EXHIBIT A

US007933893B2

(12) **United States Patent**
Walker et al.

(10) **Patent No.: US 7,933,893 B2**
(45) **Date of Patent: Apr. 26, 2011**

(54) **METHOD AND SYSTEM FOR PROVIDING A LINK IN AN ELECTRONIC FILE BEING PRESENTED TO A USER**

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(73) Assignee: **Walker Digital, LLC**, Stamford, CT (US)

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 106 days.

(21) Appl. No.: **11/421,669**

(22) Filed: **Jun. 1, 2006**

(65) **Prior Publication Data**

US 2007/0073773 A1 Mar. 29, 2007

Related U.S. Application Data

(63) Continuation of application No. 11/267,873, filed on Nov. 4, 2005, which is a continuation-in-part of application No. 09/606,422, filed on Jun. 29, 2000, now abandoned.

(60) Provisional application No. 60/202,390, filed on May 8, 2000.

(51) **Int. Cl.**
G06F 7/00 (2006.01)

(52) **U.S. Cl.** **707/717**; 707/944

(58) **Field of Classification Search** 707/1, 100, 707/102, 944, 717, 999.001; 705/10, 26
See application file for complete search history.

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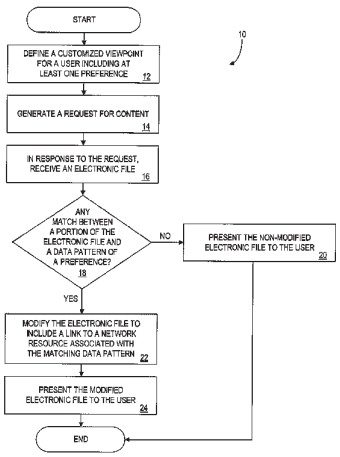
(57) **ABSTRACT**

A method for providing a link in an electronic file being presented to a user which includes defining a customized viewpoint for the user. The viewpoint includes a preference for the user that provides an association between a data pattern and a computer network resource. The method also includes generating a request for content, receiving an electronic file in response to the request, and evaluating the electronic file to recognize a match between at least one portion of the electronic file and the data pattern. Upon recognizing a match, the electronic file is modified to include a link to the computer network resource associated with the matching data pattern, and the modified electronic file is presented to the user. Thus, the link included in the electronic file presented to the user is customized for the user, and different users who retrieve the same content can be provided with links to different computer network resources depending on their respective viewpoints.

50 Claims, 13 Drawing Sheets



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Office Action for U.S. Appl. No. 11/421,688 mailed Jan. 6, 2011, 27 pp.

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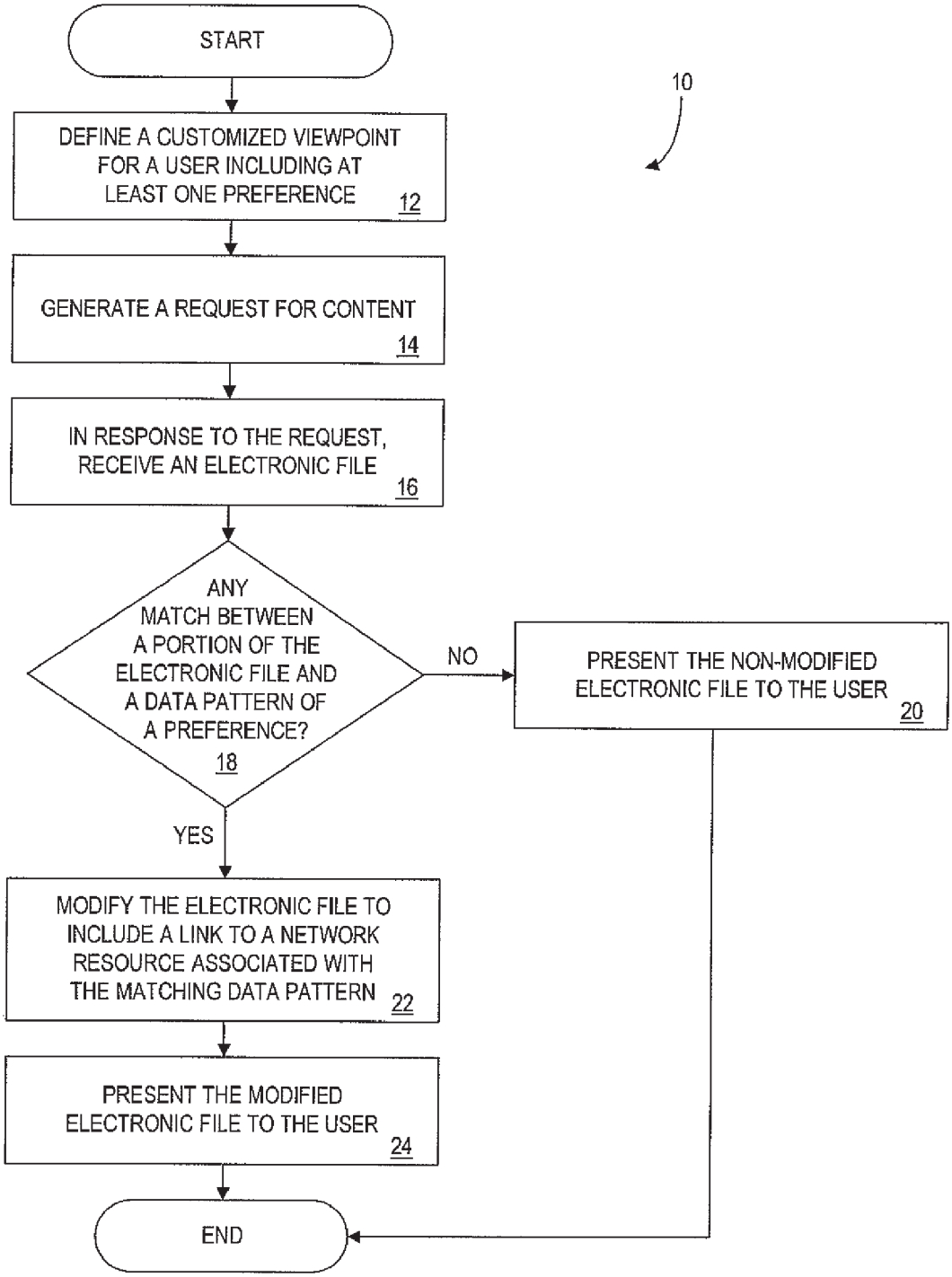
START
10
DEFINE A CUSTOMIZED VIEWPOINT FOR A USER INCLUDING AT LEAST ONE PREFERENCE 12
GENERATE A REQUEST FOR CONTENT 14
IN RESPONSE TO THE REQUEST, RECEIVE AN ELECTRONIC FILE 16
ANY MATCH BETWEEN A PORTION OF THE ELECTRONIC FILE AND A DATA PATTERN OF A PREFERENCE? 18
NO
PRESENT THE NON-MODIFIED ELECTRONIC FILE TO THE USER 20
YES
MODIFY THE ELECTRONIC FILE TO INCLUDE A LINK TO A NETWORK RESOURCE ASSOCIATED WITH THE MATCHING DATA PATTERN 22
PRESENT THE MODIFIED ELECTRONIC FILE TO THE USER 24
END

FIG. 1

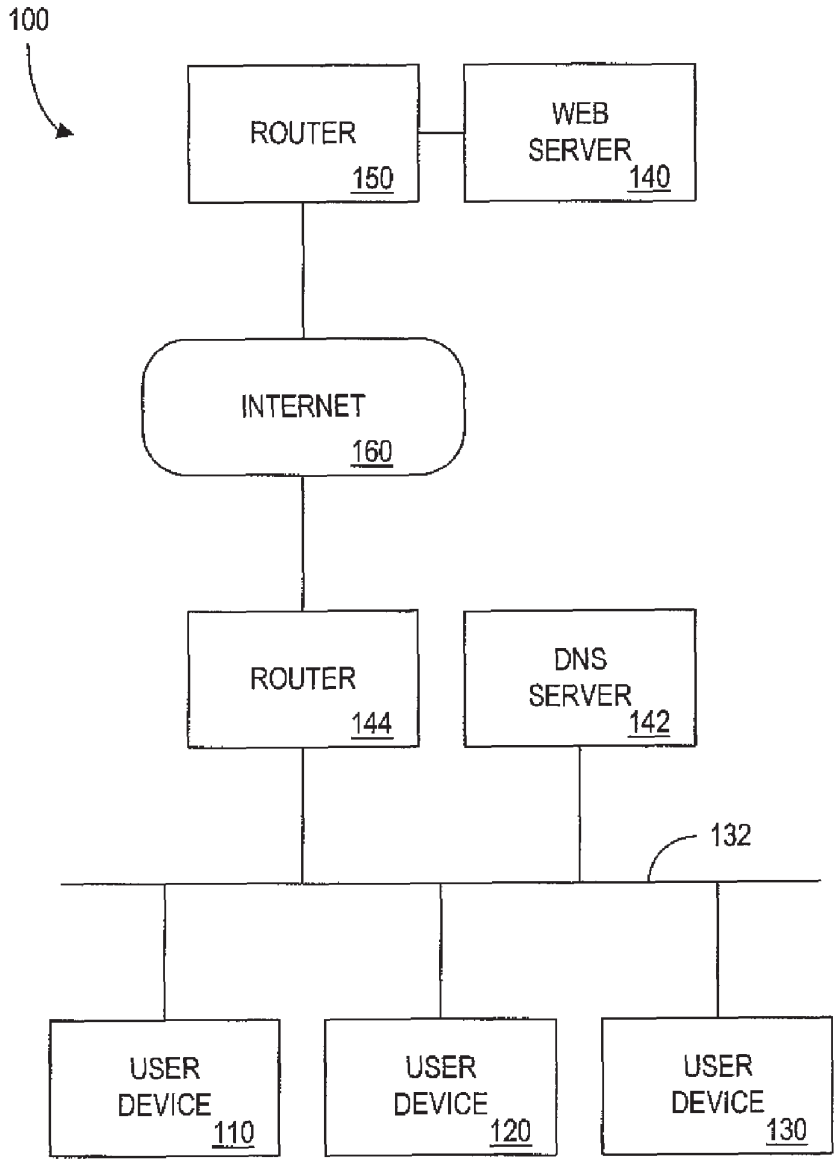
100
ROUTER
150
WEB
SERVER
140
INTERNET
160
ROUTER
144
DNS
SERVER
142
132
USER
DEVICE
110
USER
DEVICE
120
USER
DEVICE
130

FIG. 2A

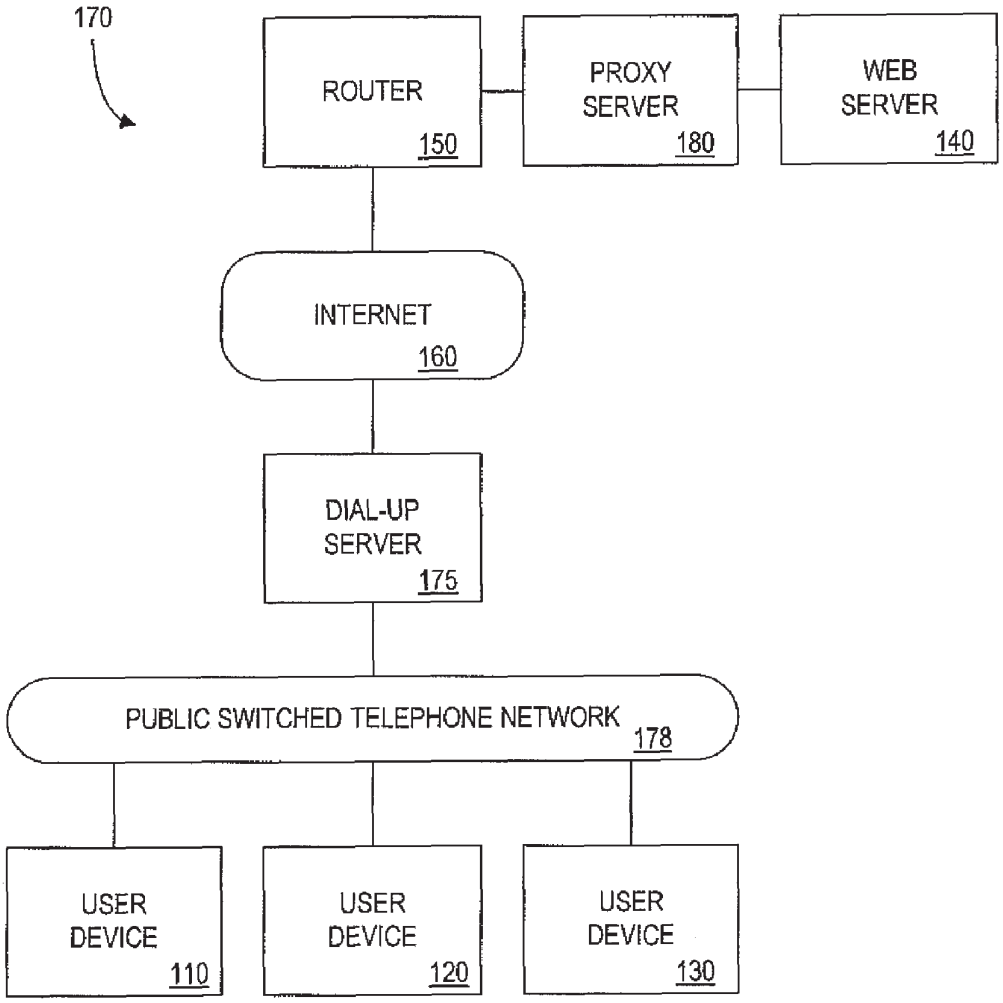
170
ROUTER
150
PROXY
SERVER
180
WEB
SERVER
140
INTERNET
160
DIAL-UP
SERVER
175
PUBLIC SWITCHED TELEPHONE NETWORK
178
USER
DEVICE
110
USER
DEVICE
120
USER
DEVICE
130

