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[Continued on next page]

(54) **Title:** CLICK-TO-DIAL

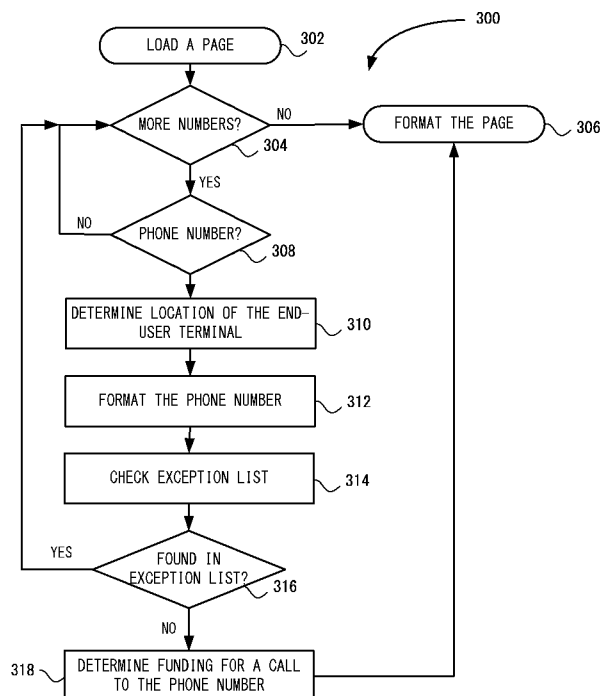


Fig. 3

(57) **Abstract:** A method for rendering a document is disclosed. The method includes identifying a phone number in the document. The sponsorship configuration of the phone number is then determined. A caller account configuration is also determined. The caller account configuration is associated with a user of a device and the device is configured to display the document. The document is amended to format the phone number according to the sponsorship configuration and the caller account configuration.



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CLICK-TO-DIAL**BACKGROUND OF THE INVENTION****Field of the Invention**

[0001] Embodiments of the present invention relate generally to communicating
5 over a packet-based network and more particularly advertisement-funded
telephone calls.

Description of the Related Art

[0002] Some communication systems allow the user of a device, such as a
personal computer, to communicate across a packet-based computer network
10 such as the Internet. Such communication systems include voice over internet
protocol ("VoIP") communication systems. These systems are beneficial to the
user as they are often of significantly lower cost than conventional fixed line or
mobile networks. This may particularly be the case for long-distance
communication. To use a VoIP system, the user installs and executes client
15 software on her/his device. The client software provides the VoIP connections as
well as other functions such as registration and authentication. In addition to
voice communication, the client may also provide further features such as video
calling, instant messaging ("IM"), SMS messaging, file transfer and voicemail.

[0003] One type of communication system for packet-based communication
20 uses a peer-to-peer ("P2P") topology. To enable access to a peer-to-peer
system, a user must execute P2P client software provided by a P2P software
provider on their computer, and register with the P2P system. When the user
registers with the P2P system, the client software is provided with a digital
certificate from a server. Once the client software has been provided with the
25 certificate, then calls or other communications can subsequently be set up and
routed between users of the P2P system without the further use of a server in the
set-up. Instead, the client looks up the required IP addresses from information
distributed amongst the P2P client software on other end users' computers within
the P2P system. Once the IP address of a callee's terminal has thus been
30 determined, the caller's P2P client software then exchanges certificates with the
callee's P2P client software. The exchange of the digital certificates (or user
identity certificates, "UIC") between users provides proof of the users' identities
and that they are suitably authorized and authenticated in the P2P system.

Therefore, the presentation of digital certificates provides trust in the identity of the users. It is therefore a characteristic of peer-to-peer communication that, once registered, the users can set up their own communication routes through the P2P system in a decentralized manner based on distributed address look-up and the exchange of one or more digital certificates, without using a server for those purposes. Further details on such a P2P system are disclosed in WO 2005/008524 and WO 2005/009019. VoIP or other packet-based communications can also be implemented using nonP2P systems that do use centralized call set-up.

Typically, service providers that provide VoIP service charge a fee to enable a caller to call a phone number. What is needed are systems and methods to enable third party sponsorships of the services provided by service providers to effectuate free or reduced fee services to the users of these services.

SUMMARY OF THE INVENTION

In one embodiment, a method for rendering a document is disclosed. The method includes identifying a phone number in the document. The sponsorship configuration of the phone number is then determined. A caller account configuration is also determined. The caller account configuration is associated with a user of a device and the device is configured to display the document. The document is amended to format the phone number according to the sponsorship configuration and the caller account configuration.

In another embodiment, an Internet based communication system is disclosed. The Internet based communication system includes a plurality of end user terminals configured to be connected to the Internet, a gateway coupled to the Internet and a PSTN or mobile network for routing phone calls initiated from one of the plurality of end user terminals to a phone number in the PSTN or mobile network, and a page formatter for formatting a document to be displayed on the one of the plurality of end user terminals.

In yet another embodiment, a computer readable storage medium containing a program which, when executed, performs an operation of rendering a document, is disclosed. The operation includes identifying a phone number in the document, determining sponsorship configuration of the phone number and determining a caller account configuration. Wherein the caller account configuration is associated with a user of a device and the device is configured to

display the document. The operation also includes amending the document to format the phone number according to the sponsorship configuration and the caller account configuration.

[0008] Other embodiments include, without limitation, a non-transitory computer-readable storage medium that includes instructions that enable a processing unit to implement one or more aspects of the disclosed methods as well as a system configured to implement one or more aspects of the disclosed methods.

BRIEF DESCRIPTION OF THE DRAWINGS

[0009] So that the manner in which the above recited features of the present invention can be understood in detail, a more particular description of the invention, briefly summarized above, may be had by reference to embodiments, some of which are illustrated in the appended drawings. It is to be noted, however, that the appended drawings illustrate only typical embodiments of this invention and are therefore not to be considered limiting of its scope, for the invention may admit to other equally effective embodiments.

[0010] Figure 1 illustrates a schematic depiction of a communication system based on the Internet, according to one embodiment of the present invention.

[0011] Figure 2 is a logical diagram of an end user terminal, according to one embodiment of the present invention.

[0012] Figure 3 illustrates an exemplary process of formatting phone numbers in a document, according to one embodiment of the present invention.

[0013] Figure 4 illustrates a flow diagram of a process performed by a page formatter, according to one embodiment of the present invention.

[0014] Figures 5 and 6 illustrate a Web document including phone numbers, according to one embodiment of the present invention.

[0015] Figures 7A-7E illustrate exemplary depictions of a phone number display block in a document, according to one embodiment of the present invention.

DETAILED DESCRIPTION

[0016] In the following description, numerous specific details are set forth to provide a more thorough understanding of the present invention. However, it will be apparent to one of skill in the art that the present invention may be practiced without one or more of these specific details. In other instances, well-known features have not been described in order to avoid obscuring the present invention.

[0017] Reference throughout this disclosure to "one embodiment" or "an embodiment" means that a particular feature, structure, or characteristic described in connection with the embodiment is included in at least one embodiment of the present invention. Thus, the appearances of the phrases "in one embodiment" or "in an embodiment" in various places throughout this specification are not necessarily all referring to the same embodiment. Furthermore, the particular features, structures, or characteristics may be combined in any suitable manner in one or more embodiments.

