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APPLICANTS MICHAEL JOHN GRIFFITHS, BROOMFIELD, CO.

CONTINUING DATA***
 VERIFIED THIS APPLN IS A CIP OF 08/858,650 05/19/97

FOREIGN APPLICATIONS***
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Foreign priority claimed 35 USC 119 conditions met	<input type="checkbox"/> yes <input checked="" type="checkbox"/> no	AS FILED	STATE OR COUNTRY CO	SHEETS DRWGS. 4	TOTAL CLAIMS 29	INDER CLAIMS 3	FILING FEE RECEIVED \$559.00	ATTORNEY'S DOCKET NO. 18022-002
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TITLE METHOD FOR COUNTING DISPLAYS OF BANNERS ON TERMINALS CONNECTED TO A COMPUTER NETWORK A SYSTEM USING FIRST BANNER REQUEST THAT CAN NOT BE BLOCKED FROM REACHING A SERVER FOR ACCURATELY COUNTING DISPLAYS OF BANNERS ON A NETWORK

PARTS OF APPLICATION FILED SEPARATELY		Applications Examiner	
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PATENT APPLICATION



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	1. Application <u>4</u> papers.	
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June 11, 1997

EXPRESS MAIL POST OFFICE TO ADDRESSEE LABEL NO.
EM177699989US

Commissioner of Patents and Trademarks
BOX PATENT APPLICATION
Washington, D.C. 20231

Re: U.S. Patent Application: METHOD FOR COUNTING DISPLAYS OF
BANNERS ON TERMINALS CONNECTED TO A COMPUTER
NETWORK

Inventor: Michael John Griffiths
Our File No.: 18022-002

Sir:

The enclosed Patent Application of the above-referenced inventor, Michael John Griffiths, Westminster, Colorado is being filed by **EXPRESS MAIL POST OFFICE TO ADDRESSEE (Label No. EM177699989US)** with the specification, claims, abstract, and drawings which are sufficient to obtain a filing date under 37 C.F.R. 1.53 of the Patent Office Rules. The applicant will complete the application by submitting the required filing fee and declaration within the time allowed under 37 C.F.R. 1.53. This application is a continuation-in-part of Application Serial Number yet to be assigned, filed May 19, 1997, and entitled Information Storage and Delivery Over A Computer Network Using Centralized Intelligence to Monitor and Control the Information Being Delivered.

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Sincerely,



Scott B. Allison
SBA:mmp
Enc.

POST FOR FILING



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicants:	Michael John Griffiths)	
Serial No.:	Not Yet Accorded	)	Art Unit: Not Yet Accorded
Filing Date:	Not Yet Accorded)	
Title:	METHOD FOR COUNTING DISPLAYS OF BANNERS ON TERMINALS CONNECTED TO A COMPUTER NETWORK	)	Examiner: Not Yet Accorded
Our File No.:	18022-002)	



CERTIFICATE OF EXPRESS MAILING UNDER 37 C.F.R. 1.10

I hereby certify that the following documents:

1. Patent Application (including fifty-four (54) pages of specifications, six (6) pages of claims (1-29), and Abstract) entitled METHOD FOR COUNTING DISPLAYS OF BANNERS ON TERMINALS CONNECTED TO A COMPUTER NETWORK;
2. Four (4) sheets of drawings (Figures 1-4);
3. Transmittal Letter to Assistant Commissioner of Patents; and
4. Post Card for return by U.S. Patent and Trademark Office

are being deposited with the United States Postal Service as EXPRESS MAIL POST OFFICE TO ADDRESSEE, postage prepaid, EXPRESS MAIL LABEL NO. EM177699989US, in an envelope addressed to: Assistant Commissioner for Patents, BOX PATENT APPLICATION, Washington, D.C. 20231, on this 11th day of June, 1997.

Scott B. Allen

65431 U.S. PTO 08/07/97

081872971

CROSS-REFERENCE TO RELATED INVENTION

This application is a continuation-in-part of Application Serial No. 68/858,650,
filed May 19, 1997, ^{new pending} and entitled Information Storage and Delivery Over A computer Network
Using Centralized Intelligence to Monitor and Control the Information Being Delivered.

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BACKGROUND OF THE INVENTION

1. **Field of the Invention:**

This invention relates to the system for the storage, management, and delivery of information on a computer network and, more specifically, to the efficient and accurate counting of advertising information displayed on terminals connected to the computer network.

2. **Description of the Prior Art:**

During recent years there have been rapid advancements in computers and computer networking. In particular, the world-wide network of computers commonly referred to as the Internet has seen explosive growth. The Internet comprises a vast network of smaller wide area and local area computer networks connected together so as to allow the sharing of resources and to facilitate data communication between computers and users. The rapid growth of the Internet is due, in large part, to the introduction and widespread use of graphical user interfaces called browsers which allow users easy access to network servers and computers connected to the Internet and, more particularly, the World Wide Web.

The World Wide Web forms a subset of the Internet and includes a collection of servers, computers, and other devices. Each server may contain documents formatted as web pages or

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hypertext documents that are accessible and viewable with a web compliant browser, such as the Netscape Navigator™ browser or the Mosaic™ browser. Each hypertext document or web page may contain references to graphic files or banners that are to be displayed in conjunction with the hypertext document or web page. The files and banners may or may not be stored at the same location as the hypertext document or web page.

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A hypertext document often contains hypertext links to other hypertext documents such that the other hypertext documents can be accessed from the first hypertext document by activating the hypertext links. The servers connected to the World Wide Web utilize the Hypertext Transfer Protocol (HTTP) which is widely known protocol which allows users to use browsers to access web pages and the banners or files associated with web pages. The files, banners, hypertext documents, or web pages may contain text, graphics, images, sound, video, etc. and are generally written in a standard page or hypertext document description language known as the Hypertext Markup Language (HTML). The HTML format allows a web page developer to specify the location and presentation of the graphic, textual, sound, etc. on the screen displayed to the user accessing the web page. In addition, the HTML format allows a web page to contain links, such as the hypertext links described above, to other web pages or servers on the Internet. Simply by selecting a link, a user can be transferred to the new web page, which may be located very different geographically or topologically from the original web page.