FIG. 2B

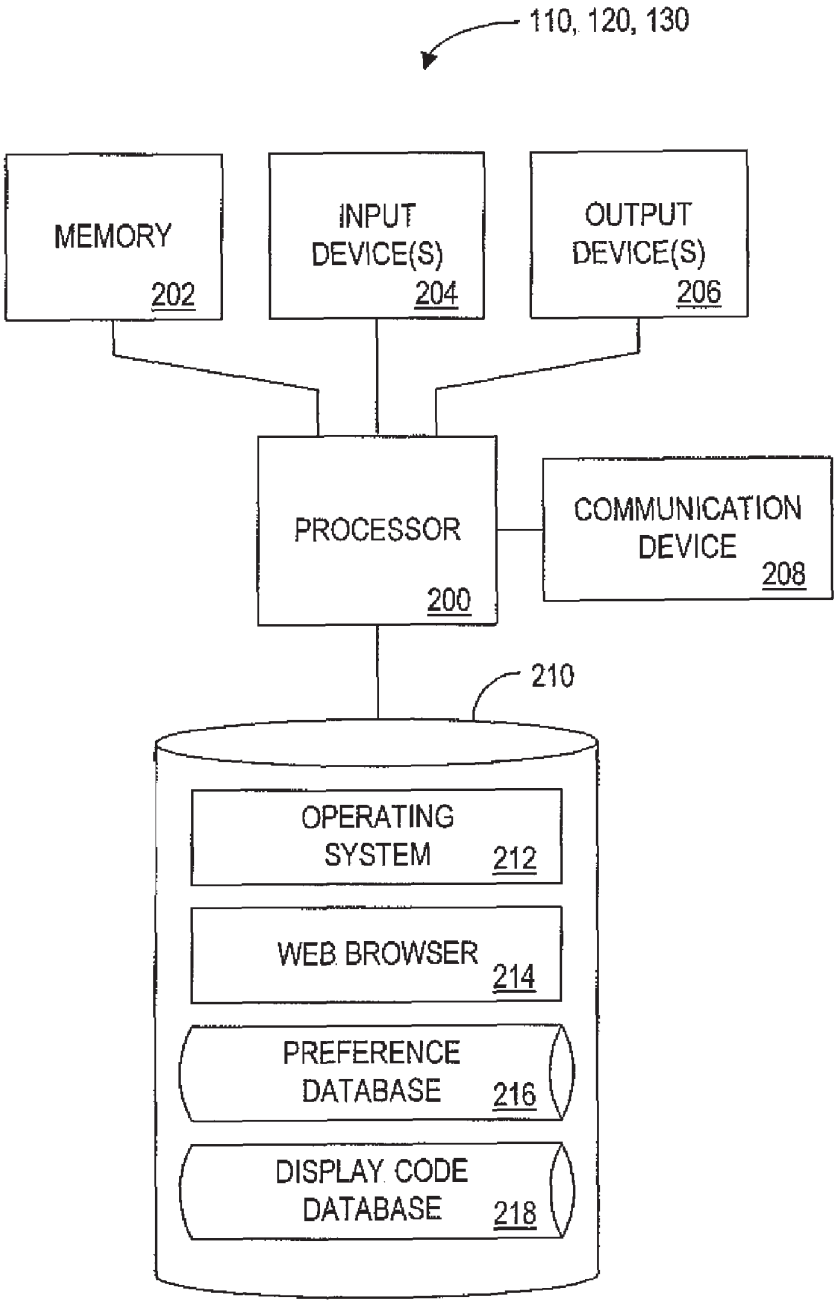
110, 120, 130
MEMORY
202
INPUT
DEVICE(S)
204
OUTPUT
DEVICE(S)
206
PROCESSOR
200
COMMUNICATION
DEVICE
208
210
OPERATING
SYSTEM
212
WEB BROWSER
214
PREFERENCE
DATABASE
216
DISPLAY CODE
DATABASE
218

FIG. 3

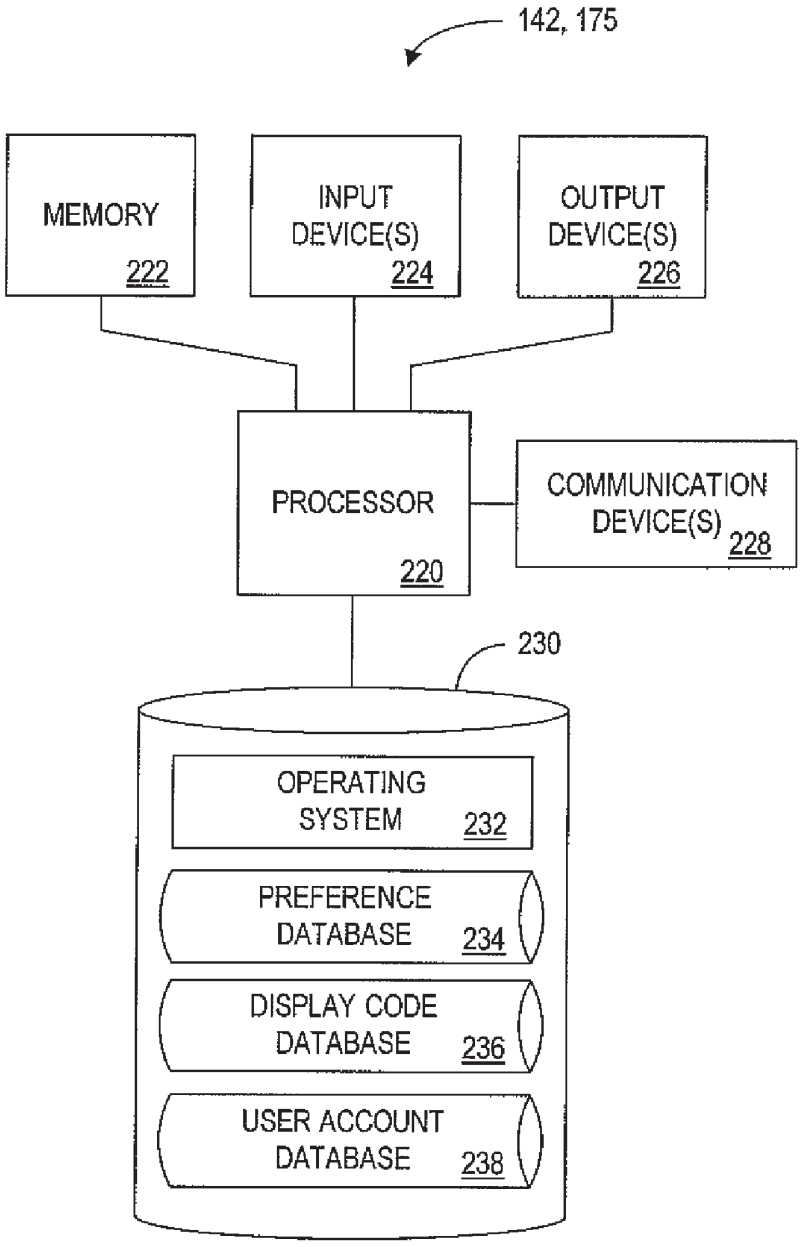
142, 175
MEMORY
222
INPUT
DEVICE(S)
224
OUTPUT
DEVICE(S)
226
PROCESSOR
220
COMMUNICATION
DEVICE(S)
228
230
OPERATING
SYSTEM
232
PREFERENCE
DATABASE
234
DISPLAY CODE
DATABASE
236
USER ACCOUNT
DATABASE
238

FIG. 4

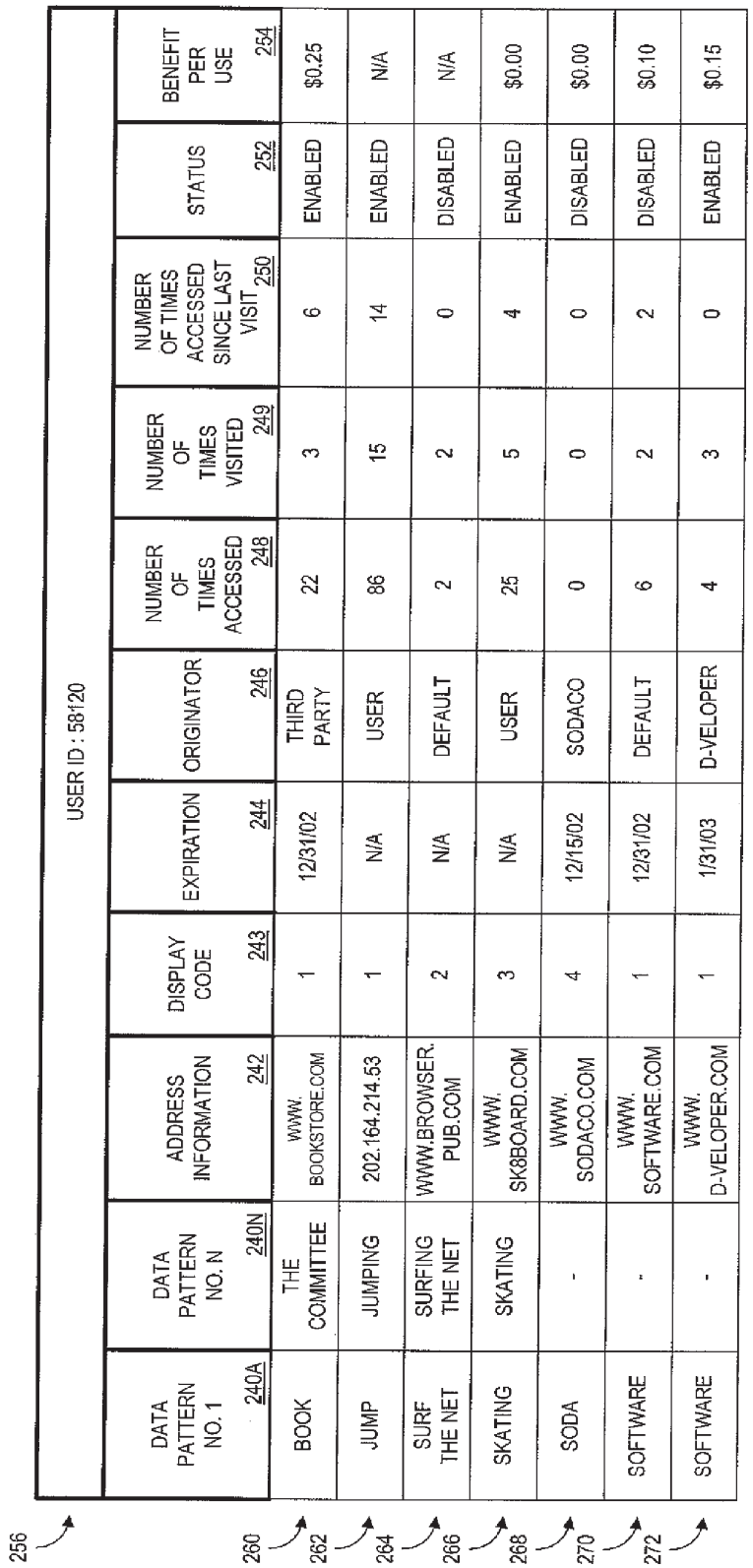
216, 234
256
USER ID : 58120
DATA PATTERN NO. 1 240A
DATA PATTERN NO. N 240N
ADDRESS INFORMATION 242
DISPLAY CODE 243
EXPIRATION 244
ORIGINATOR 246
NUMBER OF TIMES ACCESSED 248
NUMBER OF TIMES VISITED 249
NUMBER OF TIMES ACCESSED SINCE LAST VISIT 250
STATUS 252
BENEFIT PER USE 254
260
262 BOOK THE COMMITTEE WWW.BOOKSTORE.COM 1 12/31/02 THIRD PARTY 22 3 6 ENABLED $0.25
264 JUMP JUMPING 202.164.214.53 1 N/A USER 86 15 14 ENABLED N/A
266 SURF THE NET SURFING THE NET WWW.BROWSER.PUB.COM 2 N/A DEFAULT 2 2 0 DISABLED N/A
268 SKATING SKATING WWW.SK8BOARD.COM 3 N/A USER 25 5 4 ENABLED $0.00
270 SODA - WWW.SODACO.COM 4 12/15/02 SODACO 0 0 0 DISABLED $0.00
272 SOFTWARE - WWW.SOFTWARE.COM 1 12/31/02 DEFAULT 6 2 2 DISABLED $0.10
SOFTWARE - WWW.D-VELOPER.COM 1 1/31/03 D-VELOPER 4 3 0 ENABLED $0.15