[0018] In preferred embodiments, the present invention retrieves instructions for displaying one or more telephone numbers on a webpage in response to detecting the telephone number(s) on the webpage, or other document displayed on a screen. It should be noted that the term "webpage" is being used for the sake of simplicity. A person skilled in art, however, would appreciate that the systems and methods described herein would equally apply to other types of documents that include textual data. Some examples of these documents are XML files, Document Files, Spreadsheets, Presentation files, etc., Recognition of phone numbers in a document is described in US Patent Application Number 2002/0274510, which is incorporated herein by reference. Accordingly, a web page or other document is re-rendered such that numbers or alphanumeric sequences with a particular format are displayed as click to call icons which allow the user to initiate a VoIP call by clicking the icon. In addition to such phone number recognition, according to preferred embodiments of the present invention then information associated with the detected number (and optionally information relating to the webpage or user) is retrieved and used to re-render the page. The information may be retrieved by formulating a query containing the detected phone number at the user equipment, then sending the query to a server which processes the query and responds with instructions for re-rendering a portion of the page. The instructions may indicate how the number should be displayed, or specify that a clickable call icon or such like should be inserted in association with the number.

[0019] In this manner certain numbers can be handled differently, in accordance with different criteria. For example, numbers that are more relevant to a user, or paid for by a third party, may be displayed more prominently on the web page such that a call may be established more easily.

[0020] Pricing information may be retrieved and displayed next to the number such that a user is aware of the cost of the call before the call is established. In another embodiment, if a call to the displayed number is sponsored by an advertiser, the display may be changed accordingly to indicate to the user that calls to the displayed number are free. However, in such cases, a short Audio, Video, A/V or rich media advertisement may be played before the call is connected or both. In one embodiment, a video advertisement may continue to play on the display during the lifetime of the call. Thus P2P or other VoIP or packet-based communications are advantageously made more readily accessible to the user, by integration of related information and/or controls into a more familiar or regularly-used working environment for the user.

[0021] As mentioned, the modified page may provide a control such as a clickable call icon which allows the user to establish communications with the relevant party. However, alternatively or additionally, there are a range of other possible uses for a phone number once it has been recognized and sent to a server for processing. One example is to perform a location lookup and offer location-specific services in conjunction with the city code that the number belongs to. Another is to perform a reverse directory lookup to find additional information about the number, such as the name associated with the phone number, etc., and then provide directory services in conjunction with that company or person's name.

[0022] Figure 1 is a schematic illustration of a communication system 100. The communication system 100 includes at least a packet-based network such as the Internet 102, which comprises one or more of a plurality of interconnected elements such as a laptop computer 112a, 112d, a mobile phone 112b, a desktop computer 112c, a tablet computer 112e and a Web server 104. The communication system 100 also includes an advertisement server 116 and a page formatter 106. A rule database (DB) 114 may be coupled to the page formatter 106 either directly or through the Internet 102. A telephony gateway 108 may also be included to route telephone calls to PSTN or mobile network 110. At least some of network elements are inter-coupled with the rest of the Internet 102, and is configured to communicate data with other such elements over the Internet by transmitting and receiving data in the form of Internet Protocol (IP) packets. Each element that is coupled to the Internet 102 also has an associated IP address

locating it within the Internet. A person skilled in the art would appreciate that other than the elements shown explicitly in Figure 1, many other elements may be coupled to the Internet 102. For example, a P2P server may be included in the communication system 100. Other end-user terminals (e.g., laptop computers,
5 desktop computers, smart phones, tablet computers, etc.), servers and gateways, as well as routers of Internet service providers (ISPs) and Internet backbone routers, etc., may also be included in the communication system 100.

[0023] In one embodiment, each of a plurality of the end-user terminals includes communication software comprising a P2P client application, which may also
10 include features for calling phone numbers from the end-user terminal. When executed, the P2P client application allows the end user terminals (e.g., 112a...e) to establish bidirectional communication channels with other such end-user terminals or PSTN phones via the Internet using P2P call set-up (or more generally connection set-up). In one embodiment, the P2P client applications also
15 share presence information with one another, which provides an availability status of users. The presence information for each user is preferably at least in part defined by the users themselves. To supplement the decentralized call set-up, the P2P client application may retrieve some additional information from a P2P server (not shown), such as contact lists which provide the names of the users'
20 contacts, "avatars" which are images chosen by users to represent themselves within the P2P server.

[0024] One or more of the end-user terminals 112a-e is also installed with document-browser client software, such as a web browser. When executed, the document browser client software allows the end-user terminals 112a-e to retrieve
25 electronic documents in the form of webpages (or other forms of electronic documents, such as a document file, XML file, PDF file, XLS file, etc.) from the Web server 104 and display them on their screens under control of the user. It should be noted that an end user terminal 112a-e could be any computing device that is capable of displaying Web pages/ documents and connect to the Internet
30 102. A Voice Over IP (VoIP) landline phone 113 may also be coupled to the Internet 102. The VoIP phone is configured to communicate with the P2P server 106.

[0025] A P2P client application may also be installed at a gateway 108 coupled to both the Internet 102 and a PSTN network and/or a mobile cellular network

110. This allows the P2P client applications running on the end-user terminals 112a-e to communicate with ordinary land-line telephones and/or mobile telephones respectively, even if those telephones themselves do not run P2P client applications and are not directly coupled to the Internet 102. In that case, the P2P client application on the end user terminals 112a-e sets up a connection over the Internet with the P2P client application on the gateway 108 using P2P call set-up and provides it with a phone number, and the gateway 108 uses the phone number to set up a connection with the telephone over the PSTN or/and mobile network 110.

[0026] In one embodiment, if a particular end-user terminal 112a does not have an associated phone number, either the gateway 108 or the P2P server may assign a temporary outgoing identity (aka a caller identification number) prior to setting up a call to a phone number in either the PSTN or mobile network 110. In one embodiment, the temporary phone number may be a random number or preconfigured by the user or by the P2P server.

[0027] The page formatter 106, in one embodiment, is used by the end user terminals 112a-e to format a document during, prior to or after the document is displayed on the end user terminal display. In one embodiment, the page formatter 106 parses the document (or one or more sections thereof) to find phone numbers in the document and to format the found phone numbers in different ways accordingly to configurations and rules. The phone numbers may also be amended to include or remove some parts to make the phone numbers readily dialable based on the location of the end-user terminal 112a. For example, a country code may be added if it is determined that one of the found numbers in the document is a foreign phone number and the end user terminal 112a is currently located in a different country. In one embodiment, the rule DB 114 includes rules and configurations to help the page formatter 106 to format the numbers. In an alternative embodiment, an application may be executed in the end user terminal 112a itself to perform some or all functions of the page formatter 106. For example, a browser plugin may be used to format the document.

[0028] The schematic block diagram 200 of Figure 2 shows an end-user terminal 112a, which is configured to act as a terminal of a P2P system operating over the Internet 102. The end user terminal 112a comprises a CPU 202 operatively coupled to a network interface 210, such as modem for connecting to the Internet

102, a non-volatile storage device 208, such as a hard-drive or flash memory, and a volatile memory device such as a random access memory (RAM) 204. The end-user terminal 112a also comprises one or more user input devices, for example in the form of a keyboard, mouse, microphone and webcam, each
5 operatively coupled to the CPU 202 via an I/O interface 212. The end-user terminal 112a further comprises one or more user output devices, for example in the form of a display screen and speaker, again each operatively coupled to the CPU 202. The storage device 208 stores software including at least an operating system (OS) 206, a document-browser client application in the form of a web
10 browser 214, and packet-based communication software comprising a P2P client application that includes a Client UI 218, a Client Engine 220 and an I/O Layer 222. On start-up or reset of the end-user terminal 112a, the operating system software 206 is automatically loaded into the RAM 204 and from there is run by being executed on the CPU 202. Once running, the operating system 206 can
15 then run applications such as the web browser 214 (and browser plug-in/toolbar 216) and P2P client application by loading them into the into the RAM 204 and executing them on the CPU 202.