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When using a conventional browser, a user can select which web page or hypertext document the user wishes to have displayed on the user's computer or terminal by specifying the web page's Universal or Uniform Resource Locator (URL) address. Each server has a unique

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URL address and, in fact, so does each web page and each file needed to display the web page. For example, the URL address for the U.S. Patent and Trademark Office is currently <http://www.uspto.gov>. When a user types in this URL address into a browser, the user's terminal establishes a connection with the U.S. Patent and Trademark Office and the initial web page for the U.S. Patent and Trademark Office is transmitted from the server storing this web page (which may or may not be actually located at the U.S. Patent and Trademark Office) to the user's terminal and displayed on the user's terminal. The web page may include a number of graphic images or elements, often referred to as banners, which are to be displayed on the user's terminal in conjunction with the web page. Each of the graphic images is typically stored as a separate file on the server and has its own URL address. When the web page is initially transmitted from the server to the user's terminal, the browser receives the URL addresses for the graphic images and then requests that they be transmitted from the server on which they are stored to the user's terminal for display on the user's terminal in conjunction with the web page. The server(s) on which the graphic images are stored may or may not be the same server on which the original web page is stored. More specifically, since the URL's addresses for the included graphic images are all processed separately using the HTML protocols, it is possible and, in fact, common, for these graphic images to be stored on separate and even widely distributed computers or hosts, all of which are accessible to the user's terminal via a computer network. For purposes of the present invention, the term "banner" is meant to be construed very broadly and includes any information displayed in conjunction with a web page wherein the information is not part of the same file as the web page. That is, a banner includes anything that is displayed or used in conjunction with

a web page, but which can exist separately from the web page or which can be used in conjunction with many web pages. Banners can include graphics, textual information, video, audio, animation, and links to other computer sites, web sites, web pages, or banners.

5 The growth of easy access to the World Wide Web and the ability to create visually
pleasing web pages have helped increase the amount of advertising and other promotional
materials created for use and display with web pages. For example, a car manufacturer may have
a web page describing the company and the cars and car parts that the company manufactures and
sells. Part of the web page may include advertising information or banners such as, for example,
10 images of current car models sold by the manufacturer or the types and numbers of cars the
manufacturer has in stock. The car manufacturer may also contract with the owners or operators
of other web pages to have the car manufacturer's advertisement banners displayed when users
access these other web pages. Similarly, an advertising agency may contract with various web
sites to have the advertisement banners of the agency's clients displayed when users access the web
15 pages stored on the web sites. For example, an advertising agency or ad-network firm may
contract with a web site containing general information about cars to have advertising information
or banners included on the web pages displayed to a user accessing the web site. The advertising
banners may contain graphics, text, etc. about car models or car parts manufactured by one of the
advertising agency's clients. Furthermore, the advertisement banners may not be stored on the
same server or computer or web site on which the web page is stored. Rather, all or a significant
20 portion of the advertisement banners created by an advertising agency may reside on one or more
information or ad servers. Typically, an advertising agency will pay a fixed amount of money for

a fixed number of displays of its advertisement banners on a single web page or group of web pages. Therefore, advertising agencies are understandably very interested in knowing which advertisement banners have been displayed with which web pages and how often each advertisement banner has been displayed on terminals or otherwise served to terminals.

5 Unfortunately, the current state of the art is such that accurate counts are not made of how many times an banner, even a banner containing an advertisement, is displayed to users or served to terminals. Furthermore, nature and extent of the problem of miscounting displays of banners is not well-known or even understood in the industry or by people of ordinary skill in the art. Therefore, despite the well-developed state of the art in the displaying of information, banners, and advertisements in conjunction with web pages, documents, or other information, there is still
10 a need for a system for storing and delivering information and banners on a computer network where accurate counts of the number of times each piece of information and banner is displayed can be made and the information and banners are displayed quickly and efficiently to users or terminals. In addition, there is a need for a highly reliable, even fault-tolerant, system for storing
15 and delivering the information and banners that will not significantly reduce the efficiency of the Internet or the servers on which the information and banners are stored, while providing for accurate monitoring and counting of the information and banners displayed to a user or served to a terminal.

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SUMMARY OF THE INVENTION

Accordingly, it is a general object of the present invention to provide a system for storing

and delivering information on a computer network.

It is a specific object of the present invention to provide a system for the storage, delivery monitoring, and tailoring of advertising information on a computer network.

It is another general object of the present invention to provide a system for storing and
5 delivering information on a computer network wherein accurate counts of the number of times the information is displayed or served to users or terminals can be made.

It is a specific object of the present invention to provide a system for storing and delivering information on a computer network wherein the operation of the computer network is not significantly affected.

10 It is another general object of the present invention to provide a system for storing and delivering information on a computer network wherein the system maintains a high degree of reliability and fault tolerance.

15 Additional objects, advantages, and novel features of the invention shall be set forth in part in the description that follows, and in part will become apparent to those skilled in the art upon examination of the following or may be learned by the practice of the invention. The objects and the advantages may be realized and attained by means of the instrumentalities and in combinations particularly pointed out in the appended claims.

20 To achieve the foregoing and other objects and in accordance with the purposes of the present invention, as embodied and broadly described herein, the system includes terminals connected to a computer network, either directly, or indirectly through an intermediary device such as a local or proxy server, that access computer or web sites also connected to the computer

network to download or transmit pages, documents, or other information from the computer or web sites for storage or display on the terminals, wherein the pages, documents, or other information served to the terminals contain references to banners to be displayed in conjunction with the pages, documents, and information. The terminal initiates access or connection to a desired computer or web site to access a desired page. After the desired page is transmitted and served to the terminal from the computer or web site, the terminal initiates and sends an initial banner request signal to an information server either requesting that unspecified banner be served to the terminal or that a specified banner be served to the terminal. The information server returns a redirect signal to the terminal telling the terminal the location on the computer network of the banner requested or specified by the terminal or selected by the information server, which location may be the information server, the computer site, or some other information server, computer site, or location accessible to the terminal via the computer network. The terminal then initiates a second specific banner request signal to the location of the banner requested or specified by the terminal or selected by the information server and the banner is transmitted to the terminal for display on the terminal, unless the requested or selected banner has previously been stored or cached in the terminal's memory or in the memory of a local or proxy server connected to the terminal, in which case the second banner request signal is not sent across the computer network and the banner is loaded and/or displayed directly from the terminal's memory or served to the terminal from the proxy server. Each display of a banner on a terminal is counted, preferably by an information server, so that accurate counts of banner displays can be made.