FIG. 5

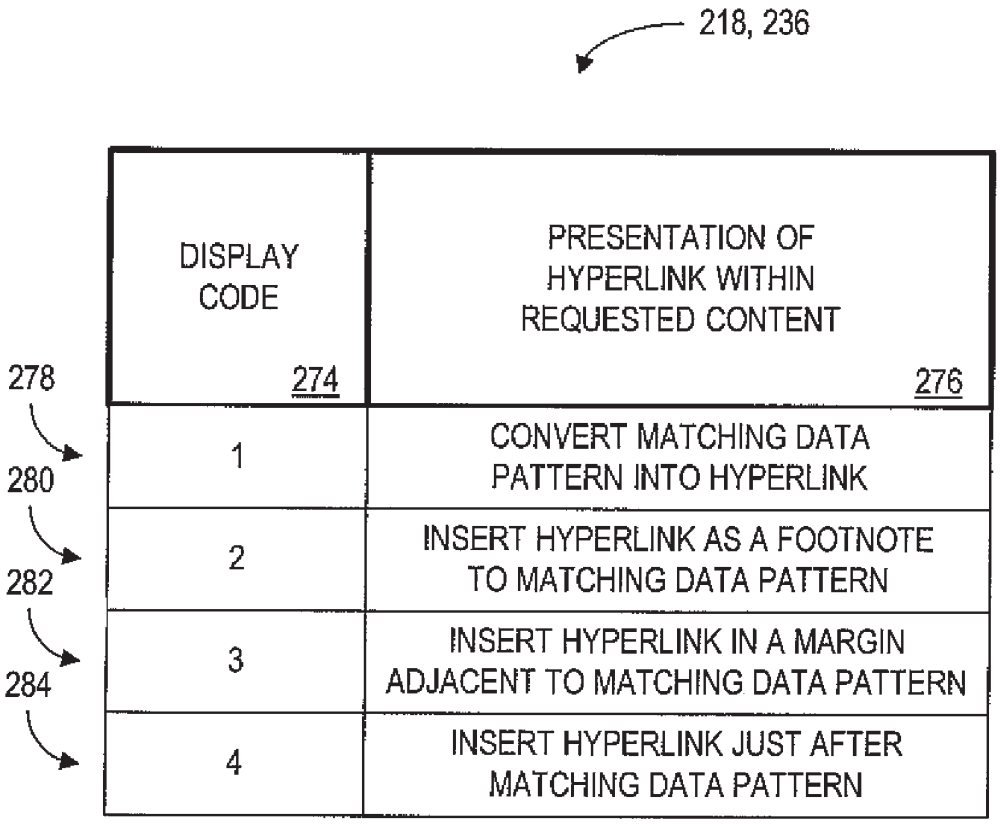
218, 236
278
280
282
284
DISPLAY CODE 274
PRESENTATION OF HYPERLINK WITHIN REQUESTED CONTENT 276
1
CONVERT MATCHING DATA PATTERN INTO HYPERLINK
2
INSERT HYPERLINK AS A FOOTNOTE TO MATCHING DATA PATTERN
3
INSERT HYPERLINK IN A MARGIN ADJACENT TO MATCHING DATA PATTERN
4
INSERT HYPERLINK JUST AFTER MATCHING DATA PATTERN

FIG. 6

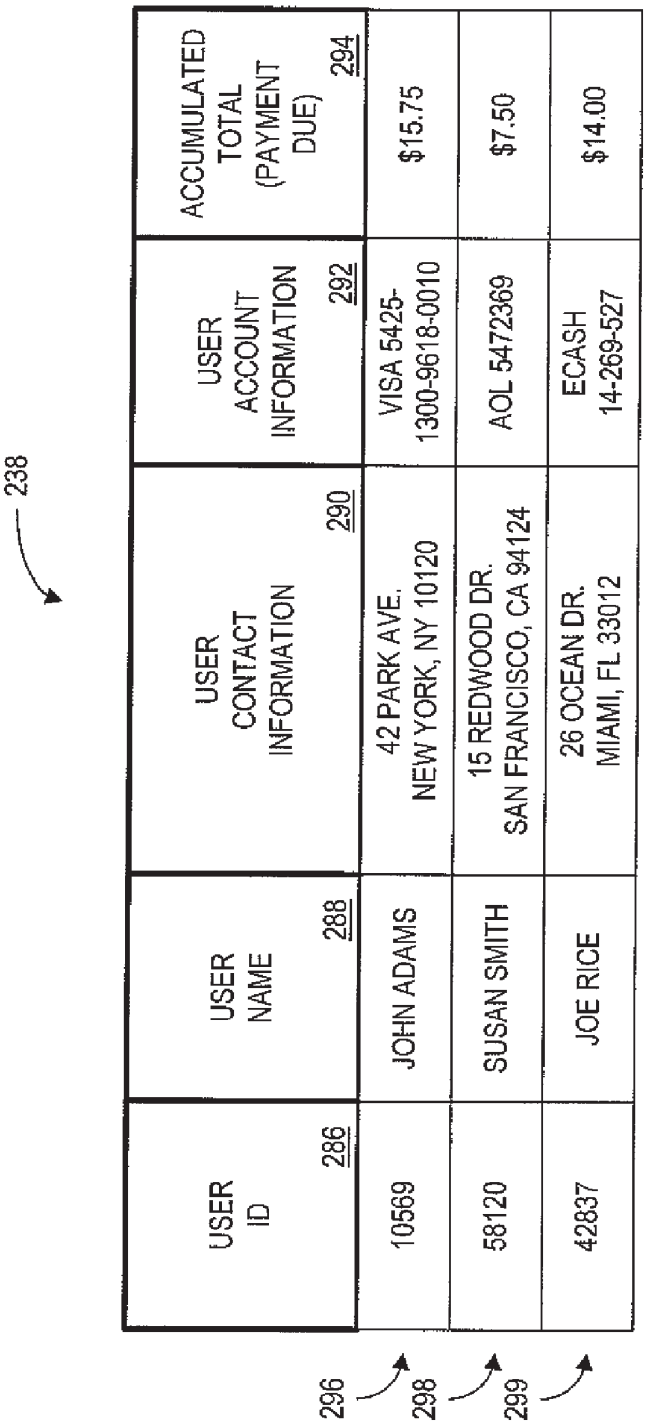
238
USER ID 286
USER NAME 288
USER CONTACT INFORMATION 290
USER ACCOUNT INFORMATION 292
ACCUMULATED TOTAL (PAYMENT DUE) 294
10569
JOHN ADAMS
42 PARK AVE. NEW YORK, NY 10120
VISA 5425-1300-9618-0010
$15.75
58120
SUSAN SMITH
15 REDWOOD DR. SAN FRANCISCO, CA 94124
AOL 5472369
$7.50
42837
JOE RICE
26 OCEAN DR. MIAMI, FL 33012
ECASH 14-269-527
$14.00
296
298
299

FIG. 7

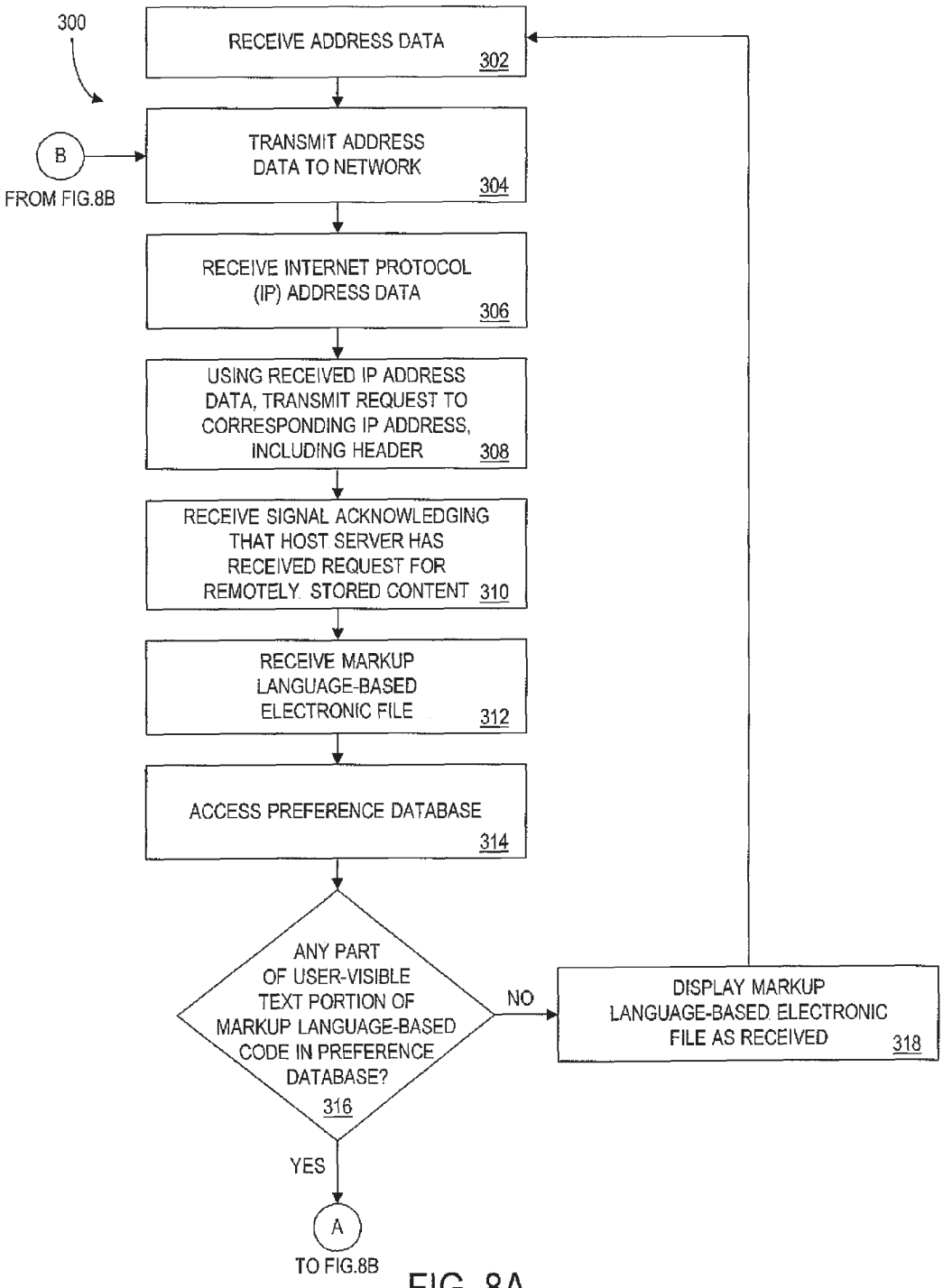
300
RECEIVE ADDRESS DATA 302
B
FROM FIG.8B
TRANSMIT ADDRESS DATA TO NETWORK 304
RECEIVE INTERNET PROTOCOL (IP) ADDRESS DATA 306
USING RECEIVED IP ADDRESS DATA, TRANSMIT REQUEST TO CORRESPONDING IP ADDRESS, INCLUDING HEADER 308
RECEIVE SIGNAL ACKNOWLEDGING THAT HOST SERVER HAS RECEIVED REQUEST FOR REMOTELY STORED CONTENT 310
RECEIVE MARKUP LANGUAGE-BASED ELECTRONIC FILE 312
ACCESS PREFERENCE DATABASE 314
ANY PART OF USER-VISIBLE TEXT PORTION OF MARKUP LANGUAGE-BASED CODE IN PREFERENCE DATABASE? 316
NO
DISPLAY MARKUP LANGUAGE-BASED ELECTRONIC FILE AS RECEIVED 318
YES
A
TO FIG.8B

