or a pointing device, such as a mouse, a trackball, stylus or cursor direction keys. Such devices provide additional means for interfacing with the customized media list and the customized media in the method of the present invention.
In order to display textual and graphical information, the computer 746 of FIG. 7 includes graphics subsystem 770 and display means 785. Display means 785 may include a cathode ray tube (CRT) display, liquid crystal display (LCD), other suitable display devices, or means for displaying, that enables a user to view the customized media list or customized media. Graphics subsystem 770 receives textual and graphical information and processes the information for output to display 785. The display means 785 provides a practical application for providing the customized media list of the present invention since the method of the present invention may be directly and practically implemented through the use of the display means 785.

The computer system 746 of FIG. 7 also includes an audio system 750. In one embodiment, audio means 750 includes a sound card that receives audio signals from a microphone that may be found in peripherals 740. In another embodiment, the audio system 750 may be a processor, such as processor 730, that processes sound. Additionally, the computer of FIG. 7 includes output devices 745. Examples of suitable output devices include speakers, printers, and the like.

The devices contained in the computer system of FIG. 7 are those typically found in general purpose computers, and are intended to represent a broad category of such computer components that are well known in the art. The system of FIG. 7 illustrates one platform which can be used for practically implementing the method of the present invention. Numerous other platforms can also suffice, such as Macintosh-based platforms available from Apple Computer, Inc., platforms with different bus configurations, networked platforms, multi-processor platforms, other personal computers, workstations, mainframes, navigation systems, and the like.

In a further embodiment, the present invention also includes a computer program product which is a computer readable medium (media) having computer instructions stored thereon, which can be
used to program a computer to perform the method of the present invention as shown in FIG. 5. The storage medium can include, but is not limited to, any type of disk including floppy disks, optical disks, DVD, CD ROMs, magnetic optical disks, RAMs, EPROM, EEPROM, magnetic or optical cards, or any type of media suitable for storing electronic instructions.

These same computer instructions may be located in an electronic signal that is transmitted over a data network that performs the method as shown in FIG. 5 when loaded into a computer. The computer instructions are in the form of data being transmitted over a data network. In one embodiment, the method of the present invention is implemented in computer instructions and those computer instructions are transmitted in an electronic signal through cable, satellite or other transmitting means for transmitting the computer instructions in the electronic signals.

Stored on any one of the computer readable medium (media), the present invention includes software for controlling both the hardware of the general purpose/specialized computer or microprocessor, and for enabling the computer or microprocessor to interact with a human user or other mechanism utilizing the results of the present invention. Such software may include, but is not limited to, device drivers, operating systems and user applications. Ultimately, such computer readable media further includes software for performing the method of the present invention as described above.

**Customized Media Interface**

FIG. 8a illustrates an embodiment of a customized media interface 800. The embodiment is comprised of a list of content 810 including multiple rows and columns 805 and 825. The list of content 810 is customized for a particular user or users. The list of content 810 is ordered, and is a subset of the generated customized media list 226. The first column 805 denotes the duration of the content and the second column 825 identifies the
content. The user has the ability to scroll up and down the list using scroll buttons 815 and 820, respectively, if there are more rows than the display means is capable of revealing.

The list 810 is independent of a broadcast program schedule. Instead of showing an absolute time when a program will be available for viewing, the list 810 shows the time length 805 of the content. The user does not deal with absolute times when viewing content. The user may begin viewing the customized media list of content at any time desired. In addition, the user may wish to stop and resume viewing at any given time. This predicates the need to not permanently associate the content listing to any absolute times.

FIG. 8b illustrates another embodiment of a customized media interface 850. The embodiment is comprised of multiple rows 875 and two columns, 855 and 860. Scroll buttons 865 and 870 are provided for scrolling up and down, respectively, the list. Unlike the customized media interface 800 of FIG. 8a, a clock time is shown in column 855. The clock time begins at the present time. Thus, the first content within the customized media list begins at the present time, and each subsequent content's begin time is the present time plus the duration of all the preceding content.