In a second embodiment, a primary information server and at least one mirror information

server are connected to the computer site, but may be separated either geographically or network topologically. The banner information stored in the primary information server is also stored in each of the mirror information servers. All of the initial banner request signals are sent to the primary information server which determines which information server is best suited for delivering the banner to the terminal sending the initial banner request signal. As in the first embodiment, the banner may be specifically requested by the terminal or may be selected by the primary information server. The primary information server then sends a signal to the terminal indicating to the terminal which information server the terminal should request the requested or selected banner from. The terminal then generates the second banner request signal to serve or transmit the banner from the information server selected by the primary information server. Should the primary information server go offline, one or more of the mirror information servers can become a new primary information server.

BRIEF DESCRIPTION OF THE DRAWINGS

The accompanying drawings, which are incorporated in and form a part of the specification, illustrate the preferred embodiments of the present invention, and together with the descriptions serve to explain the principles of the invention.

In the Drawings:

Figure 1 illustrates a computer network over which the present invention can be implemented;

Figure 2 shows an representative web page accessible from a computer site connected to

the computer network of Figure 1;

Figure 3 shows a flowchart diagram of a prior method for storing and delivering information across the computer network of Figure 1; and

5 Figure 4 shows a flowchart diagram of the preferred method of the present invention for storing and delivering information across the computer network of Figure 1.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

10 A representative computer network 30 is illustrated in Figure 1 and includes computers or terminals 32, 34, 36, 38, 40, 42, 44 with which users can access or connect to the computer network 30 and the resources connected to the computer network 30 such as the computer or web sites or servers 46, 48. The computer network 30 can include satellite links, microwave links, fiber optic transmission lines, local area networks, wide area networks, etc. Terminals, such as the terminals 36, 38, 40, 42, 44, may be connected to the computer network 30 via local or caching proxy servers 50, 52 or other intermediary devices (not shown). Proxy servers allow multiple terminals to access the computer network 30, while reducing the number of physical connections to the computer network 30, as will be discussed in more detail below. A primary information server 54 and mirror information servers 56, 58 may also be connected to the computer network 30 to facilitate the serving and displaying of information or banners to the terminals 32, 34, 36, 38, 40, 42, 44, as will also be discussed in more detail below. The computer network 30 illustrated in Figure 1 is only meant to be generally representative of computer networks for purposes of elaboration and explanation of the present invention and other

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5 devices, networks, etc. may be connected to the computer network 30 without departing from the scope of the present invention. The computer network 30 is also intended to be representative of, and include, the Internet, the World Wide Web, privately or publicly owned or operated networks such as, for example, Tymnet, Telenet, America On-Line, Prodigy, Compuserve, Information
10 America, and the Microsoft Network, and other local or wide area computer networks. The computer network 30 can also include or be representative of corporate or other private intranets, which are privately owned networks using Internet protocols. It should also be noted that the distinction between information servers, web site, computer sites, and generic servers is made only for the purposes of elaboration and explanation of the present invention and that a device can
15 function simultaneously or alternatively as a computer site, web site, information server, generic server, or other device, or combinations thereof without falling outside the scope of the present invention.

By way of general introduction, in a typical computer network, a user located at a terminal can access the resources connected to the computer network. For example, a user at the terminal
20 34 or terminal 36 can access the web site or computer site 46 and the information stored thereon. The computer site or server 46 may contain web pages, such as the web page 60 illustrated in Figure 2, that the user can download for display on the terminal 34. For purposes of this invention, the term "web page" shall be defined broadly and will include any hypertext document, information, screen displays, etc. that a user can download or otherwise retrieve from a computer
25 or web site for display and/or storage on the user's terminal, and shall not be limited to only the information, pages, or documents retrievable by a user connected to the World Wide Web.

Therefore, the term "web page" will be used generically to refer to information transmitted or served to a terminal from a computer site, web site, server, or other device, wherein the web page may contain banners or references to banners that can be served to the terminal and displayed in conjunction with the web page. The web page 60 may contain textual information, such as "XYZ COMPANY" and "Company History," and information configured in banners, such as the banners 62, 64, 66. The banners 62, 64, 66 may contain graphics, text, video, etc. As will be discussed in more detail below, the banners associated with a web page may not be stored at the same place as the web page and may be downloaded or served to a user's terminal separately from the web page. A significant feature and advantage of the present invention is in the way the banner information is selected and downloaded or served to a user's terminal from computer sites or information servers connected over a same computer network, as will be discussed in more detail below. The current state of the art is such that the counts of banner displays are largely inaccurate, banners are not targetable to large segments of the population using caching proxy servers, and suffers when the performance gains provided by proxy servers are not taken into account in prior art methods of counting banner displays, as will also be discussed in more detail below.

In a conventional web page, such as the web page 60, if a user clicks on, or otherwise activates, the button associated with the textual information, a new web page might be displayed on the user's terminal. For example, if the user clicks on the button 68 associated with the textual information "Company History," a new web page devoted to the history of the XYZ company might be served from the computer site 46 to the user's terminal 34 and displayed on the user's

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terminal 34. Similarly, if the user clicks on the button 70 associated with the textual information "Product Line," a new web page devoted to the product line of the XYZ company might be served from the computer site 46 to the user's terminal 34 and displayed on the user's terminal 34. Each web page may contain similar "links" to other web pages, hypertext documents, web sites, etc.