FIG. 8A

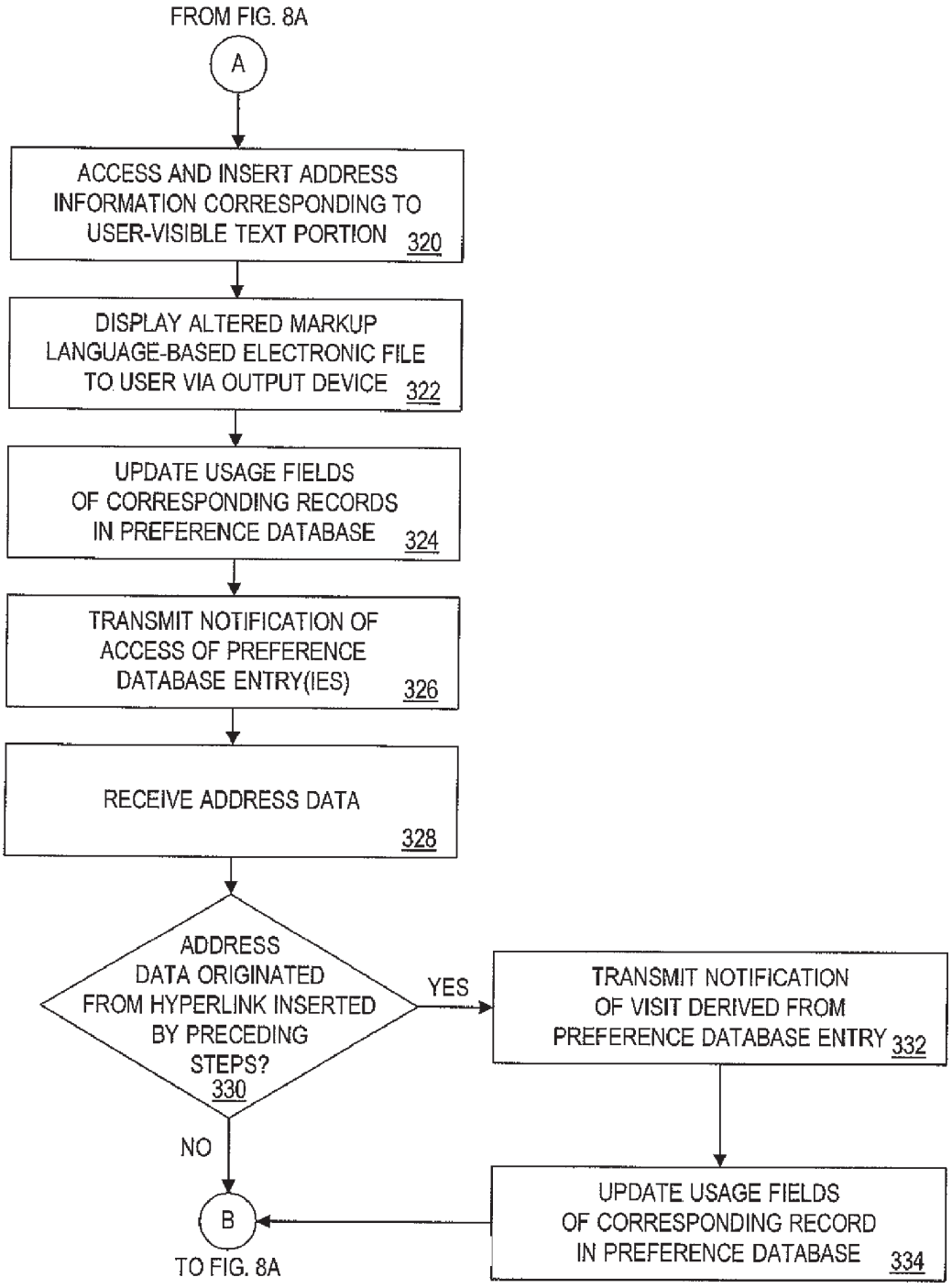
FROM FIG. 8A
A
ACCESS AND INSERT ADDRESS INFORMATION CORRESPONDING TO USER-VISIBLE TEXT PORTION 320
DISPLAY ALTERED MARKUP LANGUAGE-BASED ELECTRONIC FILE TO USER VIA OUTPUT DEVICE 322
UPDATE USAGE FIELDS OF CORRESPONDING RECORDS IN PREFERENCE DATABASE 324
TRANSMIT NOTIFICATION OF ACCESS OF PREFERENCE DATABASE ENTRY(IES) 326
RECEIVE ADDRESS DATA 328
ADDRESS DATA ORIGINATED FROM HYPERLINK INSERTED BY PRECEDING STEPS? 330
YES
TRANSMIT NOTIFICATION OF VISIT DERIVED FROM PREFERENCE DATABASE ENTRY 332
NO
B
TO FIG. 8A
UPDATE USAGE FIELDS OF CORRESPONDING RECORD IN PREFERENCE DATABASE 334

FIG. 8B

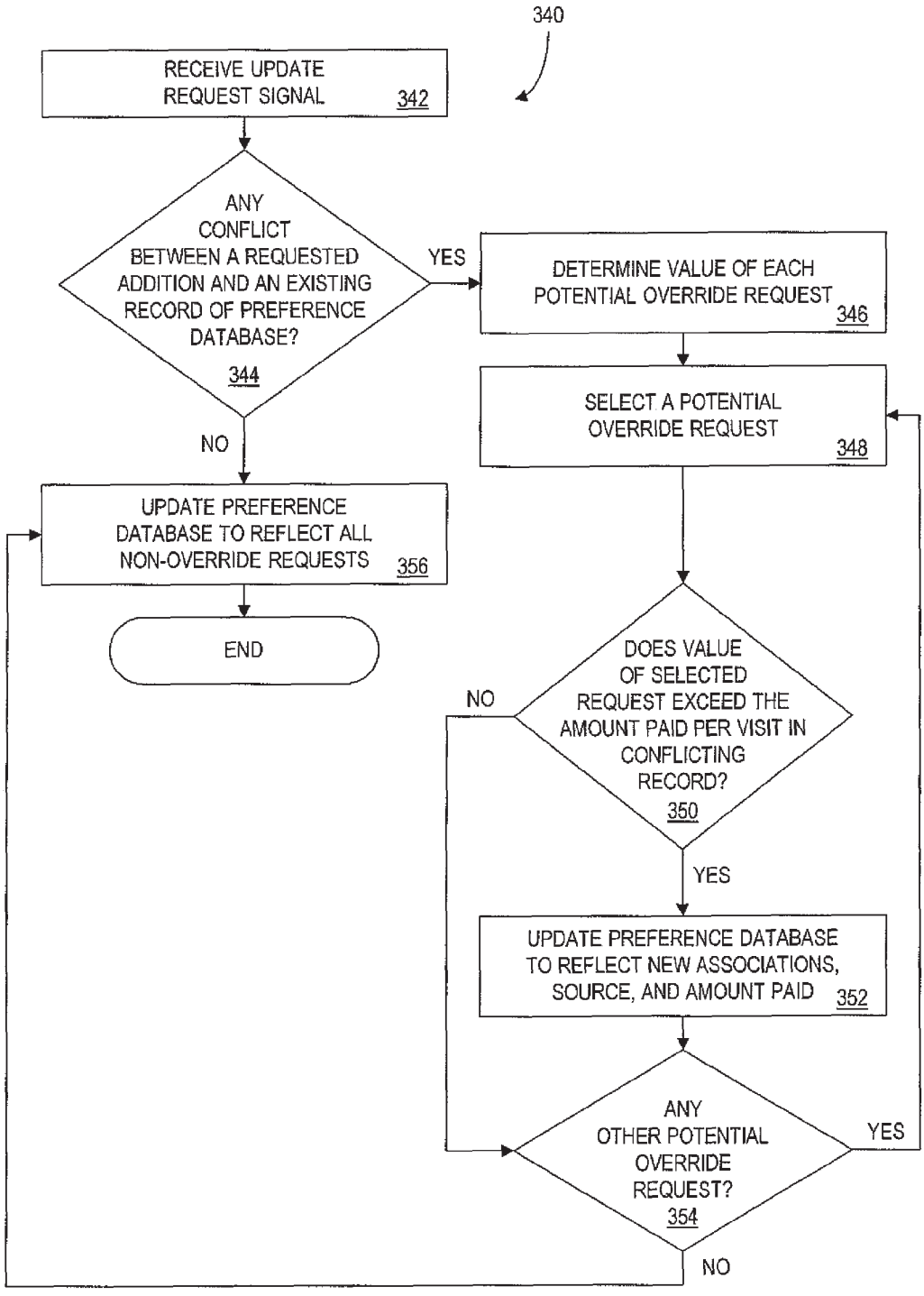
340
RECEIVE UPDATE REQUEST SIGNAL 342
ANY CONFLICT BETWEEN A REQUESTED ADDITION AND AN EXISTING RECORD OF PREFERENCE DATABASE? 344
YES
NO
DETERMINE VALUE OF EACH POTENTIAL OVERRIDE REQUEST 346
SELECT A POTENTIAL OVERRIDE REQUEST 348
DOES VALUE OF SELECTED REQUEST EXCEED THE AMOUNT PAID PER VISIT IN CONFLICTING RECORD? 350
NO
YES
UPDATE PREFERENCE DATABASE TO REFLECT NEW ASSOCIATIONS, SOURCE, AND AMOUNT PAID 352
ANY OTHER POTENTIAL OVERRIDE REQUEST? 354
YES
NO
UPDATE PREFERENCE DATABASE TO REFLECT ALL NON-OVERRIDE REQUESTS 356
END

FIG. 9

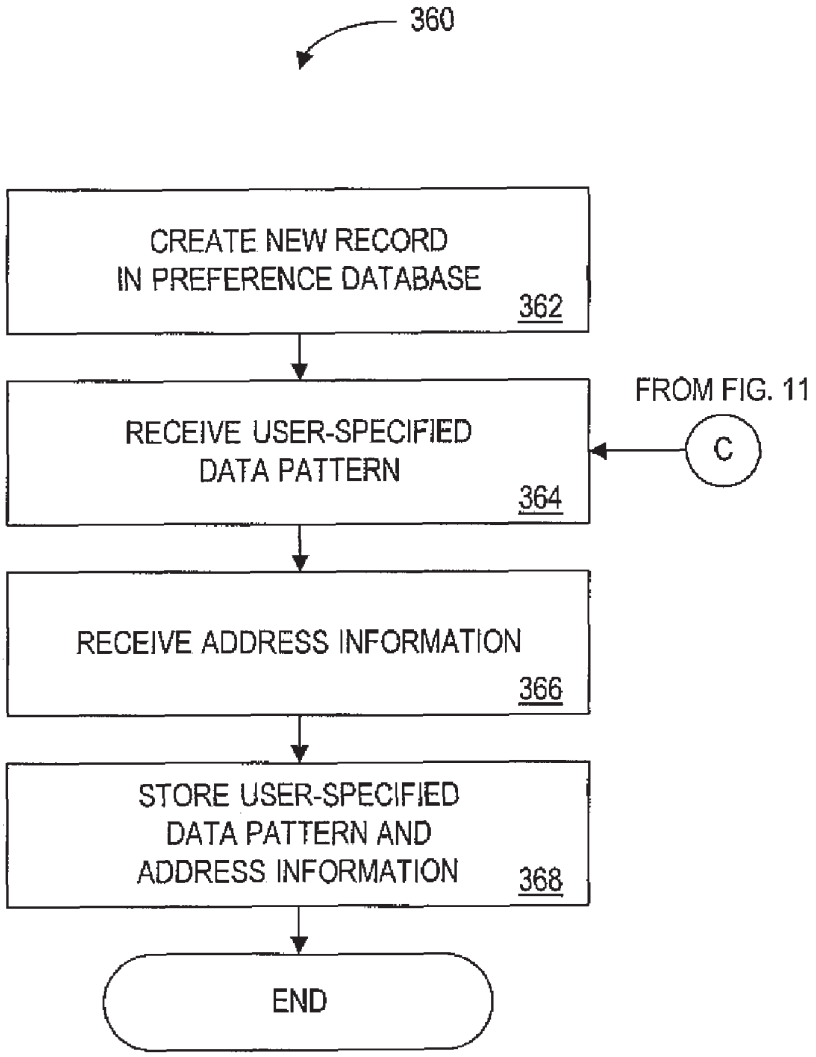
360
CREATE NEW RECORD IN PREFERENCE DATABASE
362
RECEIVE USER-SPECIFIED DATA PATTERN
364
FROM FIG. 11
C
RECEIVE ADDRESS INFORMATION
366
STORE USER-SPECIFIED DATA PATTERN AND ADDRESS INFORMATION
368
END