[0029] In one embodiment, the P2P client application comprises three basic layers: an input and output 222, a client engine layer 220, and a user interface
20 (UI) layer 218. The web browser application 214, P2P client application and P2P toolbar/add-on/plug-in application 216 are run in the operating system 206. This means that in a multi-tasking environment they are scheduled for execution by the operating system 206; and further that inputs to the web browser application 214 and the I/O layer 222 of the P2P client application from the input devices as well
25 as outputs from the web browser application 214 and the I/O layer 222 of the P2P client application to the output devices may be mediated via suitable drivers and/or APIs of the operating system 206.

[0030] In one embodiment, the I/O layer 222 of the P2P client application comprises audio and/or video codecs which receive incoming encoded streams
30 and decodes them for output to the speaker (not shown) and/or display (not shown) as appropriate, and which receive un-encoded audio and/or video data from the microphone (not shown) and/or webcam (not shown) and encodes them for transmission as streams to other end-user terminals 112a-e of the communication system 100 (or the P2P system). The I/O layer 222 may also

comprises a control signaling protocol for signaling control information between end-user terminals 112a-e of the Internet 102. The client engine 220 then handles the connection management functions of the communication system 100 as discussed above, such as establishing calls or other connections by P2P address look-up and authentication. The client engine 220 may also be responsible for other secondary functions of the communication system such as supplying up-to-date contact lists and/or avatar images of the user to the P2P server within the communication system 100 or retrieving up-to-date contact lists of the user and retrieving up-to-date avatar images of other users from the P2P server. Further, the client engine 220 retrieves presence information from the other clients of the users in the contact list via a public API, and reciprocally provide its own presence information to those other clients that are online, Exchange of presence information directly between clients via a public API is the preferred option, but alternatively the presence information could be exchanged via an intermediate node such as the P2P server.

[0031] The UI layer 218 is responsible for presenting decoded video to the user via the display, for how to arrange the presented output on the display along with user controls such as buttons and menus, and for receiving inputs from the user via the presented controls. The I/O layer 222 of the P2P client application is arranged to be able to interact with the P2P toolbar/add-on/plugin 216 and the P2P toolbar/add-on/plugin 216 is arranged to be able to interact with the web browser application 214, preferably all under control of the OS 206.

[0032] Figure 3 illustrates a flow diagram 300 for formatting a document, such as an HTML page, XML page, a word processing document, etc., or a combination thereof. Accordingly, at step 302, the page is loaded from a source such as a server in the Internet 100. The document is loaded by the end-user terminal 112a for displaying the document to a user of the end-user terminal 112a. At decision step 304, a determination is made if there are more numbers to be processed, in the loaded document. If yes, at decision step 308, a determination is made if a number found in the document is a phone number. Recognition of phone numbers in documents is described in US2002/0274510, which is being incorporated herein by reference. In addition, in one embodiment, a contextual logic is used to determine if a selected number in the document is a phone number. For example, if the number appears in a sentence or a block of text that

is directed to phone calls or establishing contacts. For example, the number in the sentence "For further information call 202-5551212" is likely to be a phone number because of the context of the sentence. That is, for example, if words such as "call," "contact," etc., appears in the proximity of a number, the number is likely to be a phone number. In another example, based on the contextual information, it can be determined that the first number in the sentence "Total 3745909 students attended California schools in the year 2008" is not a phone number and the second number is also not a phone number because it is too short and the contextual information does not suggest the second number being a phone number. In another embodiment, document tags (e.g., XML tags, HTML tags) may be used either independently or in conjunction with the contextual information of the document to identify phone numbers in a document.

[0033] At decision step 308, if the number is not a phone number, the control goes back to decision step 304. If the number is a phone number, at step 310 the location of the end-user terminal 112a is determined. The location may be used for formatting the phone number based on some contextual logic. For example, if a document contains the phone number 202-5551212, a determination can be made, based on the information provided in the document itself or in the related documents, about the location of the organization or the person. In addition to the use of contextual information found in the document or in the related document (e.g., most Internet sites includes a "Contact Us" page). A database of area codes in the world or at least in some countries, may also be maintained to help identify the destination country of a phone number.

[0034] At step 312, the phone number is formatted to include all necessary information for calling the number. For example, if the location of the end-user terminal that loaded the document was in a country other than the USA, the number "202-5551212" may be formatted to "0012025551212." However, if the location of the end-user terminal is found to be in the US, the number may be left unchanged or may be changed to "12025551212." In one embodiment, a mapping of toll free numbers and their corresponding toll numbers may be maintained in a database or data store and the toll free number may be replaced by the corresponding toll number, if the end-user station is found to be located in a foreign country.

[0035] An exception list may also be maintained to determine if the phone number should be allowed to be called. Or at least, should the number be allowed to be called free of cost, using the sponsorship. For example, some or all 900 series numbers may be placed in the exception list. In another embodiment, a sponsor of free phone calls may be able to configure the exception list to disallow sponsored calls to those numbers.

[0036] At decision step 316, if the phone number is found in the exception list, the control goes back to step 304. Else, at step 318, sponsorship of a call to the phone number is determined. The sponsorship determination may be based on several factors such as availability of a sponsor for funding a call to the phone number, availability of calling credits in the caller's account, etc., For example, if the caller has sufficient available credits for making phone calls, the caller may elect to use the calling credits instead of seeing or hearing advertisements in lieu of making a free or reduced rate phone call. Then, at step 306, the document is formatted to add visual and/or other distinguishing features to the display of the phone number. In one embodiment, the process of formatting the document takes place after processing all numbers in the document. In other embodiments, especially where technologies such as HTML5, AJAX, etc., are in use, individual sections of the documents may be formatted and updated on the display without waiting for the whole document to be processed for the phone numbers.

[0037] A person skilled in the art would realize that some steps in the flow diagram 300 may be omitted. For example, in some embodiments, step 310 and/or 314 may be omitted. In one embodiment, the steps of the flow diagram 300 are performed in the sequence as depicted in Figure 3. However, in other embodiments, the steps may be performed in a different sequence. For example, step 314 may be performed before step 312.

[0038] Figure 4 illustrates a flow diagram 400 for applying rules by the page formatter 106 (Figure 1). However, a person skilled in the art would appreciate that at least some of the steps may be performed at the end-user terminal 112a-e without departing from the essence of the invention. Accordingly, at step 402, the page formatter receives the data from the end-user terminal 112a. The received data includes numbers or/and words. At step 404, the page formatter searches, in a database, numbers/words to determine if the input number or word corresponds some configurations, logos, information, etc., based on sponsorship

configurations. At step 406, the rule DB 114 is queried to retrieve any rules associated with the input number or word. This process may be invoked during steps 318 or 306 of Figure 3. In other embodiments, this process may also be invoked to find corresponding toll numbers for toll free numbers, etc. At step 408, the received data is modified according to the rules, if found and at step 410, the modified data is sent back to the caller (e.g., the browser application 214).

[0039] Figure 5 illustrates schematically an example user interface 500 of the web browser application 214 as would be seen when open for viewing on a display. This user interface comprises menus for accessing 504 various functions of the browser application 214. The user interface 500 also comprises navigation controls 508 allowing the user to access and navigate between different webpages, such as back, forward, refresh and stop controls and/or an address bar for entering web addresses. Thus the user is able to select which website to retrieve and display from one or more Web servers. The user interface 500 also comprises a display of the actual selected webpage itself 506. The website comprises various numerical or alphanumerical characters, either in a text format or potentially in graphical form.

[0040] The user interface 500 may further comprise one or more toolbars 502 showing an indication of one or more toolbar applications running in conjunction with the browser application 214. The toolbars may also include controls allowing the user to access the toolbar applications or functions of them, which the user can thus select or control via the web client's user interface. In one embodiment, the browser application 214 may include a toolbar which can run in conjunction with the web browser application 214, indicated by the "S", which indicates to the user at least that the toolbar application is running, and may allow access to the P2P client application of functions thereof when clicked. Further, the add-on/plugin/toolbar 216 is able to communicate data to and from both of the web browser 214 and the P2P client application. Even when the user interface 218 of the P2P client application is not open for viewing on the display, the add-on/plugin/toolbar 216 may still be running and interacting with the web browser application 214, and may allow the P2P client application to be launched via the user interface of the web browser 214.