5 Activating a link available on a web page or hypertext document, therefore, provides the user with an ability to navigate or move to and display or download different documents, pages, banners, sites, or other information via the computer network 30.

When a user has a web page displayed on the user's terminal, the web page and its associated banners are often stored or cached in the terminal's memory for a period of time. In this fashion, if the user desires or requests that a web page previously displayed to the user on the terminal be reaccessed and displayed on the user's terminal, the web page and the banners associated with the requested web page can be loaded directly from the terminal's memory without reconnecting to the computer or web site on which the web page is stored and from which the web page was originally served and without reconnecting to the computer site or information server on which the banners are stored and from the banners were originally served, thereby reducing the time needed to display the web page. Similarly, if the user's terminal is connected to a local or proxy server, the web page and the banners associated with the web page may be stored in the memory of the proxy server. Should the user at a terminal request a redisplay of a web page previously displayed on the user's terminal or previously displayed on any other terminal connected to the same proxy server, the web page and the banners associated from the web page can be served from the proxy server to the terminal for display on the terminal without connecting

to the computer or web site on which the web page is stored and from which the web page was originally downloaded or served and without connecting to computer site or information servers on which the banners are stored and from which the banners were originally transmitted or served.

Note that, in the case that the information is retrieved from a copy of the information previously stored held within a proxy server connected to the terminal, the serving of the information to the terminal will typically be completed by sending the information from the proxy server to the terminal, *i.e.*, without the participation of the computer site or server. Therefore, it is difficult for the computer site or server 46 to maintain an accurate count of the terminals 36, 38, etc. on which the information is displayed if the terminals are connected to caching proxy servers, if the performance benefits offered by the caching proxy server are desired.

As previously discussed above, a significant feature and advantage of the present invention is in the way the banner information is selected and transmitted and served to the user's terminal from computer sites or information servers connected over a same computer network. More specifically, the method of the present invention allows banner information to be served over a computer network to a terminal, computer, etc. in a way which takes advantage of the performance enhancements offered by caching proxy servers and such that the operation of the computer network is not significantly affected while providing the ability to accurately track or count the number of times the banner information has been displayed on terminals connected to the computer network, as will be discussed in more detail below. It is not uncommon for banners to contain up to fifty kilobytes (KB) of information, thereby making the limiting of banner transmissions across a computer network very significant to the efficiency and operation of the

computer network and to banner serving computer systems.

For purposes of elaboration and explanation of the present invention, the conventions and protocols of the World Wide Web, and browsers therefore, will be used as examples, in particular, the concept of a Uniform Resource Locator (URL), the Hypertext Transfer Protocol (HTTP), the Hypertext Markup Language (HTML), and the Transmission Control Protocol/Internet Protocol (TCP/IP). It should be noted, however, that the concepts underlying the present invention can be used for computer networks using other or different types of conventions and protocols. For more details on these protocols, the reader is directed to: Kevin Washburn and Jim Evans, TCP/IP running a successful network, 2nd Ed. (1996), published by Addison-Wesley, Douglas E. Comer, Internetworking with TCP/IP, 3rd Ed. (1995), published by Prentice Hall, John December and Mark Ginsberg, HTML 3.2 and CGI Unleashed Professional Reference Edition (1996), published by Sams.net Publishing, and Jerry Honeycutt *et al.*, Using HTML 3.2, 3rd Ed (1997), published by Que Corporation, all of these references of which are incorporated herein by reference. Other information about the HTTP, HTML, TCP/IP and other network protocols can also be found in U.S. Patent No. 5,617,540 issued to *Civanlar et al.*, U.S. Patent No. 5,572,643 issued to *Judson*, and U.S. Patent No. 5,442,771 issued to *Filepp et al.*, all of which are also incorporated herein by reference. The linking of one web page or hypertext document to another is commonly done using a hypertext markup comment tag. When the user clicks on or otherwise activates the hypertext markup comment tag, a link to the new web page or hypertext document is generally initiated by the user's browser software which causes the user's terminal to request that the new web page or hypertext document be displayed on the user's terminal or computer. Similarly, if

a web page served to a user's terminal contains banners, the URL addresses for the banners will be served with the web page so that the terminal can request that the banners be served to the terminal for display on the terminal along with the previously served web page.

5 It should also be noted that the disclosed system and method also work for all types of operating systems running on the computers, terminals, computer sites, information servers, and other devices connected to the computer network 30. Such operating systems can include, for example, Microsoft's DOS™, WINDOWS 3.x™, WINDOWS NT™, or WINDOWS 95™ software, IBM's OS/2™ software, Apple's System 7™ software, or the AIX or UNIX operating system software platforms.

10 Now referring back to Figure 1, computers or terminals can be connected to the computer network 30 in a variety of ways. For example, the terminals 32, 34 can be connected directly to the computer network 30 or may be attached via a dial-up line or network access service provider. Other terminals may be connected to the computer via network proxy or local servers, such as the proxy servers 50, 52. Proxy servers allow multiple computers, terminals, or computer networks to be connected to another computer network at a single point. In addition, since the connection from the terminals 32, 34 and the proxy server 50 to the computer network 30 is in most instances slower than the connections from the terminals 36, 38 to the proxy server 50, the proxy server 50 can provide significant speed improvements. For example, a large corporation may have all its terminals connected via a local area computer network. The local area computer network can be connected to a caching proxy server which is, in turn, connected to the computer network 30. In 20 the computer network 30 illustrated in Figure 1, the terminals 36, 38 access the computer network

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30 through the proxy server 50. Similarly, the terminals 40, 42, 44 access the computer network 30 through the proxy server 52. Using proxy servers allows multiple computers or terminals to access a computer network while limiting the number of physical connections to the computer network. Unfortunately, the use of proxy or network servers also creates some serious problems when the counting of banner information files displayed to users on terminals is desired, as will be discussed in more detail below.