FIG. 10

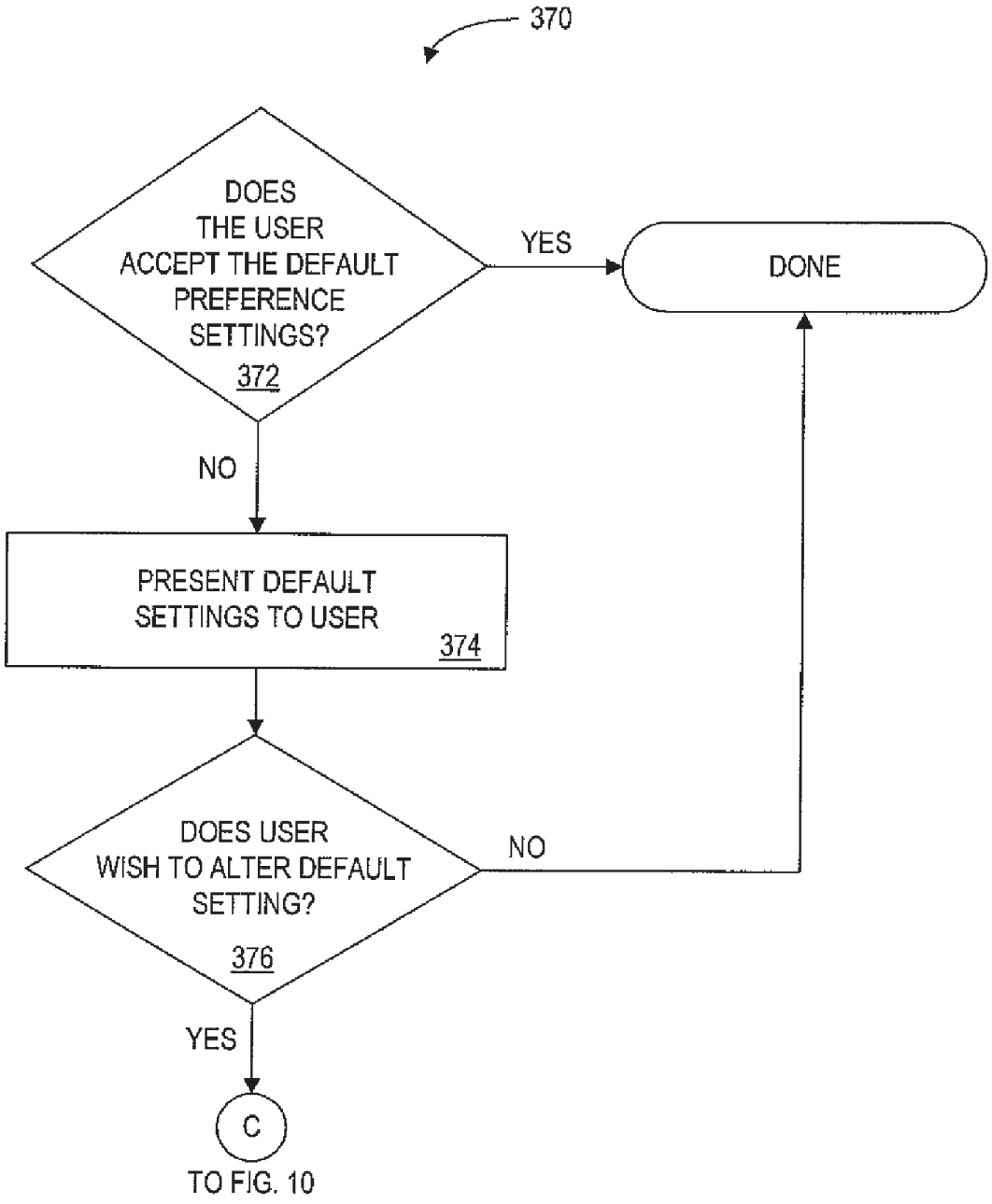
370
DOES THE USER ACCEPT THE DEFAULT PREFERENCE SETTINGS?
372
YES
DONE
NO
PRESENT DEFAULT SETTINGS TO USER
374
DOES USER WISH TO ALTER DEFAULT SETTING?
376
NO
YES
C
TO FIG. 10

FIG. 11

METHOD AND SYSTEM FOR PROVIDING A LINK IN AN ELECTRONIC FILE BEING PRESENTED TO A USER

CROSS-REFERENCES TO RELATED APPLICATIONS

The present application is a continuation of U.S. patent application No. 11/267,873, entitled "Method and System for Providing a Link in an Electronic File Being Presented to a User", filed Nov. 4, 2005 in the name of Walker et al;

which is a continuation-in-part of commonly-owned U.S. patent application No. 09/606,422, entitled "Method and System for Providing a Link in an Electronic File Being Presented to a User", filed Jun. 29, 2000 and now abandoned;

which claims the benefit of provisional U.S. Patent Application No. 60/202,390, entitled "Method and Apparatus for Displaying an Electronic File to a Requestor", filed on May 8, 2000.

Each of the above-referenced applications are incorporated herein by reference as part of the present disclosure.

The present application is related to now abandoned U.S. patent application Ser. No. 09/583,706, entitled "Method and System for Transmitting Data from a Destination to a User Over a Network Using a Variable Link", which was filed on May 31, 2000.

FIELD OF THE INVENTION

The invention relates to methods and systems for presenting electronic files to users. In particular, the invention relates to methods and systems for providing a link to a computer network resource in an electronic file being presented to a user.

BACKGROUND OF THE INVENTION

In recent years, the use of the Internet for a variety of purposes has expanded considerably. These purposes include research, communication, entertainment, and electronic commerce. As consumers and other users have connected to the Internet, commercial entities have increasingly sought to use the Internet as an advertising medium to present advertisements to those users.

Internet advertising methodology typically involves presenting banner advertisements (i.e., "banner ads") on documents retrieved from Web sites that experience high Volumes of Internet traffic. Banner ads may take a variety of forms, and often include a graphic displayed at a portion (e.g., the top) of a Web page. Banner ads may be managed by the administrator of a Web site or other entity (e.g., DoubleClick, Inc. of New York, N.Y.), and may be presented at times and/or under circumstances specified by the advertisers. Typically, an advertiser agrees to make a small payment to the administrator of a host Web site each time that a banner ad is presented to a user, and/or agrees to make a payment to the administrator whenever a user accesses the advertised content using the banner ad (e.g., by clicking on the banner ad using a mouse). Since different Web sites attract different segments of the consuming public, an advertiser often chooses to place its banner ads on particular Web sites based on an evaluation of which Web sites are likely to provide the greatest exposure to its potential customers.

At many Web sites, banner ads are presented to users in a "static" fashion, so that every user is presented with the same banner ads. At other Web sites, however, banner ads are presented to users in a "targeted" fashion, so that different users will be presented with different banner ads. For example, a Web site hosting a search utility may present a particular banner ad to a user based on the search terms entered by the user on the Web site. In this application, each potential advertiser may register for a particular keyword with the search utility such that, when a user enters a keyword on the Web site, the search utility will present the banner ad of the advertiser having registered for that keyword. For example, a casino resort may register the keyword "poker" such that a user who is searching for rules pertaining to a particular variation of poker may receive a tailored banner ad for the casino resort, along with the search results that were deemed to be pertinent by the search utility.

Although this form of Internet advertising has proven popular, it suffers from drawbacks. One drawback is that some advertisers who seek to advertise online have been unsuccessful in targeting their desired consumer audience. For example, some advertisers have been unable to find sufficiently popular Web sites that are relevant to the goods or services being advertised. Another drawback is that the cost of advertising through popular, well-known "portal" sites on the Internet, such as sites operated by large Internet service providers (e.g., AOL) or large searching/indexing services (e.g., EXCITE™, YAHOO!®, ALTAVISTA®, etc.), may be excessively expensive, particularly for a retailer of a wide range of products that wants to register many keywords, or for a retailer of a niche product who wants to advertise to a niche audience. Also, an advertiser may, because of budgetary or time constraints, choose only a subset of Web sites where its target consumers may be found. Further, Web site administrators may be burdened to tailor advertisements to each particular visitor, and may present advertisements indiscriminately or inefficiently, thereby reducing the value of these advertisements. Thus, current Internet advertising methods often fail to successfully connect advertisers with their targeted consumers.

There have also been proposals for collecting information about consumers in order to tailor advertisements and to deliver other content to the consumers based upon known or suspected preferences of the consumers. The proposals generally suggest collecting demographic information such as age, income, home address and occupation, and preference information such as favorite colors and preferred content delivery mode (e.g., audio or video). The information is then used to tailor delivery of information to the consumer by selecting from a variety of available content and advertisements provided by the Web site visited by the consumer or provided by an associated content or advertisement publisher. U.S. Pat. No. 5,717,923, issued Feb. 10, 1998 to Dedrick, discloses such an approach. Unfortunately, such approaches have not been widely used, perhaps due to the complexity and added effort required of a Web site administrator or Internet Service Provider ("ISP") to implement and administer such an arrangement, or due to privacy concerns arising from the use of consumer-specific information.

As part of efforts to optimize the interpretation and display of content posted on Web pages, Web browser software often provides a variety of "preference" settings by which a user may adjust various aspects of his or her browser software. These preferences may allow a user to control security settings of the browser software, to change the format of Web page display (e.g., color choices for displaying hyperlinks), or to change printing format(s). Browser software may also permit a user to store content received from a Web site, so that the content may be reviewed at a later time, or may be retrieved and manually modified (e.g., so the user can insert the content in a new file document or Web page). Browser

software may further support the installation of third-party enhancements or "plug ins" to expand functionality of the browser software.

One "plug in" for browser software, which is referred to as "Flyswat" and is available from Flyswat, Inc., may be used to enhance Web pages being viewed with browser software to incorporate hyperlinks not included in the originally-authored Web page. These hyperlinks, for example, may provide cross-referencing from a product name to a vendor of that product. All Flyswat users, however, receive the same set of hyperlink enhancements, and thus all of the users are treated identically, much as in the case of static banner ads originated by Web site administrators. Thus, this "plug-in" enhancement fails to adequately target consumers that are being sought by particular advertisers.

SUMMARY OF THE INVENTION

An objective of the invention is to improve on the prior art to facilitate a more accurate presentation of information to targeted users in order to improve the efficiency of use of the Internet and Web sites thereon by users, Web site administrators and third parties. This objective is applicable to a variety of purposes including delivering advertisements to targeted consumers, and providing users with customized cross-references to network resources.

The invention is based on Applicants' recognition that benefits may be realized by enabling a party other than the author or administrator of content to alter or manipulate the content in a customized manner for a user, prior to or as part of delivery or display of the content to the user. The content may be customized for an individual user, a user belonging to a particular category or class, or a user who belongs to a particular organization. In one embodiment, a Web browser processes the content retrieved by a user, based on a viewpoint defined for the user, to insert at least one hyperlink into that content. Each hyperlink provides the user with a linkage, or cross-reference to a computer network resource.

One embodiment of the invention provides a method for providing a link in an electronic file being presented to a user. The method includes defining a customized viewpoint for the user that includes a preference for the user. The preference for the user provides an association between a data pattern and a computer network resource. The method also includes generating a request for content, receiving an electronic file in response to the request, and evaluating the file to recognize a match between at least one portion of the file and the data pattern. Upon recognizing a match, the file is modified to include a link to the computer network resource associated with the matching data pattern, and the file is presented to the user.

Another embodiment provides a method for cross-referencing content of a first data structure to a computer network resource. The method includes defining a customized viewpoint for a user that includes a preference for the user, the preference for the user providing an association between a data pattern and a computer network resource, locating the data pattern in the first data structure, and generating a second data structure including a link indicating the network resource associated with the located data pattern.

Another embodiment of the invention provides a system for providing a link in an electronic file being presented to a user. The system includes means for defining a customized viewpoint for the user that includes a preference for the user that provides an association between a data pattern and a computer network resource. The system further includes means for generating a request for content, means for receiving an electronic file in response thereto, means for evaluating the file to recognize a match between a portion of the file and the data pattern, means for modifying the file upon recognizing a match to include a link to the network resource associated with the matching data pattern, and means for presenting the file to the user.

Another embodiment of the invention provides a system for cross-referencing content of a first data structure to a computer network resource. The system includes means for defining a customized viewpoint for a user that includes a preference for the user, the preference for the user providing an association between a data pattern and a computer network resource, means for locating the data pattern in the first data structure, and means for generating a second data structure including a link indicating the computer network resource that is associated with the located data pattern.

BRIEF DESCRIPTION OF THE DRAWINGS

The invention will become more fully understood from the following detailed description, taken in conjunction with the accompanying drawings, wherein like reference numerals refer to like parts, in which:

FIG. **1** is a flow chart representing an exemplary method for providing a link in an electronic file being presented to a user, in accordance with one embodiment of the present invention;

FIG. **2**A is a block diagram illustrating an exemplary computer network environment suitable for implementing the method shown in FIG. **1**;

FIG. **2**B is a block diagram illustrating an alternative computer network environment suitable for implementing the method shown in FIG. **1**;

FIG. **3** is a block diagram illustrating an exemplary computer system which can serve as any of the user devices shown in FIGS. **2**A and **2**B;

FIG. **4** is block diagram illustrating the Domain Name System server ("DNS server") shown in FIG. **2**A or Dial-up Server shown in FIG. **2**B;

FIG. **5** is a table representing an embodiment of the preference database of FIG. **3** or **4**, populated by sample values for illustration only;

FIG. **6** is a table representing an embodiment of the display code database of FIG. **3** or **4**, populated by sample values for illustration only;

FIG. **7** is a table representing an embodiment of the user account database of FIG. **4**, populated by sample values for illustration only;

FIGS. **8**A and **8**B combined are a flow chart of operations performed by the user device of FIG. **3** in modifying requested content;

FIG. **9** is a flow chart of operations performed in updating the preference database of FIG. **5** in response to a user's acceptance of an offer;

FIG. **10** is a flow chart of an alternative method for updating the preference database in response to a user's manual modifications; and

FIG. **11** is a flow chart of an alternative method for updating the preference database of FIG. **5** as part of the installation of a Web browser.