FIG. 9 is another embodiment of a customized media interface 900. FIG. 9 includes the customized media interface 800 illustrated in FIG. 8, with the addition of a title banner 910, running preview 940, short description 950, and a modification toolbar including functionality buttons to add 960, remove 970, move up 980, and move down 990 content as described hereinbelow. FIG. 9 shows the selection 920 of a specific content from within the list. As shown, when the content is selected, it is highlighted to differentiate such content from the unselected content. While the content is selected, the running preview window 940 shows a graphical preview of the content. This graphical preview is either a still image or an animated video
clip. In addition, a short description of the selected content is displayed in window 950.

FIGS. 10a - 10c show an example of the add functionality of the customized media interface embodiment in FIG. 9. When the user selects the add functionality by selecting the add button 960 from the main screen, FIG. 10a, a search screen 1030, illustrated in FIG. 10b, is presented to the user. FIG. 10b is an embodiment of the search screen 1030 that allows the user to search by title. In FIG. 10b, the user has specified “NAT” 1035 as the search string and has selected the program “National Geographic Explorer” 1040 and episode “Tiger Shark” 1045 for addition to his customized media list. FIG. 10c shows the main screen 900, after the addition has been performed. As shown, the content 1070 has been added to the user’s customized media list 800 and the running preview window 940 and description window 950 provide an image and description, respectively, of the added content.

FIGS. 11a and 11b show an example of the remove functionality of the customized media interface embodiment in FIG. 9. In FIG. 11a, the user has selected a specific content 920 from the customized media list 800. The selected content 920 is highlighted to differentiate it from the other unselected content. Thereafter, the remove 970 functionality is selected. FIG. 11b shows the resulting affect. As shown in FIG. 11b, the previously selected content 920 is now removed from the list, and all of the content 1160 originally below the previously selected content is automatically shifted up one row.

FIGS. 12a and 12b show an example of the move-up functionality of the customized media interface embodiment in FIG. 9. In FIG. 12a, the user has selected a specific content 920 from the customized media list 800. The selected content 920 is highlighted to differentiate it from the unselected content. Thereafter, the move-up 980 functionality is selected. FIG. 12b shows the resulting affect. As shown in FIG. 12b, the selected
content 920 has moved up one in the customized media list. The content originally above the selected content has consequentially been forced down one in the sequence.

FIGS. 13a and 13b show an example of the move-down functionality of the customized media interface embodiment in FIG. 9. In Fig 13a, the user has selected a specific content 920 from the customized media list. The selected content 920 is highlighted to differentiate it from the unselected content. Thereafter, the move-down 990 functionality is selected. FIG. 13b shows the resulting affect. As shown in FIG. 13b, the selected content 920 has moved down one row in the customized media list 800. The content originally below the selected content has consequentially been forced to move up one row.

Advantages

Numerous advantages exist with the method and system of the present invention as claimed below.

First, a user is given many more options as to what content the user wishes to view or listen to than in the past. Rather than going channel by channel on a television or audio receptor, the user is able to specifically personalize the content that he or she wishes to view at all times. Second, advertisers now have highly personalized data on each user so that the advertising may be directed closely to the particular audience that advertisers wish to attract. Third, a user may, as discussed above with options to the system and method of the present invention, choose to pay additional fees in order to avoid advertising in general. This adds to the entertainment value of the content being watched since advertisements are avoided and time is saved. Fourth, the number of actual users may now be closely monitored rather than relying on audience estimators that can only guess as to the number of actual viewers or users watching or listening. Fifth, with the personal data on the user being known, advertisers may be more confident in the percentage of those users that fit
within its target audience, thereby reaching a higher percentage of that target audience than in the past.

Sixth, the user has the advantage that he or she may now schedule the content that he or she wishes to view or listen to at the user's leisure rather than on a scheduled programming list as is currently the case.

Although the present invention has been described in detail with respect to certain embodiments and examples, variations and modifications exist which are within the scope of the present invention as defined in the following claims.
What is claimed is:

1. A method for generating a customized media interface, comprising:
   providing a display means;
   receiving data defining a first region of the customized media interface;
   receiving data for generating a customized media list within the first region of the customized media interface, the customized media list representing a customized content and a customized media and being based on personalized data of a user; and
   displaying the customized media interface on the display means.

2. The method of claim 1, wherein the step of receiving data for generating a customized media list further comprises:
   receiving data for generating a customized media list that is independent of a viewing channel.