[0041] The add-on/plugin/toolbar 216 interacts with the web browser 214 in order to read information from the webpage currently selected by the user for

viewing. The add-on/plug-in/toolbar 216 then scans the webpage for numbers having a format that matches one or more of certain predetermined formats. An example for implementing this is described in US2002/0274510. For example, the add-on/plug-in/toolbar 216 may recognize that a number beginning "0800" or "0871" and continuing with six further digits is a phone number, and that a number starting "01" or "02" and continuing with nine further digits is a phone number. Such formats could be stored locally at the end-user terminal 112a or the blocks of data may be sent to the page formatter 106 for the identification of phone numbers and formatting of the webpage. As discussed above, page subject matter context information may also be used, either independently or in conjunction with the above method to identify phone numbers in a webpage. However, the add-on/plug-in/toolbar 216 does not mistake numbers like "15000" or "24" as phone numbers.

[0042] Once recognized, the add-on/plug-in/toolbar 216 (or alternatively, the page formatter 106) flags-up the phone numbers by modifying the manner in which a portion 510 of the webpage is displayed so as to change the way the phone numbers are displayed and/or to insert information in conjunction with the webpage. For example in Figure 6 a box is placed around the phone numbers and a control in the form of clickable icon is inserted. If the user clicks the icon, the P2P application is launched and the phone number is dialed. The P2P client application uses the phone number to establish a call with the relevant telephone via the packet-based network 102, gateway 108 and PSTN or mobile cellular network 110.

[0043] According to preferred embodiments of the present invention, not only does the add-on/plug-in/toolbar 216 highlight or flag-up the phone number, but also selects the manner in which it is flagged-up from a plurality of possibilities depending on some rule or criterion. Preferably, the rules are implemented at a remote database, e.g., the rule DB 114. In that case, in response to detecting one or more phone numbers in the displayed page, the add-on/plug-in/toolbar 216 may formulate a query message containing a list of one or more of the recognized numbers, and transmit this query to the database over the Internet 102. The page formatter 106 then evaluates the information in the query based on the rules and formulates a response containing instructions as to which a plurality of potential available display configurations should be used to modify the manner in which the

page is displayed for each recognized number. The modified information is re-rendered the webpage.

[0044] Alternatively though a set of rules could be retrieved speculatively in advance before detecting phone numbers, or implemented more permanently at the end-user terminal 112a, although the advantage of storing the rules at a centrally queryable database is that they are more readily updated. Further, the modifying of the webpage does not have to be by rendering and re-rendering, but could alternatively be achieved by modifying the underlying data before actually rendering the document for display on the screen. The rule(s) preferably at least include a rule by which the selected display configuration depends on the format of the detected phone number. For example, the rule could be that any number whose format corresponds to a free number is displayed in a certain manner, whilst pay numbers are displayed in another. E.g., in Figure 6, it has been determined that numbers beginning "0800" are non-geographic free phone numbers and displays them in bold text surrounded by a certain style of box 600, whilst numbers beginning "0871" are nongeographic numbers incurring payment and are displayed in a similar style box 600 but without bold text. Further, the numbers beginning "01" or "02" are geographic numbers and surrounds them with a different style of box than non-geographic numbers.

[0045] As a further example, the manner in which the webpage is displayed could be modified such that when a user performs a certain user interaction in relation to the modified portion of the display, then the display changes in a certain way. For example, when the user moves the mouse cursor over the inserted call icon for the free-phone "0800" number then the number is overwritten with a message such as "Free Call".

[0046] Other examples of instructions for re-rendering webpages could include: an instruction to change the size of number(s) on the webpage; an instruction to display associated information with each number such as company or pricing information, and an instruction to indicate that number is telephone number and provide clickable call icon. In another example, the database could look up the number(s) against a web directory and the rule(s) could be so as to provide instructions for display depending on who the number corresponds to. Further, other information may be sent in the query than just the number or detected format. Optionally, information on the user, the webpage and/or the end-user

terminal 112a could be taken into account. For example, the rules could include rules by which the selected display configuration depends on the relevance of the format to the user. For example, if the user lives in London, it could be determined that numbers beginning with "0207" are more relevant than other geographic phone numbers, and hence could be displayed differently. For example, the "0207" number is highlighted in a particular manner whilst the "01234" number is not. In another example, the context of the particular webpage could be taken into account, e.g., numbers on a bank webpage could be ignored in case an account number has the same format as a phone number.

[0047] Figures 7A-7E illustrate various exemplary designs of the phone box 600. As illustrated in Figure 7A, the phone box 600 may include an icon 602 to visually indicate the type of phone number 604. The phone box 600 may also include a button or link or click area 606 to initiate a call.

[0048] As described above, based on the rules and sponsorships, a call to a selected number may be free, even if the phone number 604 is not a toll free number. To indicate that a call to the displayed number 604 is free, a distinguishable icon 602 may be displayed. In one embodiment, an advertising server code is inserted in the link that is associated with the formatted phone number display. When a user clicks or selects the phone box 600 to initiate a sponsored call, based on the inserted code, a selected advertisement is retrieved from the advertisement server 116. The retrieved advertisement may be audio recording, video recording, A/V recording, text only information, etc., The retrieved advertisement may be played to the user for a selected durations, typically in seconds and then the call may be connected to the called party via the Internet 102, the gateway 108 and the PSTN/Mobile Network 110. In one embodiment, an audio-less display of the retrieved advertisement or a different advertisement may continue in the client UI 218 at least for a subset of the lifetime of the sponsored call.

[0049] In one embodiment, if the user is willing to pay for the call (which is otherwise a sponsored call), the process of retrieving an advertisement and playing to the user may be omitted. In such cases, the user's account is charged according to the destinations and duration of the call. The user may configure the P2P client application to disable sponsored calls and charge the user's account for non-toll free calls. Alternatively, before every call, the P2P client application

may be configured to let the user decide whether the user would like to use the sponsored call feature or would like to be charge for the call. Further, the advertising server may be configured to enable sponsors to control the sponsored calls. For example, a sponsor may decide not to sponsor calls to foreign countries or may decide to sponsor calls originated from selected regions, etc.

[0050] In another embodiment, as depicted in Figure 7C, if desired by a sponsor, through a preset configuration for the displayed phone number 604, a logo 608 or any image or information may be displayed next to the phone number 604. For example, the fictitious phone number 604 is associated with Coca ColaTM and Coca Cola Co. may wish to have their logo displayed whenever a particularly identified phone number is displayed by the browser application 214. In another embodiment, the sponsor may configure the system to change the original phone number in the document to another selected number. A replacement number may be selected from a database based on the location of the end user terminal 112a and/or, time, month, etc. In yet another embodiment, the original number remains on the display in the phone box 600. However, a different selected number is dialed when the phone box 600 is clicked (or a marked area 606 in the phone box 600).

[0051] In yet another embodiment as depicted in Figure 7D, some sponsors may configure (or provide configurations) the communication system 100 to display a particular logo 608 or other information every time one or more pre-selected numbers are displayed by the browser application 214. Logos and other information may be stored in a database along with configuration information to enable the page formatter 106 and/or the add-on/plugin/toolbar 216 to format the page accordingly to the configurations for specific sponsors. The phone number to be called when the phone box 600 is clicked may be configured in way that a different phone number may be associated with the phone box 600 at different times of the day, on different days of the week and based on the location of the end-user terminal 112a.