DETAILED DESCRIPTION

Definitions

For the convenience of the reader in understanding the detailed description of the invention which follows, the fol-

lowing glossary provides definitions for various terms and acronyms used throughout the specification:

"Association" refers to a relationship between one object and another object, such as a relationship between a data pattern and the address (e.g., Uniform Resource Locator or "URL") of a computer network resource.

"Browser" refers to a computer program operable to access and display content. A browser operable to access and display content that resides on the World Wide Web is referred to as a "Web browser". A browser can typically access and display data formatted as hypertext, plain text, file lists accessible via the File Transfer Protocol ("FTP"), graphics, audio, multimedia, and other formats. A browser is also operable to access a computer network resource via activation of a hyperlink to that network resource.

"Computer network resource" refers to a resource available on a computer network. An example of a computer network resource includes, for example, a file, a Web page or site, an application, an applet, a script, etc. Each computer network resource is typically identified by an address (e.g., a "URL"), which can be associated with a hyperlink to provide a linkage or cross-reference to that particular resource.

"Content" refers to data (e.g., graphics, text, audio, video, a program, a file, a Web page, etc.) that is available from a computer server.

"Data pattern" refers to a recognizable arrangement of data that may be found in a requested electronic file. Typical data patterns may include one or more keywords, text patterns, graphic patterns, or other data patterns.

A "hyperlink" (also referred to as a "link") refers to a graphic, text or program element in a hypertext document that provides a linkage to a computer network resource. A text hyperlink is typically displayed using text of a predetermined color (e.g., blue) and/or attribute (e.g., underlining). A graphic hyperlink may be indicated by a graphic image. Hyperlinks are often used to provide linkages between Web pages or files.

"Markup Language" refers to a set of codes or tags embedded in a file that instruct a computer how to format the file for purposes of printing or display, as well as how to index and link the content of the file. A markup language, as presented, may incorporate a combination of files comprising graphics, text, programs, and/or cross-references. Markup languages include the Hypertext Markup Language (HTML), SGML, XML, VRML and NRML.

"Preference", used in the context of a viewpoint (as defined below), refers to an association made between one or more data patterns and a computer network resource. The network resource may be a Web page or site, an application, an applet, a script, or another resource, and the association may be between one or more data patterns and the address or URL of the resource.

"Uniform Resource Locator" or "URL" refers to an address for use in accessing a computer network resource on the Internet or other network. The address of a computer network resource is typically provided by its URL.

"Viewpoint" refers to a set of one or more preferences for a user. A viewpoint is used by a browser or other computer program to modify content delivered to a user by including a hyperlink to a computer network resource associated with any matching data pattern found within the content.

Exemplary Use

As a non-limiting, exemplary use of the invention, an advertiser seeking to target consumers may create one or more preferences, each defining an association between a computer network resource of that advertiser (e.g., a Web site where that advertiser's products are sold) and relevant data patterns. For example, a book retailer may create a preference providing an association between the title of a book, the name of an author and/or the word "book", and the address or URL of a Web page of that retailer's Web site where the book, a book by that author, or books in general, may be purchased. The retailer could then target advertisements to frequent book buyers by causing the insertion of these book-related preferences only into viewpoints used by frequent book buyers. At the same time, a movie retailer may create a preference providing an association between the title of a movie, the name of an actress and/or the word "movie", and the address of that retailer's Web site where that movie, a movie starring that actress, or movies in general, may be purchased. The movie retailer could then target advertisements by causing the insertion of the movie-related preferences into viewpoints used by other users. Customized viewpoints are thus defined for both sets of potential purchasers, with the viewpoints used by the frequent book buyers being customized to include the preferences from the book retailer, and the viewpoints used by the other users being customized to include the preferences from the movie retailer.

Using these customized viewpoints, the frequent book buyers will be provided with links to the book retailer in their retrieved content, while the other users will be provided with links to the movie retailer in their retrieved content, even in response to the same data pattern appearing in their retrieved content. As an example, assume that the book retailer stocks a book entitled "The Committee" by Mike Nugent, and the movie retailer stocks a movie of the same title. The book retailer may provide a preference defining an association between the data pattern "The Committee" and its Web site ("www.bookstore.com"), and insert this preference into the viewpoints used by the frequent book buyers. The movie retailer may provide a preference defining an association between the same data pattern (i.e., "The Committee") and its Web site, and insert this preference into the viewpoints used by the other users. If one of the frequent book buyers then requests a Web page including the data pattern "The Committee", he or she will be presented with a hyperlink to the Web site for the book retailer If one of the other users requests that same Web page, however, he or she will be presented with a hyperlink to the Web site for the movie retailer. Thus, the hyperlink presented to each user depends on the customized viewpoint for that user. (Note that the extra spaces in the URL addresses in this application prevent the URLs from being interpreted as embedded hyperlinks when this application is viewed.)

In this example, each retailer caused the insertion of the book- or movie-related preferences into the viewpoints used by frequent book buyers or other users. In one embodiment, the retailers may each have caused these insertions by offering money or other consideration to users to have the users agree to include the preferences into their own viewpoints. Each user was thus able to "customize" his or her viewpoint by deciding which offers to accept.

Description of Specific Embodiments

Referring to FIG. **1**, a method **10** for providing a link in an electronic file being presented to a user includes defining a customized viewpoint for a user that include's a preference for the user, with the preference providing an association between a data pattern and a computer network resource (step **12**), generating a request for content (step **14**), and receiving an electronic file in response to the request (step **16**). Method

10 further includes evaluating the electronic file to recognize a match between at least a portion of the file and the data pattern (step 18). If no match is found, the electronic file is presented (e.g., displayed) to the user without being modified (step 20). However, upon recognizing a match at step 18, the electronic file is modified to include a link to the computer network resource that is associated with the matching data pattern in accordance with the preference (step 22), and the modified file is presented to the user (step 24). The viewpoint for the user may include one or more preferences, each preference providing an association between one or more data patterns and a computer network resource.

At step 12, a customized viewpoint for a user that includes at least one preference can be defined in a variety of ways. In one embodiment, a customized viewpoint for a user is defined by a preference database stored at the user's computer. The preference database includes at least one preference, each defining an association between at least one data pattern and a computer network resource such as a Web page, a Web site, an application, an applet, a script, etc. When the user's computer receives an electronic file at step 16, the file may include one or more data patterns that match one or more of the data patterns stored in the preference database. Each matching data pattern is used to insert, into the file, a hyperlink to the computer network resource associated with the matching data pattern by a preference. Hypertext markup language, for example, may be used to insert such a hyperlink into the retrieved content.

A viewpoint may be "customized" for a user such that the viewpoint defined for the user may differ from another viewpoint defined for another user. Thus, a viewpoint may be customized for an individual user, or for a user belonging to a particular category, class, organization or other group of users. A viewpoint may be customized for a user in various ways. In one embodiment, a viewpoint is selected for a user from among a plurality of viewpoints based upon data that identifies the user, or based upon data that is provided by the user. For example, a viewpoint customized for frequent book buyers may be selected in response to a user entering information indicating an interest in buying books. According to another example, a user can use an input device to select a customized viewpoint from among a plurality of viewpoints stored on his or her computer, such as a first viewpoint providing at least one book-related preference and a second viewpoint providing at least one movie-related preference. These viewpoints may, for example, have been incorporated within the user's Web browser, or may have been installed at another time. Then, the user may use an input device to select the viewpoint that the user prefers. If the user prefers books to movies, the user may select the viewpoint providing the book-related preferences. The selected viewpoint may then be used for inserting hyperlinks into the content received by the user.

In another embodiment, an organization may establish one or more customized viewpoints to facilitate the ability of its members to conduct the business of the organization. For example, a corporation may establish a first viewpoint for use by its sales agents, and a second viewpoint for use by its engineers. The viewpoint selected for a particular user then depends on the category or class of users to which that user belongs. For example, the first viewpoint could be customized to include preferences defining associations between inventory item names and hyperlinks to the Web sites of particular suppliers from which the corporation typically buys such items, such that the sales agents would be provided with hyperlinks to these suppliers within any received content. The second viewpoint could be customized to include preferences defining associations between engineering keywords and links to corporate engineering specifications, so that the engineers would be provided with hyperlinks to these specifications within any received content. Schools, churches and other organizations could also establish one or more viewpoints for the use of its members. Viewpoints may also be customized based upon a characteristic of the user. For example, a chamber of commerce for a town could customize a viewpoint to include preferences defining associations between keywords (e.g., "restaurants") and network resources providing information about local businesses (e.g., "Joe's Pizza"). This viewpoint could be selected to provide local users with hyperlinks to the local businesses based on, for example, the zip code of the user, or the users' ISP for Internet access.

In another embodiment, viewpoints are automatically assigned to users. For example, data identifying the viewpoint selected for a user may be stored in a "cookie" file in the user's computer to allow the selected viewpoint to be automatically retrieved without interaction with the user. For another example, a viewpoint may be assigned automatically to a user based upon data about that user, such as data about the user's browsing history (e.g., if data indicates that a user frequently accesses book-related Web sites, then a viewpoint providing book-related preferences could be automatically assigned to the user). A viewpoint could also be automatically assigned to a user based upon other data associated with that user, such as demographic data (e.g., age, gender, address, occupation, income, interests, hobbies, etc. of that user).

The establishment of viewpoints and manipulation of content to include links to computer network resources associated with data patterns may be performed by a user's computer (e.g., a personal computer, personal digital assistant ("PDA"), a television with access to a wide area network, a computer terminal, etc.), or may be performed in whole or in part by a second computer in communication with the user's computer via a network (e.g., a local area network, a wireless network, a wide area network, a public switched telephone network, the Internet, etc.). For example, if a user receives content via a server operated by an ISP, that server can store viewpoints and/or manipulate content before providing that content to the user. Alternatively, a user can configure his computer system to allow any retrieved content to be processed by a third-party server, other than the user's ISP server. In another alternative, the user's ISP server, or a third-party server, stores viewpoints, which may be retrieved by the user's computer and used to manipulate content retrieved by the user.

In one embodiment, the retrieved content is user-displayable. In other embodiments, the retrieved content may be data that is not intended for user display, such as a database, an applet or a script (e.g., based upon the Java standard). In embodiments where the retrieved content is not displayed, links may also be inserted into the retrieved content so that they may be used by the recipient as part of evaluating the data, or executing the applet or script. For example, if content retrieved by a user includes an applet which will play a first sound (stored in file named "firstsound.au") according to the AudioClip interface in the Java applet package, the user's viewpoint could associate the first sound with a second sound (e.g., stored in a file "secondsound.au") such that, when the applet executes, the second sound is played rather than the first.

As links are inserted into retrieved content, an identification of the originator of the link may be provided in a tag of the link. The originator may be, for example, a party such as an advertiser or other commercial entity that established the viewpoint. The originator may also be a person, computer

system, or browser that manually or automatically established the viewpoint. For example, a commercial entity seeking to establish a viewpoint may solicit a user to alter the user's viewpoint to include one or more added or alternate preferences in exchange for a payment, merchandise credit, discount, coupon or other benefit (e.g., a sweepstakes entry). After the user authorizes the alteration, hyperlinks may be inserted into content that is retrieved by the user in accordance with the altered preferences. Modifications may be solicited from other parties (e.g., a party that created the viewpoint or a prior preference, or that stores the viewpoint).

As links are generated and used, usage fields in a preference database may be updated to reflect the number of times that a hyperlink has been generated based upon a particular preference. The database may also be updated to reflect the number of times that a hyperlink generated from a particular preference has been used. The usage information can be used to delete, deactivate or otherwise change the status of the corresponding preference in the preference database after a predetermined number of uses. For example, a preference may be disabled once it has been used to insert twenty (20) hyperlinks into received content, or after a user has activated a hyperlink included within received content due to the preference a total of ten (10) times.

Preferences may also "age", such that their status changes with time. For example, an advertiser may offer to pay a user an amount of money in exchange for the user's agreement to include a particular preference in her viewpoint for a predetermined period of time. If the user accepts the offer, the preference is inserted into her viewpoint for use during that period, after which the preference is disabled. A commercial entity that solicits the inclusion of a particular preference may condition delivery of the offered payment, credit, discount, coupon or other benefit upon use of that preference for a predefined time period, the generation of a predetermined number of hyperlinks using the preference, a predetermined number of uses of hyperlinks generated by the preference, and/or use of the link for a specific purpose (e.g., a purchase).

Other information for each preference may also be stored in the preference database. For example, a geographic location may be identified to indicate where a preference may or may not be used. Exclusionary criteria may identify retrieved content for which a preference may not be used. One or more monetary values may be indicated, identifying a value for placement of the preference in the database, a value for insertion of a link derived from the preference, or a value for use of a hyperlink derived from the preference. The latter can be used to automatically create or provide payments, credits, discounts, coupons or other benefits that are due for the insertion of preferences, generation of links from preferences, or the use of links generated from preferences. Thus, the party that established a preference may be notified upon use of (i) the preference or (ii) a link derived therefrom, which may lead to an exchange of monetary value.