3. The method of claim 1, wherein the step of receiving data for generating a customized media list further comprises:
   receiving data for generating a customized media list that is independent of an absolute time.

4. The method of claim 1, wherein the step of receiving data for generating a customized media list further comprises:
   receiving data for generating a customized media list that is dependent on a relative time.

5. The method of claim 1, wherein the step of receiving data for generating a customized media list further comprises:
   receiving data for generating a customized media list that is dependent on a length of time.
6. The method of claim 1, wherein the step of receiving data for generating a customized media list further comprises:
   receiving data for generating a customized media list that is in a viewing order.

7. The method of claim 1, further comprising:
   receiving data defining a second region of the customized media interface, the second region displaying a preview of a highlighted content of the customized media list.

8. The method of claim 1, further comprising:
   receiving data defining a third region of the customized media interface, the third region displaying a textual description of a highlighted content of the customized media list.

9. The method of claim 1, further comprising:
   receiving data defining a fourth region of the customized media interface, the fourth region displaying a modification toolbar for modifying the customized media list.

10. The method of claim 9, further comprising:
    receiving data defining an add button within the modification toolbar, the add button enabling the user to add content to the customized media list.

11. The method of claim 9, further comprising:
    receiving data defining a remove button within the modification toolbar, the remove button enabling the user to remove content from the customized media list.

12. The method of claim 9, further comprising:
    receiving data defining a move-up button within the modification toolbar, the move-up button enabling the user to move content in the customized media list up the customized media list.
13. The method of claim 9, further comprising:
   receiving data defining a move-down button within the
   modification toolbar, the move-down button enabling the user to
   move content in the customized media list down the customized
   media list.

14. The method of claim 9, further comprising:
   receiving data defining a scroll button within the
   modification toolbar, the scroll button enabling the user to
   scroll content in the customized media list.
FIG. 4

Server

Customized Media Service

Media Cache Service

Server Communication Layer

User

Data Network

User Service

Personalized Data

225

405

230

400

410

415

235

240

241
500 User Provides Personalized Data to Computer System

505 Customized Media List for The User is Generated Based On the User’s Personalized Data

510 Customized Media List is Provided to the User and Automatically Utilized by the User via the Computer System

FIG. 5
<table>
<thead>
<tr>
<th>Length</th>
<th>Program Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>24 minutes</td>
<td>My Friends — Rose's Second Wedding</td>
</tr>
<tr>
<td>103 minutes</td>
<td>NBA Finals 1991 — Lakers vs. Bulls</td>
</tr>
<tr>
<td>26 minutes</td>
<td>Entertainment Today — Feb 3, 2000</td>
</tr>
<tr>
<td>54 minutes</td>
<td>NYPD Red — Crisis in Chinatown</td>
</tr>
<tr>
<td>112 minutes</td>
<td>Star Works</td>
</tr>
<tr>
<td>29 minutes</td>
<td>The Coach — Hank Joins a Florida College</td>
</tr>
<tr>
<td>Begin Time</td>
<td>Program Name</td>
</tr>
<tr>
<td>------------</td>
<td>-------------------------------------</td>
</tr>
<tr>
<td>12:49pm - now</td>
<td>My Friends – Rose’s Second Wedding</td>
</tr>
<tr>
<td>1:13pm</td>
<td>NBA Finals 1991 – Lakers vs. Bulls</td>
</tr>
<tr>
<td>2:56pm</td>
<td>Entertainment Today – Feb 3, 2000</td>
</tr>
<tr>
<td>3:22pm</td>
<td>NYPD Red – Crisis in Chinatown</td>
</tr>
<tr>
<td>4:16pm</td>
<td>Star Works</td>
</tr>
<tr>
<td>6:34pm</td>
<td>The Coach – Hank Joins a Florida College</td>
</tr>
<tr>
<td>Title Banner</td>
<td>Customized Media List</td>
</tr>
<tr>
<td>--------------</td>
<td>-----------------------</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Running Preview

940

950

The lovable Lake once again gets himself in trouble, but this time in Hollywood. Lake goes on a spending spree, and gets yelled at by his wife, Rhonda.
Title Banner