[0052] In yet another embodiment as depicted in Figure 7E, a sponsor may wish to replace a selected word in a document when displayed by the browser application 214. For example, DellTM Corporation may wish to replace pre-selected words (e.g., occurrences of the word "Dell") by a pre-formatted graphics or information. The graphics or information may be selected from a database or a server based

on a pre-set criteria. In one embodiment, date, time, location of the end-user terminal 112a, etc., may be considered for choosing the information to be displayed instead of a selected word. For example, if Dell is running a sales promotion or “daily deals”, such information may be displayed instead of a selected word on a particular date or time. Further, the phone box 600 may be converted into a link to either call a particular phone number, as configured by the sponsor, or a link to start an online chat via an instant messaging application. In yet another embodiment, a sponsor may configure the system to replace a specific word by a link to chat or other Internet link. In yet another embodiment, a sponsor may wish to disable calling to a particular number at certain times, days or dates, etc.

[0053] Different color and font schemes may be used for displaying different types of calling options and phone boxes 600. In one embodiment, the user may configure the icons, color scheme, fonts, etc., for free, paid and sponsored calls.

In another embodiment, the user may disable sponsored call options. The user may also disable formatting of the Webpages to include the phone boxes 600.

[0054] While the forgoing is directed to embodiments of the present invention, other and further embodiments of the invention may be devised without departing from the basic scope thereof. For example, aspects of the present invention may be implemented in hardware or software or in a combination of hardware and software. One embodiment of the invention may be implemented as a program product for use with a computer system. The program(s) of the program product define functions of the embodiments (including the methods described herein) and can be contained on a variety of computer-readable storage media. Illustrative computer-readable storage media include, but are not limited to: (i) non-writable storage media (e.g., read-only memory devices within a computer such as CD-ROM disks readable by a CD-ROM drive, flash memory, ROM chips or any type of solid-state non-volatile semiconductor memory) on which information is permanently stored; and (ii) writable storage media (e.g., floppy disks within a diskette drive or hard-disk drive or any type of solid-state random-access semiconductor memory) on which alterable information is stored. Such computer-readable storage media, when carrying computer-readable instructions that direct the functions of the present invention, are embodiments of the present invention.

CLAIMS

1. A method of rendering a document, comprising:
identifying a phone number in the document;
determining sponsorship configuration of the phone number;
5 determining a caller account configuration, wherein the caller account configuration is associated with a user of a device, the device is configured to display the document; and
amending the document to format the phone number according to the sponsorship configuration and the caller account configuration.
- 10 2. The method of claim 1, wherein, the device is configured to play a selected advertisement according to the sponsorship configuration when the user initiates a sponsored call to the phone number from the document.
3. The method of claim 1, wherein the sponsorship configuration includes:
formatting information of the phone number on a display of the device; or
15 sponsorship conditions for the phone number; or a logo of a sponsor of a call to the phone number.
4. The method of claim 1, wherein the caller account configuration includes the user's choice to make a sponsored call to the phone number.
5. The method of claim 2, wherein, prior to initiating the sponsored call, the
20 device is configured to check that the phone number is not included in an exception list.
6. An Internet based communication system, comprising:
a plurality of end user terminals configured to be connected to the Internet;
a gateway coupled to the Internet and a PSTN or mobile network for
25 routing phone calls initiated from one of the plurality of end user terminals to a phone number in the PSTN or mobile network; and
a page formatter for formatting a document to be displayed on the one of the plurality of end user terminals.
7. The Internet based communication system of claim 6, wherein the
30 document includes a numeric word, wherein at least one of the page formatter and the device is configured to determine whether the numeric word represents a phone number.

8. The Internet based communication system of claim 7, wherein the page formatter is configured to amend the document based on a sponsorship configuration and a caller account configuration of a user of the one of the plurality of end user terminals.
- 5 9. The Internet based communication system of claim 8,
further including a rule database, the rule database includes formatting configurations of the phone number on the document based on the sponsorship configuration of the phone number; or
the sponsorship configuration includes at least one of sponsorship conditions for
10 the phone number and a logo of a sponsor of a call to the phone number.
10. A computer readable storage medium containing a program which, when executed, performs the steps of any one of claims 1 to 5.

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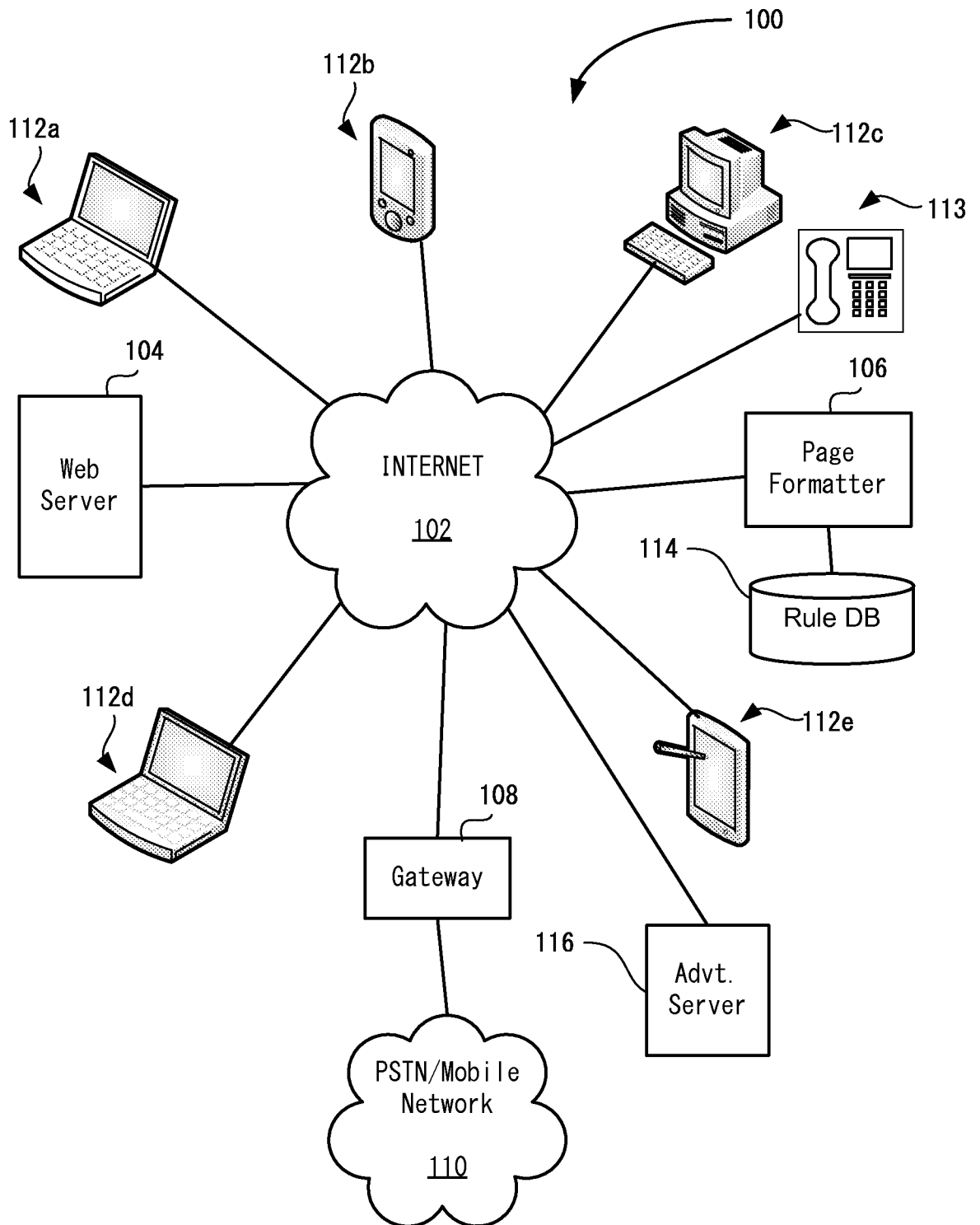