A given data pattern may be associated with multiple computer network resources. For example, multiple associations may occur if multiple commercial entities solicited the insertion of preferences into a viewpoint. In this situation, when the given data pattern is found in retrieved content, one of the preferences is selected, in a predetermined fashion or at random, with a link defined by the selected preference inserted into the content. Alternatively, an applet may be inserted into the content, permitting the user to select from among the multiple available associations for the matched data pattern.

In one embodiment, the invention is implemented in the form of a Web browser that is capable of dynamically providing hyperlinks in an electronic file being presented to a user. The browser resides locally within a user device, such as a personal computer, and is associated with a viewpoint which is customized for the user to include at least one preference for the user. The viewpoint may be implemented, for example, using a preference database for storing one or more preferences for the user. Each of the preferences provides an association between one or more data patterns and a computer network resource, such as a Web site, Web page, document, applet or script.

In response to receiving a request from a user to retrieve markup language-based electronic content, the browser performs a content retrieval routine. The content retrieval routine causes the browser to identify and access markup language-based electronic content identified by the user. Upon retrieval of the identified content, the browser examines the content for one or more data patterns defined by the viewpoint for the user. As a specific example, the browser evaluates the user-viewable text portion of the content and performs comparisons between the text found in this portion and one or more patterns identified by the preference database for the user's viewpoint. If the comparison yields a match between a data pattern stored in the preference database and a data portion of the requested content, the preference database is again accessed to retrieve an address or URL of a computer network resource that is associated with the matching data pattern. A hyperlink based upon this address is then incorporated into the content at or near the location of the matching data pattern, thereby altering the user-viewable text to reflect the hyperlink. The requested content, altered by incorporating any supplemental hyperlinks, is then stored and presented to the user by the user device.

In one embodiment, the indication of the hyperlink presented to the user represents the matched data pattern or keyword. Thus, the user may be presented with a hyperlink including the matched data pattern (e.g., "The Committee"), which appears in place of the text (e.g., "The Committee") in the unmodified electronic file. By activating the hyperlink, the user may be connected to the home page of the computer network resource (e.g., "www.bookstore.com"), or to a specific Web page of that computer network resource, that is associated with the matching data pattern (e.g., "www. bookstore. com/The_Committee"). The user may then purchase the book directly from that specific Web page in a known manner.

The preferences stored in the preference database that provide associations between data patterns and addresses of corresponding computer network resources, and which establish a viewpoint for use by a user, may be established by a publisher/developer of the Web browser, a user/installer of the browser, a third party such as an online merchant, service provider or portal type Web site wishing to influence Web traffic, and/or an administrator that wishes to establish certain associations for members of an organization, etc. The respective processes, and motivations for generating associations within the preference database, by the parties listed above are described below.

Additionally, it is envisioned that the disclosed Web browser may facilitate the provision of benefits to users and/or service providers in exchange for allowing the preference database to be updated by third parties. The benefits may be provided merely for allowing the preference database to be updated, in response to hyperlinks being generated based upon the updates, and/or in response to users activating the hyperlinks specified by the updates. The third party may be, for example, a service provider, an online merchant, or a

portal-type Web site. The benefits provided to a user and/or service provider may include monetary payments, discounts and/or promotional offers.

Alternatively, benefits may be provided in exchange for allowing the installation of a software "plug-in", module or upgrade. A "plug-in" is an auxiliary software program used to enhance a browser to permit the access and display of additional file formats, such as Portable Document Format ("PDF"), Tagged Image File Format ("TIFF"), etc. An exemplary process by which benefits are provided is described in relation to FIG. **9**.

Method **10** can be implemented in various computer network systems such as the two network systems shown in FIGS. **2**A and **2**B. It will be understood by a person of skill in the art, however, that these two systems are merely illustrative examples of computer network systems in which method **10** may be implemented, and that method **10** may also be implemented in other computer network systems having other combinations of components.

Referring to FIG. **2**A, method **10** can be implemented using a computer network **100** including a plurality of user devices **110**, **120** and **130**, with each user device residing at a node of a local area network ("LAN") **132**. LAN **132** is a network of computers that exchange data, and share a common access portal to the Internet **160**. Network **100** may include more or fewer than the three (3) user devices shown. Each user device **110**-**130** may include a personal computer, a personal digital assistant (PDA), a WebTV™ terminal, an Internet appliance, a cellular phone, or another device operative to communicate over a network, and to request, receive and present markup language-based files.

Each user device **110**, **120** and **130** can generate a request for electronic content (step **14** of method **10**), with the electronic content typically accessed based upon the address of that content, as is known in the art. In one embodiment, a user initiates a request for electronic content by entering (e.g., typing) its URL into an address bar area of the user interface of his or her Web browser. Then, the user device generates a request for the addressed content. For example, to initiate a request for book reviews on a Web page hosted on a Web server run by a newspaper (e.g., "City Times"), a user may enter the URL "www. citytimes. com/bookreviews" into the address bar area of the user's Web browser. A user may, alternatively, initiate a request for content by activating a hyperlink that has been presented to the user by user device **110**, **120** or **130**. For example, a user may activate a hyperlink (e.g., by "clicking" a mouse on the hyperlink) to initiate a request to retrieve the book reviews from the newspaper's Web server. In either case, the user device would generate an appropriate request for the content, which is communicated to a Domain Name System server ("DNS server") **142** via LAN **132** for evaluation by DNS **142**. DNS server **142** is a computer server that operates name resolution software that allows users to locate computers on the Internet by their domain names.

As known in the art, DNS server **142** evaluates each requested address received from any of user devices **110**, **120** or **130**, and determines if the requested content must be accessed via a Wide Area Network ("WAN"), such as Internet **160**. If the requested content must be accessed via Internet **160**, the request is delivered via LAN **132** to a local router **144** for delivery to Internet **160**. A router is an intermediary device in a communications network that facilitates the delivery of messages from transmitting to receiving devices. Internet routing protocols cause the request to be delivered to a host Web server **140** via a remote router **150**. Web server **140** accesses the requested content and returns an electronic file containing that content to router **144** via router **150** and Internet **160**. Router **144** relays the file to user device **10**, **120** or **130** for presentation to the user. Thus, the user device **110**, **120** or **130** receives the electronic file in response to the request (step **16** of method **10**).

Upon receipt of the electronic file, but before displaying the file to the user, the Web browser causes user device **110**, **120** or **130** to evaluate the file to recognize any match between at least a portion of the file and any data pattern stored as a preference by the browser (step **18** of method **10**). If no match is found, the electronic file is presented (e.g., displayed) to the user without modification (step **20**). However, upon recognizing a match, the user device modifies the file by including a hyperlink to a computer network resource that is associated with the matching data pattern by the preference (step **22**), and then presents (e.g., displays) the modified electronic file to the user (step **24**).

For example, after receiving an electronic file for the book review page from the newspaper's Web site, the user device may evaluate the user-viewable text portion of that file to recognize any match between any portion of the Web page and any of the data patterns stored as a preference for the user. In this example, assume that the customized viewpoint for the user includes a preference providing an association between the two data patterns "book" and "The Committee", and the address of an online book retailer (e.g., "www.bookstore-.com"). If no match is found, the electronic file is presented to the user without modification. However, if a match is found (e.g., "The Committee" is found in the content), the user device modifies the file by inserting a hyperlink to a computer network resource associated with the matched data pattern (e.g., "www. bookstore. com") and presents the modified file to the user with an indication of the hyperlink. If the user activates this link (e.g., by clicking on the link with a mouse), he or she may be connected to "www. bookstore. com", where the book "The Committee" can be purchased.

Referring to FIG. **2**B, method **10** of FIG. **1** may also be implemented by a second computer network **170**, wherein each user device **110**, **120** and **130** can access Internet **160** via a dial-up account, in a known manner. Each of the user devices accesses a dial-up server **175** via a telephone connection of a Public Switched Telephone Network ("PSTN") **178**. Typically, dial-up server **175** is maintained by an Internet service provider ("ISP"), such as "AMERICA ONLINE". Each user device uses a modem or other communication interface, and dial-up networking software, to communicate with dial-up server **175**. Each user device may be a personal computer, a PDA, a WebTV™ terminal, a phone or other device to access a dial-up account, and to request, receive and present markup language-based content. Any or all of user devices **110**, **120**, **130** may alternatively access Internet **160** via other communication interfaces, such as Digital Subscriber Line ("DSL") and/or cable modem interfaces.

In computer network **170**, each user device **110**, **120**, **130** can generate a request for the delivery of electronic content (step **14** of method **10**), typically in the form of a URL, as is known in the art. Each request is delivered to dial-up server **175**, which evaluates the requested URL and determines if the requested content must be accessed through a Wide Area Network (WAN) such as the Internet **160**. If so, the request is delivered to Internet **160**. Internet routing protocols cause the request to be delivered to a host Web server **140** via remote router **150** and a proxy server **180**. In response, Web server **140** accesses and returns the requested content via proxy server **180**, router **150** and Internet **160** to dial-up server **175**, which relays an electronic file for the requested content to the requesting user device. Thus, that user device receives the

electronic file in response to the request (step **16** of method **10**). In contrast to the arrangement shown in FIG. **2**A, the requests are delivered to Web server **140** via proxy server **180**, which translates the addresses used by Internet **160** to addresses used by Web server **140**, and thus insulates the addresses used by Web server **140** from external access. A proxy server similar to proxy server **180** could also be used in network **100** between Web server **140** and router **150**, or between the user devices and router **144**.

As in the embodiment shown in FIG. **2**A, upon receipt of the electronic file but before displaying the file to the user (or before re-displaying the file to the user, as in a re-load or automatic refresh cycle), a Web browser causes the user device to attempt to recognize a match between at least a portion of the file and any data pattern stored as a preference by the browser (step **18**). For example, the user device may determine if at least a portion of text in the user-viewable portion of the file matches a data pattern stored as a preference by the browser. If no match is found, the file is displayed to the user without modification (step **20**). Upon recognizing a match, however, the user device modifies the file to include a hyperlink to a network resource associated with the matching data pattern (step **22**), and presents the modified file to the user (step **24**).

Referring to FIG. **3**, one embodiment of each of user device **110**, **120** and **130** includes a processor **200** (e.g., a CPU or central controller) for executing instructions of computer programs and controlling operation of the user device **110**, **120** or **130**. Processor **200** has access to memory **202**, such as random-access memory (RAM) and/or read-only memory (ROM) for storing programs, data, variables, and/or a basic input-output system (BIOS). Processor **200** receives input data from one or more input devices **204**, and transmits output data to one or more output devices. Each input device **204** may include a mouse, a keyboard, a touch-screen, a microphone, a digital camera, a clock, etc. Each output device **206** may include a computer monitor, an audio circuit/speakers, a printer, etc. Processor **200** communicates with networked computers via a communication device **208**. Device **208** may include a network interface card ("NIC") coupled to a LAN as in FIG. **2**A, a modem in a dial-up embodiment such as in FIG. **2**B, or another type of communication device or interface.

Processor **200** has access to a mass storage device **210** for storing objects such as programs and data. The stored objects may include an operating system ("OS") **212**, a Web browser **214**, a preference database **216**, and a display code database **218**. OS **212** may be, for example, MICROSOFT WINDOWS®, Linux, MAC O/S, UNIX, or another operating system.

In one embodiment, Web browser **214** provides functionality for inserting hyperlinks into retrieved electronic files. In particular, by executing instruction of Web browser **214**, processor **200** is operable to generate a request for content (e.g., a markup language-based electronic file) from a Web server, and to receive, modify and present the requested content to a user. Processor **200** accesses preference database **216**, which includes one or more records for storing one or more preferences. Each preference provides an association between one or more pre-registered data patterns (e.g., words, phrases and/or graphics that may occur in markup language-based files) and an address of a corresponding computer network resource. When processor **200** finds that the requested content includes a data pattern stored in preference database **216**, it inserts a hyperlink to the network resource associated with the matching data pattern (step **22** of method **10**). In one embodiment, the hyperlink is inserted in a manner which depends on a code stored in display code database **218**, as described below.

Referring to FIG. **4**, DNS server **142** (FIG. **2**A) and dial-up server **175** (FIG. **2**B) each may include a processor **220** to execute instructions of computer programs and to control operations of the respective server. Processor **220** has access to a memory **222**, such as random access memory (RAM) or read only memory (ROM), for storage of computer programs, data and a basic input-output system (BIOS). Processor **220** receives input data from one or more input devices **224**, and transmits output data to one or more output devices **226**. Each input device **224** may include a mouse, a keyboard, a touch-screen, a microphone, a digital camera, a clock, etc. Each output device **226** may include a computer monitor, an audio circuit and speakers, a printer, etc. Processor **220** also communicates with networked computers via one or more communication device(s) **228**. Device(s) **228** may include a network interface card (NIC) in a LAN embodiment such as shown in FIG. **2**A, or one or more modems in a dial-up embodiment as shown in FIG. **2**B.