Customized Media List

<table>
<thead>
<tr>
<th>Length</th>
<th>Program Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>24 minutes</td>
<td>My Friends – Rose’s Second Wedding</td>
</tr>
<tr>
<td>103 minutes</td>
<td>NBA Finals 1991 – Lakers vs. Bulls</td>
</tr>
<tr>
<td>26 minutes</td>
<td>Entertainment Today – Feb 3, 2000</td>
</tr>
<tr>
<td>54 minutes</td>
<td>NYPD Red – Crisis in Chinatown</td>
</tr>
<tr>
<td>112 minutes</td>
<td>Star Works</td>
</tr>
<tr>
<td>29 minutes</td>
<td>The Coach – Hank Joins a Florida College</td>
</tr>
</tbody>
</table>

Running Preview


FIG. 10a
PROGRAM
National Geographic Explorer
National Lampoon Vacation
National Lampoon Senior Trip
National Velvet
Naturally Fit
Naturequest
Ned and Stacy
Net Talk
Never Too Late
Neverending Story, The

EPISODE
Cheetah Chase
Lost Road to the Inca
Lost Road to the Inca II
Outback Venom
Shipwreck Hunters
Tiger Shark
The Battle for Midway
The Body Snatchers
The Ice Mummies
Tornado Hunters

FIG. 10b
### Customized Media List

<table>
<thead>
<tr>
<th>Length</th>
<th>Program Name</th>
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</thead>
<tbody>
<tr>
<td>24 minutes</td>
<td>My Friends – Rose’s Second Wedding</td>
</tr>
<tr>
<td>103 minutes</td>
<td>NBA Finals 1991 – Lakers vs. Bulls</td>
</tr>
<tr>
<td>26 minutes</td>
<td>Entertainment Today – Feb 3, 2000</td>
</tr>
<tr>
<td>54 minutes</td>
<td>NYPD Red – Crisis in Chinatown</td>
</tr>
<tr>
<td>112 minutes</td>
<td>Star Works</td>
</tr>
<tr>
<td>49 minutes</td>
<td>National Geographic Explorer – Tiger Shark</td>
</tr>
</tbody>
</table>

---

**Running Preview**

[Preview Video Clip of “National Geographic Explorer – Tiger Shark”]

---

National Geographic Explorer goes on the scene to discover the Tiger Sharks’ natural habitat.

---

**FIG. 10c**
**FIG. 11a**

<table>
<thead>
<tr>
<th>Title Banner</th>
<th>805 Customized Media List</th>
<th>825</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length</td>
<td>Program Name</td>
<td></td>
</tr>
<tr>
<td>24 minutes</td>
<td>My Friends - Rose's Second Wedding</td>
<td></td>
</tr>
<tr>
<td>103 minutes</td>
<td>NBA Finals 1991 - Lakers vs. Bulls</td>
<td></td>
</tr>
<tr>
<td>26 minutes</td>
<td>Entertainment Today - Feb 3, 2000</td>
<td></td>
</tr>
<tr>
<td>26 minutes</td>
<td>NYPD Red - Crisis in Chinatown</td>
<td></td>
</tr>
<tr>
<td>54 minutes</td>
<td>Star Works</td>
<td></td>
</tr>
<tr>
<td>29 minutes</td>
<td>The Coach - Hank Joins a Florida College</td>
<td></td>
</tr>
</tbody>
</table>

**Running Preview**


**Figure**

- ADD
- REMOVE
- MOVE UP
- MOVE DOWN
## Title Banner

### Customized Media List

<table>
<thead>
<tr>
<th>Length</th>
<th>Program Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>24 minutes</td>
<td>My Friends – Rose’s Second Wedding</td>
</tr>
<tr>
<td>103 minutes</td>
<td>NBA Finals 1991 – Lakers vs. Bulls</td>
</tr>
<tr>
<td>26 minutes</td>
<td>Entertainment Today – Feb 3, 2000</td>
</tr>
<tr>
<td>54 minutes</td>
<td>NYPD Red – Crisis in Chinatown</td>
</tr>
<tr>
<td>112 minutes</td>
<td>Star Works</td>
</tr>
<tr>
<td><strong>29 minutes</strong></td>
<td><strong>The Coach – Hank Joins a Florida College</strong></td>
</tr>
<tr>
<td>25 minutes</td>
<td>The Simpsonites – Burt Loses His Skateboard</td>
</tr>
</tbody>
</table>