Fig. 1

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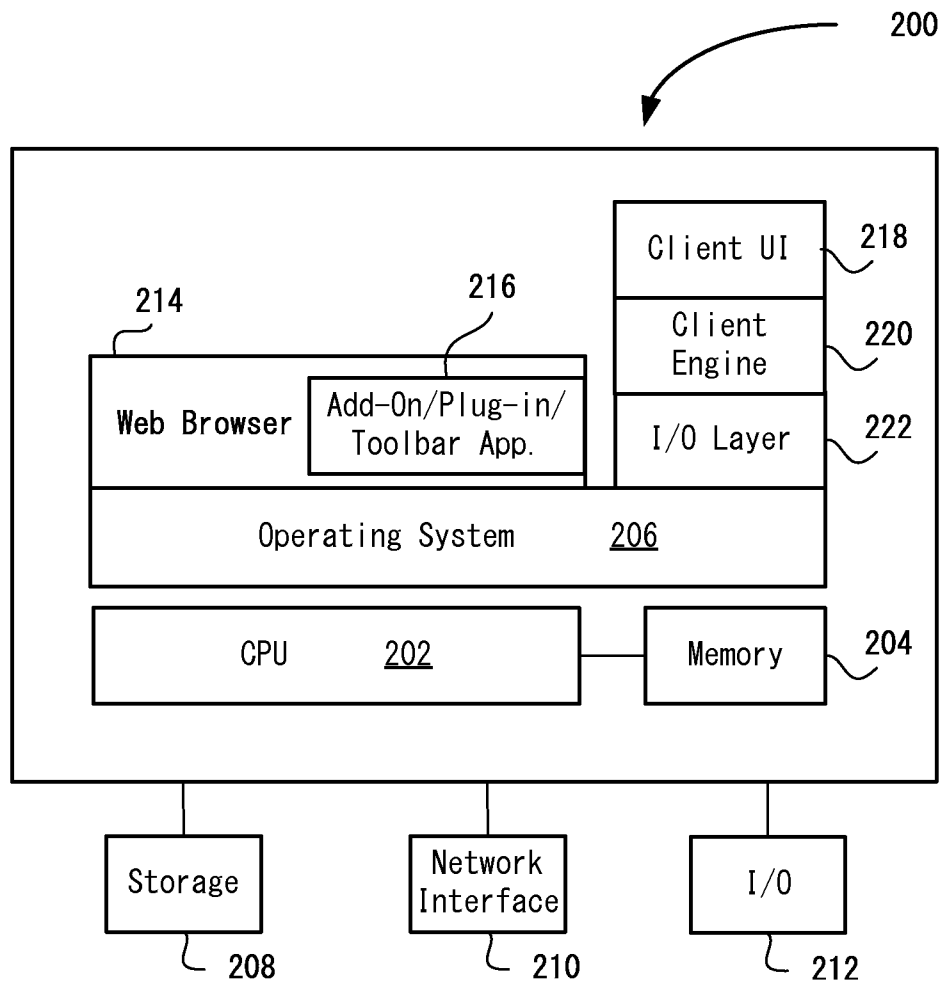


Fig. 2

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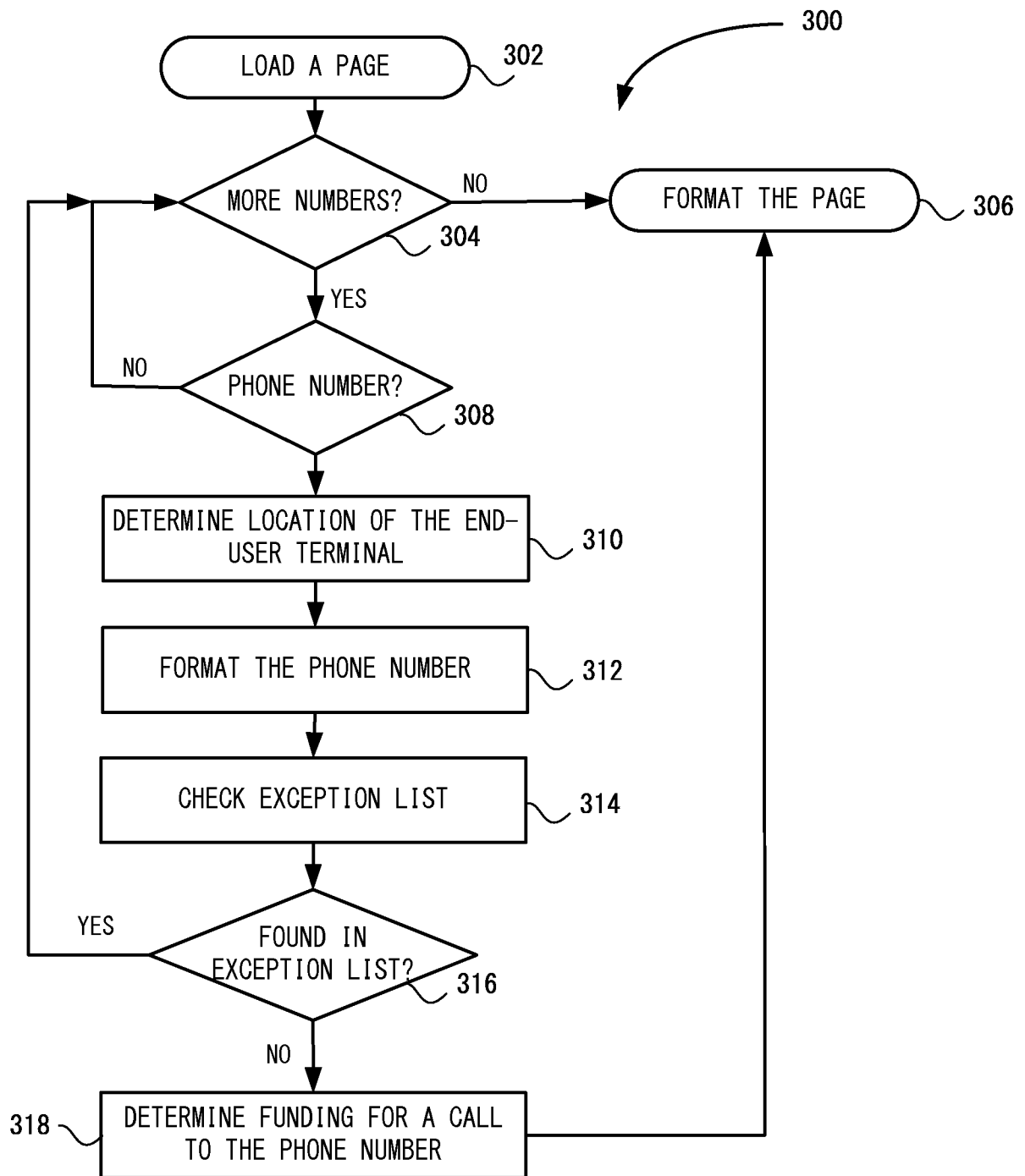