Processor **220** has access to a mass storage device **230** which is configured to store objects such as programs and data. The objects stored on storage device **230** may include an operating system ("OS") **232** suitable for a network server. For example, OS **232** may be "MICROSOFT WINDOWS® NT", Linux, Unix, "NOVELL NETWARE", or another suitable operating system. Mass storage device **230** also stores shared file structures used by computers on the network, which may include documents of various forms created and shared by the members of the workgroup using the network. In one embodiment, the shared file structures include a preference database **234**, a display code database **236**, and a user account database **238**. Each of these databases is accessible to processor **220** and other computers on the network.

Preference database **234**, similar to preference database **216** (FIG. **3**), includes one or more records for storing one or more preferences. Each preference provides an association between one or more pre-registered data patterns (e.g., words, phrases and/or graphics that may occur in markup language-based files) and the address of a corresponding computer network resource. The preferences stored in preference database **234** at DNS server **142** or dial-up server **175** are accessible to multiple users, each of whom may also have a separate preference database **216** stored on his or her user device. By storing preferences in server **142** or **175**, the preferences may be provided to all of the members of a workgroup who are connected to server **142** or **175**. The preferences stored within preference database **234** may be modified, for example, by a person responsible for managing the preferences for the entire workgroup (e.g., a manager, or an Information Technology employee). These preferences may also be modified by each user, if given permission to do so. If, however, a user wishes to add a preference for only his or her own use, the preference may be stored in preference database **216** rather than database **234**. In that case, the user's Web browser **214** may retrieve preferences from both locally-stored preference database **216** and shared preference database **234**.

In one embodiment, all of the preferences of a particular user are stored in preference database **234** of DNS server **142** or dial-up server **175**. In this embodiment, all of the user's preferences are centralized in server **142** or **175**, such that the user may use all of his or her preferences even with different user devices. In this embodiment, a user logging into the network software of server **142** or **175** could be provided with

access to his or her preference database based upon a login identifier associated with that user.

When processor **200** or **220** determines that content requested by a user includes one of the data patterns stored within preference database **234**, a hyperlink to the computer network resource that is associated with the matching data pattern is inserted in the electronic file for that content. In one embodiment, the hyperlink is inserted in a manner which depends on a display code stored within display code database **236**, which is similar to display code database **218** (FIG. **3**). The manner in which this occurs is described below.

In one embodiment, user account database **238** is provided for storing account data for users. User account database **238** is used for tracking the amount of payments or other benefits due to users in response to the use of preferences stored in preference database **216** or **234**. For example, whenever user device **110**, **120** or **130** inserts a hyperlink based on a preference into an electronic file being retrieved by a user device, and/or the user activates a hyperlink inserted within a file based upon a preference, the user device transmits an indication to DNS server **142** or dial-up server **175**. That server then updates user account database **238** to reflect any additional payment or benefit due to the user. At the end of a billing cycle, the accumulated total of payments due to each user stored within user account database **238** is accessed to provide payment to each user. User account database **238** can also accumulate payments that are due to users for accepting offers to include preferences in their viewpoints.

Referring to FIG. **5**, an exemplary structure of preference database **216** and/or **234** includes a plurality of records **260**-**272**. Each record **260**-**272** includes a plurality of fields **240**-**254**, and defines one preference. For each record **260**-**272**, fields **240**-**254** include N data pattern fields **240**A-**240**N, an address information field **242**, a display code field **243**, an expiration field **244**, an originator field **246**, a number of times accessed field **248**, a number of times visited field **249**, a number of times accessed since last visit field **250**, a status field **252**, and a benefit per use field **254**. Database **216** or **234** may include other and/or less than all of these fields (e.g., database **216** may not include display code field **243** if hyperlinks are provided or displayed in a default manner).

For each record, fields **240**A-**240**N define N data patterns that have been associated with the address stored in address information field **242**. The N data patterns are numbered 1-N, with N being any integer greater than or equal to 1 (i.e., 1, 2, 3, . . .). For example, fields **240**A-**240**N of record **260** define two data patterns (i.e., N=2) that are associated with the URL "www.bookstore.com" (i.e., the address information stored in field **242**). As shown in FIG. **5**, a data pattern may have the form of a user-viewable text pattern (e.g., "book") that may occur within a retrieved electronic file. A data pattern may also have the form of a non-viewable pattern, such as a particular pattern found in a metatag, script, applet, graphic, or any other data found in retrieved content and describable by a data pattern.

As shown by records **268**-**272**, a single data pattern stored within a single field (i.e., field **240**A) may be associated with one address. For example, fields **240**A-**240**N of record **268** indicate the data pattern "soda" is the only data pattern that is associated with the address "www.sodaco.com". Alternatively, as shown by records **260**-**266**, multiple data patterns stored in multiple fields may also be associated with one address. For example, fields **240**A-**240**N of record **260** indicate that two data patterns (i.e., "book" and "The Committee") have been associated with the address of "www.bookstore.com". Other fields may be used to store additional data patterns associated with one address. For example, additional fields (not shown) of record **260** could store the data patterns "soft-cover books" and "hard-cover books", each of which is associated with "www.bookstore.com" (in this example, N=4).

Alternatively, rather than or in addition to defining one or more specific data patterns associated with a single address, a computer-executable algorithm may be used to analyze received content to determine if that content includes any variation of one (or more) defined data patterns. This approach would allow for the automatic identification of multiple variations of a single data pattern. For example, assume that the data pattern "jump" is stored in a preference database. The algorithm could be applied to the words "jumped" and "jumping" in the retrieved content to determine that both of these words are variations of the stored data pattern "jump" since they share a common root (i.e., "jump"). The algorithm could also identify any other data patterns within the retrieved content (e.g., "jumps") which also share this common root. All of these words could then be associated with the address information associated with the word "jump". While this same result may be achieved by defining multiple data patterns including all of the variations of the common root, it may not always be easy or practical to predict all of the variations, in advance, for storage within fields **240**A-**240**N of the preference database.

For each record in preference database **216** or **234**, field **242** stores address information associated with the N defined data patterns. The address information may be in the form of a numeric IP address (e.g., field **242** of record **262** stores the numeric IP address 202.164.214.53). Alternatively, the address information may be a text-based URL that may later be submitted to DNS server **142** for conversion to a numeric IP address (e.g., field **242** of record **260** stores the text-based URL of "www.bookstore.com"). Address information field **242** may also store one or more markup language-based tags associated with the record. The tag may identify, for example, the originator of the record in the preference database (i.e., the party that added the record to the database), or may provide detailed information about the identified URL.

In FIG. **5**, the address information stored in field **242** of each record **260**-**272** is independent, such that the N data patterns stored for each record is associated with an independent computer network resource. In this case, the address information stored in field **242** of one record may be different or the same as the address information stored in field **242** for any other record.

Alternatively, the address information stored within preference database **216** or **234** may be the same, or partially the same for every record. For example, an online bookstore could create a customized viewpoint that includes a record for each of a plurality of books, each record providing an association between the title of one of the books (stored in field **240**A) and the URL of a Web site for that bookstore. The URL of the Web site for that bookstore may be stored in field **242** or, since the same URL would be associated with every record, the URL may be stored only once in database **216** or **234**. According to another example, each record of the customized viewpoint could provide an association between the title of one of the books (stored in field **240**A) and the URL of a Web page specific to that book (e.g., a Web page with that specific book already placed in an electronic shopping cart). In this case, the URL associated with each data pattern may include, for example, a base portion which is the same for all of the books and a variable portion specific to each book (e.g., "www.bookstore.com/The_Committee"). The online bookstore could then pay or provide benefits to frequent book purchasers for using the customized viewpoint. Then, when

one of the frequent book purchasers retrieves an electronic file including any of the book titles stored in the preference database, the file presented to the user would be modified to include a hyperlink to the online bookstore. In this case, the viewpoint is customized for all of the frequent book purchasers.

Whenever an electronic file is modified to include a hyperlink to a computer network resource defined by a preference, the hyperlink will be inserted into the file in a particular manner. In one embodiment the hyperlink is inserted into the file in a default manner. For example, a hyperlink may be included in a file by "converting" the matching data pattern into the hyperlink. In another embodiment, the manner in which a hyperlink is included within a file will be determined by a display code that is stored within field **243**. For example, based upon record **260**, a hyperlink for "www.bookstore-.com" will be included within an electronic file according to a display code of "1". The meaning of the various display codes is further described in relation to FIG. **6**.

Expiration field **244** stores data indicating the expiration time or date, if any, for the preference represented by the corresponding record of the database. Expiration field **244** may identify a definitive "cut-off" date or time when the preference will be disabled or deleted, or an indication of an amount of time remaining before the corresponding record in the database is disabled or deleted. For example, field **244** of record **260** indicates that the preference providing an association between the data pattern "book" (field **240**A) and the address information for "www.bookstore.com" (field **242**) will expire on Dec. 31, 2002. User device **110** may store the expiration data in expiration field **244** at the time the record for the corresponding preference is created, based upon information provided by the party that establishes the preference. For example, the signal received by user device **110** at step **342** (see FIG. **9**) may also include expiration information for a particular record that may be updated.

Alternatively, preference database **216** or **234** could store a range of dates or times during which a preference would, or would not, be effective. For example, preference database **216** or **234** may include a field which allows a particular association to occur on Saturdays and Sundays, but not weekdays, or to occur only during certain hours of the day. As another alternative, expiration field **244** could store data representative of a number of associations or presentations that will be made before the preference expires. For example, when a preference is stored within preference database **216**, the value "100" could be stored in expiration field **244** for that preference, such that the preference will expire after it has been used to make 100 associations. In one embodiment, expiration information may be stored in field **244** using an expiration function. For example, the function "expire when field **249**=10" would cause the corresponding preference to expire when the network resource pointed to by the address information has been visited 10 times.

Originator field **246** stores information generally or specifically identifying the originator of the corresponding preference. The originator is a party that generated the preference which defines the association between the data patterns in fields **240**A-**240**N and the corresponding address information in field **242**. In embodiments in which an originator is identified generally, field **246** may store any of a variety of general identifiers (e.g., "DEFAULT", "USER", "THIRD PARTY", etc.). "DEFAULT" indicates that the originator of the preference was the publisher or developer of the Web browser. "USER" indicates that the originator was the user, who may have generated and stored the association during an installation or update procedure for Web browser **214**. "THIRD PARTY" indicates the originator was a third party (e.g., an online merchant, ISP, portal Web site, etc.) who generated and/or last updated the preference. Alternatively, rather than generally identifying the originator, field **246** may identify a specific originator. For example, field **246** of record **268** indicates that SODACO was the specific originator for that preference.

Fields **248**, **249** and **250** store usage information for each of the preferences described by a record of the preference database. Field **248** stores data representing the number of times that each record has been accessed (i.e., the number of times that a Web browser has recognized that received content included data matching any of the N data patterns for that record). Field **249** stores data representing the number of times that the network resource for that record has been visited by the user. Field **250** stores data representing the number of times that each record has been accessed since the user last visited the network resource by activating a hyperlink generated using that record.

Fields **248** and **249** may be used to determine that a preference should expire after that preference has been used to insert a hyperlink a certain number of times, or after a resource has been visited a certain number of times, respectively. For example, the data in field **248** may be used by a browser to determine that a preference should expire after 100 links to an associated network resource have been incorporated into retrieved content, and the data in field **249** may be used to determine that a preference should expire after the user has visited the corresponding computer network resource 20 times. Thus, the data stored in fields **248**-**250** allows for accurate tracking and reporting of usage data for the preferences. This data can be supplied to, for example, the parties who were responsible for inserting the preferences into the preference database, for use in determining payments or benefits due to the user. Other usage fields may also be used, and fewer than all of fields **248**-**250** may be needed. For example, field **250** may not be needed in particular embodiments.

Status field **252** stores, for each record, data representing a status for the corresponding preference. In one embodiment, the user may enable or disable each preference by changing the corresponding status data. When the status data represents "ENABLED", the preference is operational for use in modifying an electronic file to include a link to a computer network resource associated with a matching data pattern. When the status data represents "DISABLED", the preference is not operational for use in modifying an electronic file to include a link to a computer network resource associated with a matching data pattern. In another embodiment, the status of each preference may be overridden by, for example, a third party who wishes to update the preference database being used by a user One embodiment for overriding each preference is discussed below (FIG. **9**).

Field **254** stores an indication of a benefit to be provided to the user per use of the corresponding preference. In one embodiment, field **254** stores an amount paid per visit representing an amount due to a user whenever the user activates a hyperlink generated using that preference to access the corresponding resource. Alternatively, instead of or in addition to providing an amount paid per visit, field **254** stores an amount paid per inclusion representing an amount due to a user whenever a hyperlink is inserted within retrieved content based upon that preference (regardless of whether the user actually activates the hyperlink).

The benefit provided to a user may be a monetary amount, coupon, points, frequent flyer miles, etc. The benefit may be provided by the party that inserted the preference, an organi-