As previously discussed above, the connection of computer sites, web sites, information servers, terminals, and other devices to a computer network allows the resources and information stored in the computer sites, information servers, and other devices to be accessible to users at the different terminals connected to the computer network. The users can also communicate with each other or the computer sites by sending messages or e-mail. When a user accesses the information stored at a computer site, information, web pages, or screen displays are generally served from the computer site for display on the user's terminal or computer. The information transmitted to the user's terminal may contain a banner which is also served from the computer site, or which may be instead automatically served from other computer sites or information servers connected to the computer network. As a general example, referring once again to Figure 1, suppose a user at the terminal 36 accesses the web site or computer site 46 via the proxy server 50 and the computer network 30 in order to obtain information about the hypothetical XYZ Company. A web page about the XYZ Company, such as the web page 60 illustrated in Figure 2, may be served from the computer site 46 to the terminal 36 and displayed on the user's terminal 36. The web page 60 may contain places for banner information, such as the banners 62, 64, 66 illustrated in

5 Figure 2. When the web page 60 is received by the user's terminal 36, the banners 62, 64, 66 may be received at the same time. Alternatively, instructions may be sent to the user's terminal 36 from the computer site 46 telling the terminal 36 where to find and request the banners 62, 64, 66 on the computer network 30, which may be the computer site 46, another computer site, or an information server such as the information servers 54, 56, 58. When such instructions are received by the user's terminal 36, the terminal 36 accesses the appropriate location of banners 62, 64, 66 via the computer network 30 and requests that the banners 62, 64, 66 be served for display on the user's terminal 36.

15 The process described above in relation to the example has many inherent problems, particularly when it is desired to count the number of times banner information is displayed on the user's terminal. More particularly, with reference to the previous example, the banners 62, 64, 66 displayed on the user's terminal may or may not be related to the XYZ Company. Regardless of the relationship between the banners 62, 64, 66 and the XYZ Company, the XYZ Company, an advertising agency, or some other entity may wish to know how many times the banners 62, 64, 66 have been displayed on users' terminals. As a more specific example, suppose the banners 62, 64, 66 constitute advertisements. The advertiser and the company or client for whom the advertisements are created will be very interested in knowing how many times the advertisements are displayed on users' terminals. Therefore, accurate count information for the banners 62, 64, 66 is highly desirable. Unfortunately, such accurate count information is very difficult to acquire, as will now be discussed in more detail.

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Now referring to Figure 3, a conventional method 72 used to download or serve web pages

and banner information to a user's terminal is illustrated. Using the examples discussed above, a user at the terminal 36 can access the computer site 46 via the computer network 30 and request a web page to be served from the computer site 46 to the terminal 36 during the request page step 74. When the user requests a page during the request page step 74, a signal is sent from the user's terminal 36 to the computer site 46 via the proxy server 50 and the computer network 30 telling the computer site 46 which page stored on the computer site 46 the user desires to have displayed on the user's terminal 36. However, the request signal sent by the user's terminal 36 during the request page step 74 may not reach the computer site 46. If the user at the terminal 36 had previously requested the same page from the computer site 46, the page may already be stored in the user's terminal 36. Similarly, if any users at the terminals 36, 38 had requested the same page from the computer site 46, the page may be stored in the proxy server 50. After the user requests a page during the request page step 74, the terminal 36 may determine if the desired page is already stored in the terminal 36 during storage determination step 76. If the desired page is already stored in the terminal 36, the terminal 36 will display the page during display step 78 without sending the signal to the computer site 46. If the desired page is not already stored in the terminal 36, the terminal 36 will send the page request signal during send page request step 80. Since the terminal 36 is connected to the proxy server 50, the page request signal sent during step 80 must pass through the proxy server before reaching the computer network 30. As a result, the proxy server 50 may determine if the desired page is already stored in the proxy server 50 during storage determination step 82 before it sends any signal to the computer site 46 over the computer network 30. If the desired page is already stored in the proxy server 50, the proxy server 50 can

stop or otherwise terminate the page request signal, thereby stopping the page request signal from being received by the computer site 46, and the proxy server will serve the desired page directly to the terminal 36 for display on the terminal 36 during serve requested page step 84. The terminal 36 may also store the desired page in its own memory during the serve requested page step 84. If the proxy server 50 does not have the desired page already stored in its own memory, the proxy server 50 will send the page request signal to the computer site 46 over the computer network 30 during send page request step 85. The computer site 46 will then serve the desired page to the proxy server 50 and the terminal 36 for display on the terminal 36 during the serve requested page step 86. Either or both the terminal 36 and the proxy server 50 may store the desired page during the serve requested page step 86.

Since terminals may be connected to the computer network 30 without also being connected to proxy servers, the steps 82, 84, and 85 may not always be necessary in the method 72. For example, now referring to Figure 1, the terminal 34 is not connected to a proxy server but is connected to the computer network 30. Therefore, the steps 82, 84 in the method 72 are not needed and the terminal 34 will send the page request signal via the computer network 30 directly to the computer site 46 during the send page request signal step 80.

The web page requested by the user from the computer site 46 may contain banner information, such as the banners 62, 64, 66 in the web page 60 illustrated in Figure 2. The banner information may be served with the web page or, more commonly, the banner information may reside in separate files which will need to be requested by the user's terminal 36 before the banner information can be displayed on the user's terminal 36 along with the requested web page.

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Typically, the web page information served to the terminal 36 for display on the terminal 36 will contain the electronic address information containing the location of the banner information on the computer network 30. The banner information may be located on the computer site 46 or at other locations connected to the computer network 30, as will be discussed in more detail below.

5 The terminal 36 will determine during banner determination step 88 if the page served to the terminal during steps 78, 84, or 86 contains banner information not already included in the web page displayed on the terminal 36. If the answer is no, *i.e.*, the web page served to the terminal 36 is complete, the process is ended. If the answer is yes, *i.e.*, the page served to the terminal 36 is not complete and contains banner information that needs to be served to the terminal 36, the terminal 36 requests the banner during request banner step 90.