Fig. 3

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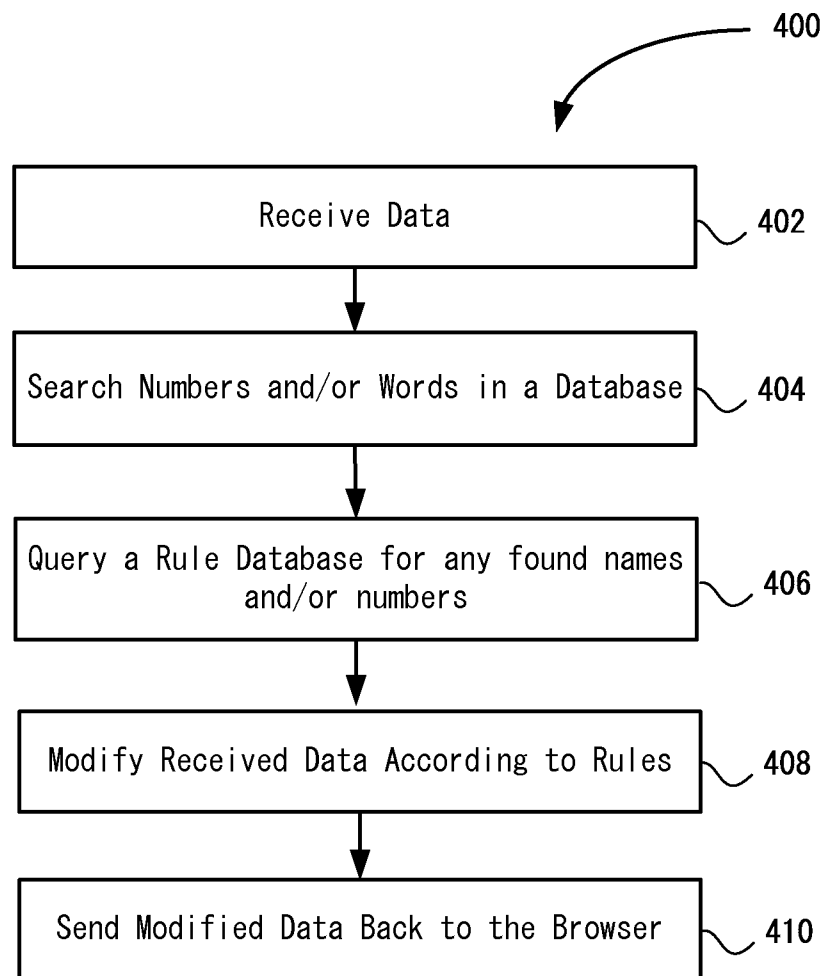


Fig. 4

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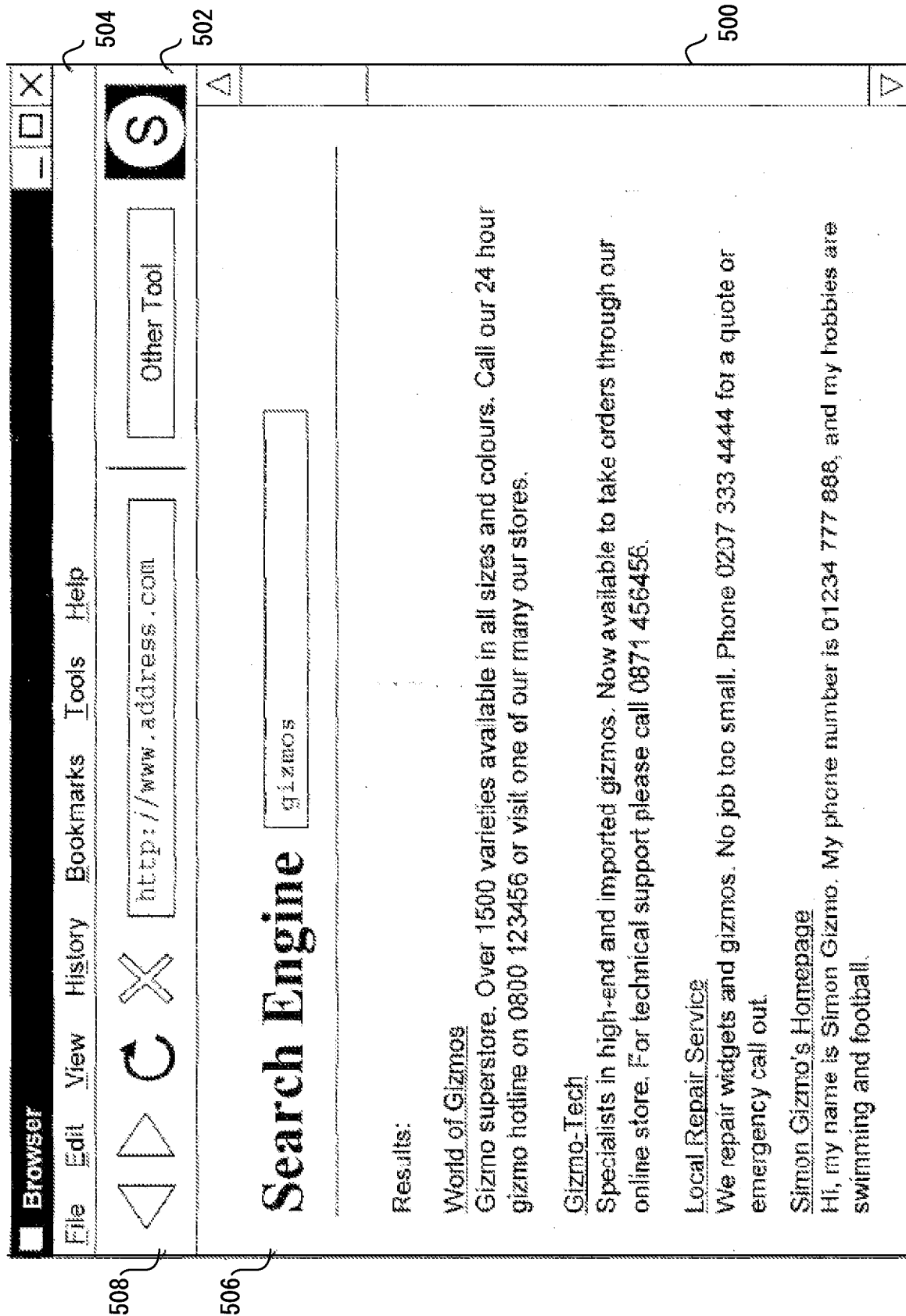
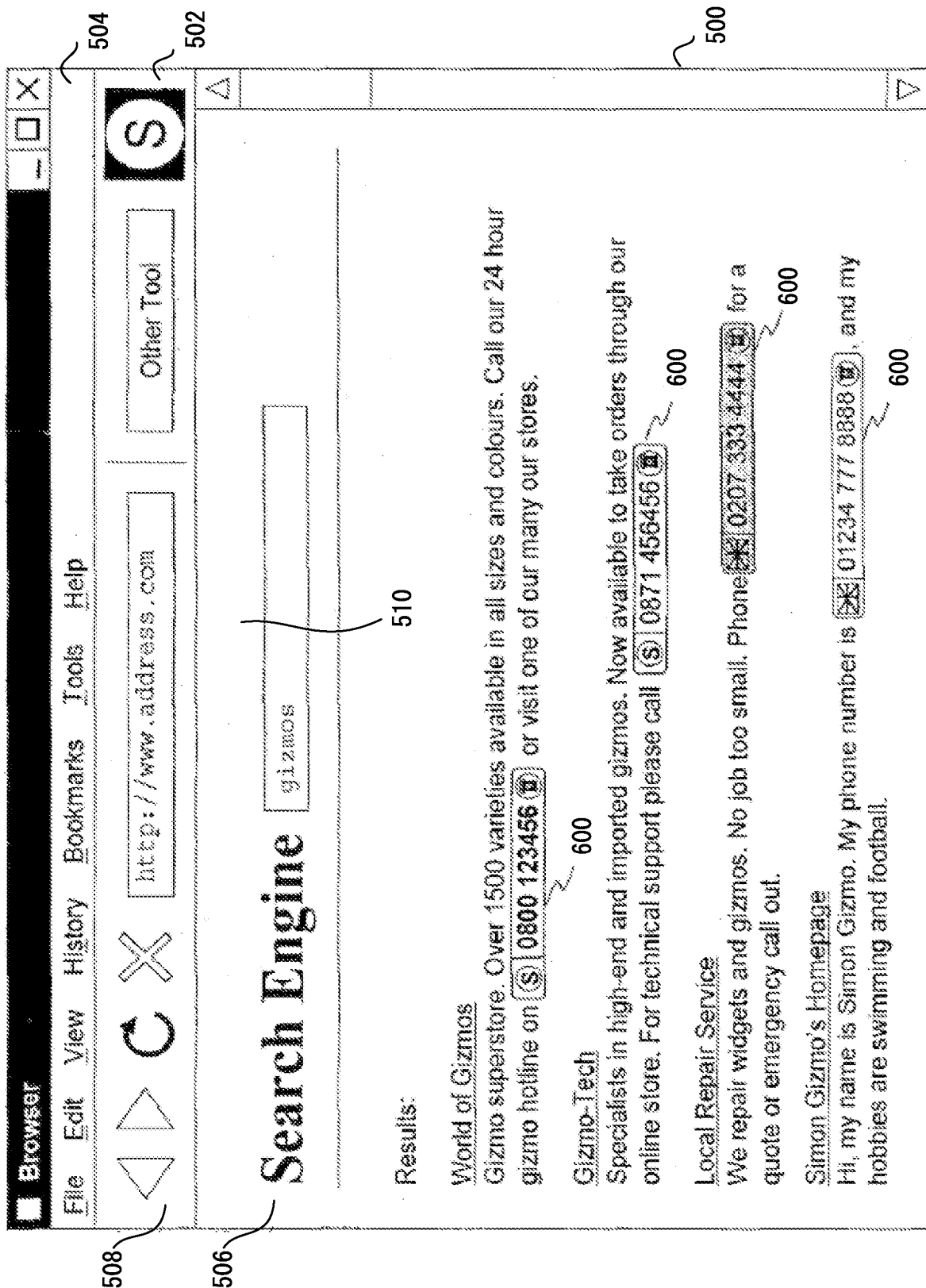