### Running Preview

[Preview Video Clip of “The Coach – Hank Joins a Florida College”]

The Coach gets himself into trouble with the new team as they have trouble staying on the same page.
<table>
<thead>
<tr>
<th>Length</th>
<th>Program Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>24 minutes</td>
<td>My Friends – Rose’s Second Wedding</td>
</tr>
<tr>
<td>103 minutes</td>
<td>NBA Finals 1991 – Lakers vs. Bulls</td>
</tr>
<tr>
<td>26 minutes</td>
<td>Entertainment Today – Feb 3, 2000</td>
</tr>
<tr>
<td>54 minutes</td>
<td>NYPD Red – Crisis in Chinatown</td>
</tr>
<tr>
<td>112 minutes</td>
<td>Star Works</td>
</tr>
<tr>
<td>29 minutes</td>
<td>The Coach – Hank Joins a Florida College</td>
</tr>
</tbody>
</table>


### Title Banner

<table>
<thead>
<tr>
<th>Length</th>
<th>Program Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>24 minutes</td>
<td>My Friends – Rose's Second Wedding</td>
</tr>
<tr>
<td>103 minutes</td>
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</tr>
<tr>
<td>26 minutes</td>
<td>Entertainment Today – Feb 3, 2000</td>
</tr>
<tr>
<td>54 minutes</td>
<td>NYPD Red – Crisis in Chinatown</td>
</tr>
<tr>
<td>112 minutes</td>
<td>Star Works</td>
</tr>
<tr>
<td>29 minutes</td>
<td>The Coach – Hank Joins a Florida College</td>
</tr>
</tbody>
</table>

### Running Preview


---

**FIG. 12b**
### Customized Media List

<table>
<thead>
<tr>
<th>Length</th>
<th>Program Name</th>
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</thead>
<tbody>
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<td>My Friends – Rose's Second Wedding</td>
</tr>
<tr>
<td>103 minutes</td>
<td>NBA Finals 1991 – Lakers vs. Bulls</td>
</tr>
<tr>
<td>26 minutes</td>
<td>Entertainment Today – Feb 3, 2000</td>
</tr>
<tr>
<td>54 minutes</td>
<td>NYPD Red – Crisis in Chinatown</td>
</tr>
<tr>
<td>112 minutes</td>
<td>Star Works</td>
</tr>
<tr>
<td>29 minutes</td>
<td>The Coach – Hank Joins a Florida College</td>
</tr>
</tbody>
</table>

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**Running Preview**


---

**FIG. 13a**
<table>
<thead>
<tr>
<th>Title Banner</th>
<th>Running Preview</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Program Name</th>
<th>Length</th>
<th>Program Name</th>
<th>Length</th>
</tr>
</thead>
<tbody>
<tr>
<td>My Friends – Rose’s Second Wedding</td>
<td>24 minutes</td>
<td>Entertainment Today – Feb 3, 2000</td>
<td>26 minutes</td>
</tr>
<tr>
<td>NBA Finals 1991 – Lakers vs. Bulls</td>
<td>103 minutes</td>
<td>NYPD Red – Crisis in Chinatown</td>
<td>54 minutes</td>
</tr>
<tr>
<td>Star Works</td>
<td>112 minutes</td>
<td>The Coach – Hank Joins a Florida College</td>
<td>29 minutes</td>
</tr>
</tbody>
</table>

A. CLASSIFICATION OF SUBJECT MATTER
IPC(7)   :H03N 5/445; G06F 3/00, 12/00
US CL   :725/46, 44, 59, 47, 48, 40
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)
U.S. : 725/46, 44, 59, 47, 48, 40

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

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)
EAST - EPG, media, list, customized, advertising

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>
</table>

☐ 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 document published on or after the international filing date
  - "L" document which may throw doubts on priority claimed or which is cited to establish the publication date of another 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
  - "W" document member of the same patent family

Date of the actual completion of the international search
04 MAY 2003

Date of mailing of the international search report
28 MAY 2003

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Telephone No. (703) 305-4088

Form PCT/ISA/210 (second sheet) (July 1998)