10 Similar to the process described above for service of the desired page to the terminal 36, the terminal 36 first determines if the requested banner is already stored in the memory of the terminal 36 during banner storage determination step 92. The banner storage determination step 92 can occur in conjunction with the banner request step 90 such that no signal is generated by the terminal 36 if the requested banner is already stored in the terminal 36. If the requested banner is, in fact, already stored in the memory of the terminal 36, the terminal 36 will display the requested banner during display banner step 94 and the process is over. If the requested banner is not already stored in the memory of the terminal 36, the terminal 36 will generate and send a banner request signal during send banner request signal step 96. The request banner signal sent during the step 96 contains the address of the location of the desired banner so the computer network 30 can properly locate the desired banner.

Since the terminal 36 is connected to the proxy server 50, in a similar manner as described above in relation to steps 82, 84, 85, 86, once the proxy server 50 receives the banner request signal from the terminal 36, the proxy server 50 will determine whether or not the desired banner is already stored in the memory of the proxy server 50 during banner storage determination step 98. If the desired banner is already stored in the memory of the proxy server 50, the proxy server 50 will transmit and serve the banner directly to the terminal 36 for display by the terminal 36 during serve banner step 100. The terminal 36 may also store the banner in its own memory during the serve banner step 100. If the requested banner is not already stored in the proxy server 50, the proxy server will send the banner request signal to the device on which the requested banner is stored via the computer network 30 during the send banner request signal step 102. The device on which the requested banner is stored will then download or serve the requested banner to the proxy server 50 and the terminal 36 during the serve banner step 104 for display by the terminal 36. Either or both the terminal 36 and the proxy server 50 may store the banner served by the device on which the requested banner is stored during the serve banner step 104.

The steps 98, 100, and 102 will not be necessary if a terminal requesting the banner information is not connected to a proxy server. For example discussed above, since the terminal 34 is not connected to a proxy server, the steps 98, 100, and 102 are not needed for the terminal 34 and the terminal 34 will send the page request signal via the computer network 30 directly to the server on which the requested banner is stored during send banner request signal step 102.

When the computer site 46 in the example described above in relation to Figure 3 is a web site using the HTTP and HTML protocols, the user selects and accesses the web site 46 by

entering the Uniform Resource Locator (URL) address of the web site 46 into the terminal 36.

The page request signal generated by the terminal 36 during step 74 tells the computer network 30 and the equipment associated with the computer network 30 which computer site the user wishes to access. Each computer and device attached to the computer network 30 will have its

own unique URL address and each page and file stored in each computer will usually also have its own URL address so that each page and file can be made accessible to users via the computer network 30. For example, if the user desires to access the web page 60 for the XYZ company,

the user may enter the URL address for the web page 60, <http://www.xyzcompany.com>, into the browser software operating on the user's terminal. The URL address contains an alphanumeric portion or domain name, "www.xyzcompany.com" that identifies the web site in an easy to understand and remember format. Each computer or web site and other host devices, end systems, networks, or network router devices connected to the computer network 30, however, has a unique Internet Protocol (IP) address that is thirty-two bits in length and is generally written as four decimal numbers in the range zero (0) through 255, separated by periods. For example, an IP address could be 128.10.2.30 which in its full thirty-two bit format is 10000000.00001010.00000010.00011110. Providing every host computer on a computer network with a unique IP address allows any host computer to communicate with any other host computer.

By a process known as domain name resolution or by the use of Domain Name System (DNS), the IP address of the computer or web site on which XYZ Company's web page 60 and the web page 60 are stored can be determined from the domain name provided in the URL address. In fact, the IP address for computer or web site must first be determined when an URL

address is entered by the user at a terminal that does not contain the IP address. For example, if a user at a terminal or computer enters the alphanumeric domain name address, *i.e.*, <http://www.xyzcompany.com>, the alphanumeric domain name must be resolved by the Domain Name System to a specific IP address, *i.e.*, <http://019.247.56.38>, before the designated and desired computer containing the web page 60 for the XYZ Company can be accessed. If the user enters the specific IP address directly, then use and access of the Domain Name System is not required. If resolution or determination of an IP address is required, the name server will return the appropriate IP address to the terminal which generated the signal in which the IP address was not included. The use and operation of domain name resolution and the Domain Name System for determining IP addresses are well known to people of ordinary skill in this art and need not be explained in any further detail for purposes of the present invention.

When the web page requested by the user during page request step 74 is served to the terminal 36 during steps 78, 84, or 86, the web page will often contain the URL addresses of banners or banner information to be displayed along with the web page on the user's terminal 36 instead of the banner information itself. The terminal 36 will then use the URL addresses of the desired banner information to access the computer network 30 and request that the desired banner information be served to the terminal 36 for display on the terminal 36. For example, when the web page 60 for the XYZ company is served to a terminal, the web page may contain URL addresses for the banners 62, 64, 66. The URL address for the banner 62 may be of the form <http://www.bannersite1.com/banner1.gif>. The "bannersite1.com" portion of the URL address for the banner 62 indicates which device, for example the information server 54, connected to the

computer network contains the requested banner 62 where the "banner1.gif" portion of the URL address for the banner 62 indicates which file stored on the indicated device constitutes the banner 62. Similarly, the URL address for the banner 64 may be of the form http://www.bannersite2.com/banner54.gif. The "bannersite2.com" portion of the URL address for the banner 64 indicates which device, for example the information server 56, connected to the computer network contains the requested banner 64 where the "banner54.gif" portion of the URL address for the banner 64 indicates which file stored on the indicated device constitutes the banner 64. As shown by these examples, the banner 62 may not be stored on the same device as the banner 64. In addition, as previously discussed above, the banners 62, 64 may be located on the same web site as the requested page or may be located on other web or computer sites, such as the computer or web site 48 shown in Figure 1, or on information servers, such as the information servers 54, 56, 58 shown in Figure 1. When the terminal 36 requests the banner information during step 96, the banner request signal will contain the URL addresses for each banner to be displayed with the web page so that the banners can be located at, and served from, the appropriate devices on the computer network 30.