Fig. 5



Fi 6

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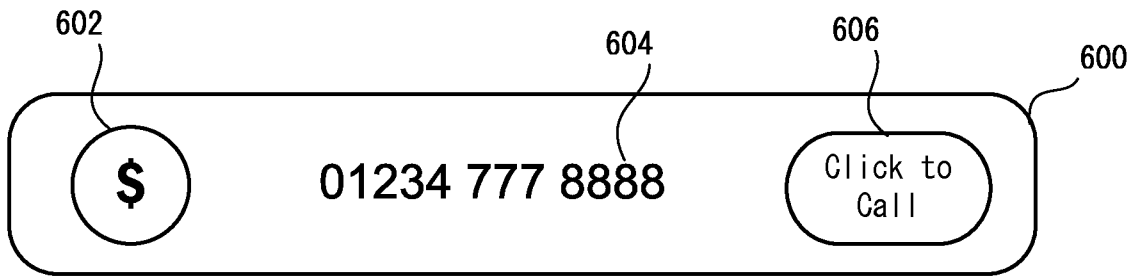


Fig. 7A

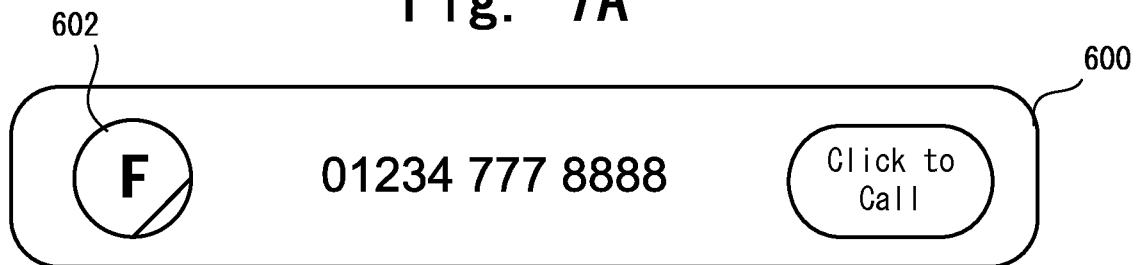


Fig. 7B

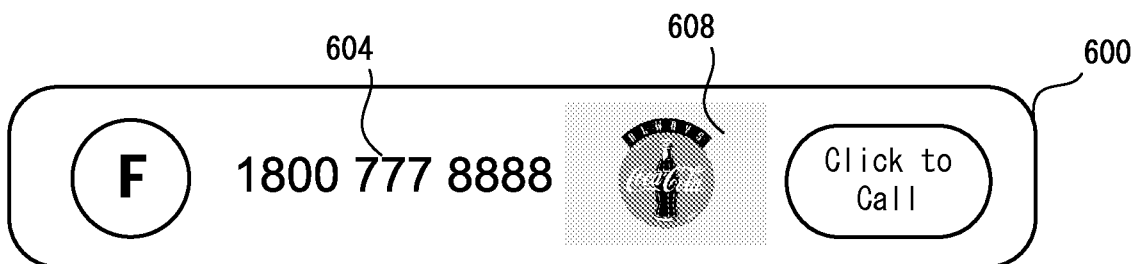


Fig. 7C



Fig. 7D

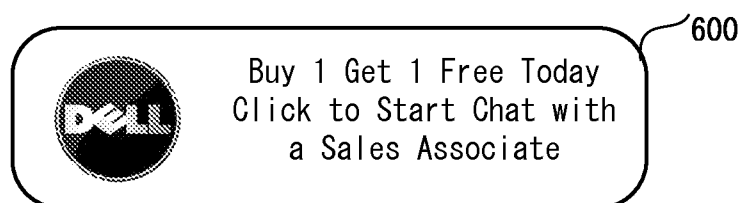


Fig. 7E

INTERNATIONAL SEARCH REPORT

International application No
PCT/US2012/055682

A. CLASSIFICATION OF SUBJECT MATTER
INV. H04M3/487 G06F17/24 G06F17/27
ADD.

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)
H04M G06F

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)

EP0-Internal

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 2007/274510 A1 (KALMSTROM PETER A [SE]) 29 November 2007 (2007-11-29) cited in the application abstract; figure 4 paragraph [0002] - paragraph [0006] paragraph [0052] - paragraph [0054] paragraph [0080] - paragraph [0081] -----	1-5,10
A	US 2010/107203 A1 (MCCARTHY MARY [US] ET AL) 29 April 2010 (2010-04-29) the whole document -----	1-5,10
A	US 2001/034748 A1 (BIMSON ANDREA [US] ET AL) 25 October 2001 (2001-10-25) the whole document -----	1-5,10



Further documents are listed in the continuation of Box C.



See patent family annex.

* Special categories of cited documents:

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier application or patent but published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of 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

"&" document member of the same patent family

Date of the actual completion of the international search

30 November 2012

Date of mailing of the international search report

06/03/2013

Name and mailing address of the ISA/

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Authorized officer

Tillgren, Mattias

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US2012/055682

Box No. II Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet)

This international search report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:
2. ☐ Claims Nos.:
because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically:
3. ☐ Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box No. III Observations where unity of invention is lacking (Continuation of Item 3 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

see additional sheet

1. ☐ As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims.
2. ☐ As all searchable claims could be searched without effort justifying an additional fees, this Authority did not invite payment of additional fees.
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims for which fees were paid, specifically claims Nos.:
4. ☒ No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

1-5, 10

Remark on Protest

- ☐ The additional search fees were accompanied by the applicant's protest and, where applicable, the payment of a protest fee.
- ☐ The additional search fees were accompanied by the applicant's protest but the applicable protest fee was not paid within the time limit specified in the invitation.
- ☐ No protest accompanied the payment of additional search fees.

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

1. claims: 1-5, 10

A method (or computer readable storage medium) for formatting the presentation of a telephone number based on information regarding the owner (or similar) of the telephone number and the user of the device.

2. claims: 6-9

Internet based communication system, wherein end user terminals can be connected to PSTN terminals.

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

PCT/US2012/055682

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 2007274510 A1	29-11-2007	NONE	
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