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The prior art method 72
 The ~~method 72~~ discussed above and illustrated in Figure 3 has many inherent problems, however, which make it unsuitable for counting the number of times a banner is displayed on the terminals connected to the computer network 30, as will now be discussed in more detail. Since the web page, and the banners to be displayed with the web page, selected by the user can be stored in either the user's terminal or the proxy server connected to the user's terminal, not all requests for the banner information are forwarded by the user's terminal or respective proxy

server and transmitted over the computer network 30. While this result may appear to be beneficial in that the amount of data traffic on the computer network 30 is reduced, in fact, this result prevents the accurate count of banner displays. More specifically, entities such as advertising agencies, advertising repping firms, and the entities hiring them want to count and know each time a banner is displayed on a user's terminal so that the success or failure of various advertising banners can be determined and so that the correct payment for the display of the advertising banners can be computed. There are two conventional ways in which the number of times a banner is displayed is counted. The first way is to count the number of times an information server or computer site serves a page during the step 86. The second way is to count the number of times that the information server actually serves a banner during the step 104. Unfortunately, a page requested by a terminal during the step 74 is already stored on either the terminal or a proxy server connected to the terminal, the display of the banner on the user's terminal is not counted under the first method. Similarly, if a banner requested by a terminal during the step 90 is already stored on either the terminal or a proxy server connected to the terminal, the display of the banner on the user's terminal is not counted under the second method. The discrepancy between the number of times a banner is actually displayed on a user's terminal and the number of times the display of the banner on the user's terminal is counted can become significant, even reaching error rates of eighty percent or higher.

One solution to the problem is to prevent banner information from being stored or cached on either the user's terminal or the proxy server to which the user's terminal is attached. Therefore, each time a banner is requested by the user's terminal, the banner will have to be

downloaded or served from the computer site or information server on which the banner is stored to the user's terminal for display on the user's terminal. For example, the HTTP and HTML protocols allow banners to be tagged or indicated as being uncacheable or unstorable at the user's terminal or the proxy server connected to the user's terminal, as will be discussed in more detail below. Therefore, such a solution can be implemented where after each request for banner information, the requested banner information is served from the location storing the banner information, thereby allowing the display of the banner information to be counted accurately at the location at which the requested banner information is stored.

The solution described in the preceding paragraph creates a significant problem, however, that creates even more significant consequences, thereby making its use for accurately counting advertisement and banner displays highly impractical and undesirable. More specifically, the storage of web pages and banner information at the user's terminal or in the proxy server connected to the user's terminal provides several important benefits that will be eliminated by this simple solution. First, the speed at which the information is displayed on the user's terminal will be reduced since the information will always have to be transmitted or served to the user's terminal for display on the user's terminal each time the user requests the information. If the information had previously been requested by the user such that the information was already stored in the user's terminal or the proxy server connected to the user's terminal, or if the information had previously been requested by a second user at a terminal connected to the same proxy server as the first user's terminal such that information was already stored in the proxy server connected to the first user's terminal, re-requesting the information to be downloaded or served from another

device connected to the computer network and the actual serving of the information to the user's terminal will take substantially longer than loading the information already stored in the user's terminal or serving the information to the user's terminal only from the proxy server to which the user's terminal is connected. If the banners contain advertisements, the length of time the banner is displayed to the user may also be critically important to the advertiser. The user may not wait for the banner information to be served and displayed before the user selects another web page, thereby minimizing the success of the banner.

A second and more serious problem created by having to serve the information displayed on the user's terminal each time the information is requested is that the amount of data traffic on the computer network will significantly increase, and can even bring the flow of information to a virtual stop, particularly if all requests for banner information from any terminal connected to the computer network require the information to be transmitted across the computer network to the terminal.

A third problem created with the prior art method 72 is that the step 100 eliminates any possibility of targeting specific information to be displayed with specific web pages. That is, if any demographic or other information about the user or terminal 36 is known by the server on which the banners are stored, the prior art method 72 prevents the server from using the demographic or other information to target the user with a specific banner or to tailor a banner to the specific user. Such targeting or tailoring of banners can be very important when the banners contain advertising information and the advertisers want to send specific advertisement banners to users about whom specific demographic or other information is known.

The method 110 of the present invention solves the initial problem of how to create accurate counts of banner information displays on user terminals while avoiding the problems created by requiring the banner information to be retransmitted across the computer network each time the banner information is requested by a user or a user's terminal, as will now be discussed in more detail in reference to Figure 4. In addition, the method 110 allows for the use of content general and content specific signals, which allow banner displays to be targeted to specific users while taking advantage of the performance gains possible with caching proxy servers, as will also now be discussed in more detail in reference to Figure 4.

In the method 110, the steps 74, 80, 82, 84, 85, 86, and 88 are essentially the same as described above in relation to the prior art method 72 illustrated in Figure 3. Therefore, no further discussion of these steps is required for purposes of explanation of the method 110 of the present invention. After a requested page containing a banner has been displayed on a user's terminal during the steps 78, 84, or 86, and, as determined during banner determination step 88, if the page contains banners to be displayed on the user's terminal 36 along with the page, an initial request banner signal is generated by the user's terminal 36 during initial banner request step 112. Unlike the previous situation with the method 72, however, the terminal 36 and the proxy server 50 preferably do not check to see if the banner information has already been stored and the terminal 36 and the proxy server 50 preferably cannot stop the initial banner request signal sent by the terminal 36 during the step 112 from being transmitted across the computer network 30. That is, the initial banner request signal sent by the terminal 36 during the step 112 is preferably a mandatory signal to be transmitted across the computer network 30 and that cannot

be blocked or terminated by either the terminal 36 or the proxy server 50, even if the banner to be served to the terminal 36 is already stored in either the terminal 36 or the proxy server 50.

5 The initial banner request signal generated by the terminal 36 during the step 112 preferably does not contain the location information of the desired banner as does the banner request signal generated by the terminal 36 during the request banner step 90 of the prior art method 72. In other words, the initial banner request signal generated by terminal 36 during the step 112 can be a content general signal and may contain only the minimum amount of information needed to tell a designated computer site, information server, or other device which receives the initial banner request signal and on which a banner may or may not be stored or located, only that 10 the terminal 36 desires that an unspecified banner be served to the terminal. The designated computer site, information server, or other device can then select which banner is to be served to the terminal 36. The process of selecting which banner is to be served to the terminal 36 can be made during the optional banner selection step 113, which would occur after the step 112 and before the step 114 in the method 110 illustrated in Figure 4. If the optional selection step 113 is not used with the method 110, the terminal 36 will request during the step 112 that a specific 15 banner to be served to the terminal 36. If the optional selection step 113 is used with the method 110, the terminal 36 will only request during step 112 that a banner be served to the terminal 36, but the terminal 36 will not specify which banner is to be served to the terminal 36.

20 Since the designated computer site, information server, or other device should, barring any problems with the computer network 30, always receive the initial request banner signal from the terminal 36 sent during the step 112, the display of the banner on the user's terminal 36 can

always be counted and monitored. Instead of returning or serving a banner to the terminal 36, however, the designated computer site, information server, or other device will usually return or send a banner location signal to the terminal 36 during return banner location address step 114 specifying the location address of the banner requested by the terminal 36 (if the optional step 113 is not used) or the banner selected by the designated computer site, information server, or other device (if the optional step 113 is used), to be served to the terminal 36. The signals transmitted during the steps 112 and 114 are very short or small since the signals contain only a small amount of information, particularly when compared to a banner which may contain a large amount of information.

Similar to the process described above for service of the desired page to the terminal 36 during step 76, the terminal 36 first determines if the requested (if the optional step 113 is not used) or the selected (if the optional step 113 is used) banner is already stored in the memory of the terminal 36 during banner storage determination step 92. If the requested or selected banner is, in fact, already stored in the memory of the terminal 36, the terminal 36 will display the banner during display banner step 94 and the process is over. If the requested or selected banner is not already stored in the memory of the terminal 36, the terminal 36 will generate and send a second banner request signal during send second banner request signal step 116. The second banner request signal sent during the step 116 is essentially the same as the signal sent during the step 96 of the method 72 and, therefore, contains the address of the location of the requested or selected banner so the computer network 30 can properly locate the requested or selected banner.

Since the terminal 36 is connected to the proxy server 50, in a similar manner as described

above in relation to steps 82, 84, 86, once the proxy server 50 receives the second banner request signal from the terminal 36, the proxy server 50 will determine whether or not the selected banner is already stored in the memory of the proxy server 50 during banner storage determination step 98. If the selected banner is already stored in the memory of the proxy server 50, the proxy server 50 will transmit the banner directly to the terminal 36 for display by the terminal 36 during serve banner step 100. The terminal 36 may also store the banner in its own memory during the serve banner step 100. If the requested or selected banner is not already stored in the proxy server 50, the proxy server will send the second banner request signal to the location of the banner on the computer network 30 during the send second banner request signal step 118 in a similar manner to the send banner request signal step 102 in the method 72. The device on which the requested or selected banner is stored will then download and serve the banner to the proxy server 50 and the terminal 36 during the serve banner step 104 for display by the terminal 36. Either or both the terminal 36 and the proxy server 50 may store the banner served by the computer site 50 during the serve banner step 104.

When the computer site 46 in the example described above in relation to Figure 4 is a web site using the HTTP and the HTML protocols, as previously described above, the user selects and accesses the web site 46 by entering the Uniform Resource Locator (URL) address of the desired web site 46 into the terminal 36. The page request signal generated by the terminal 36 during page request step 74 tells the computer network 30 which computer or web site the user wishes to access. As previously discussed above, when the requested page is served to the terminal 36 from the web site 46, it may contain the URL addresses of specific banners to be displayed along with

the requested web page, or it may contain the URL addresses in a content general format, *i.e.*, the URL address does not specify exactly which banner is to be served to the terminal 36, only that a banner is to be served to the terminal 36. It should be noted that steps 80, 85, 112, 116, and 118 may also include name resolution of the IP address needed to transmit the signals across the computer network to the designated and desired computer web site or information server and these steps should be construed to include such IP address resolution and the use of the Domain Name System (DNS).

Again using the example of the XYZ Company and the web page 60, the web page 60 served to the terminal 36 or loaded by the terminal 36 during steps 78, 84, or 86 may include general content URL addresses for banners or specific content URL addresses for the specific banners 62, 64, 66. A general content URL address for a banner does not provide the necessary information to determine which banner is to be displayed. Rather a general content URL address for a banner only indicates that a banner is to be displayed and the receiver of the signal generated by the terminal 36 during the step 112 can decide which banner is to be displayed during the selection step 113. A general content URL address for a banner could be of the form <http://www.bannersite1.com/image;spacedesc=contentsitename>. A server at www.bannersite1.com looks to see if the first word after the name of the site is "image" or any other previously designated word which can be distinguished from an existing file name. If the first word after the name of the site is "image," then the URL address is recognized as a generic request or content general request for a banner, which, as a result, does not specify any particular banner. The server then looks for a space descriptor immediately following the text

“spacedesc=” which provides a reference to a section of the server in which banners are stored or located and from where a specific banner can be selected to be served to the terminal 36. The space descriptor field in the general content URL address can reference different groups of banners such as, for example, a collection of car advertisements, a collection of detergent advertisements, etc., depending on the web page providing the general content URL address.

A specific content URL address for a banner does contain the necessary information to determine which banner is to be displayed and the location for the banner. As illustrated in the examples above, the specific content URL address for the banner 62 may be of the form <http://www.bannersite1.com/banner1.gif>. The “bannersite1.com” portion of the specific content URL address for the banner 62 indicates which device, for example the information server 54, connected to the computer network contains the banner 62 and the “banner1.gif” portion of the specific content URL address for the banner 62 indicates which file stored on the indicated device constitutes the banner 62 and the physical location of the file.

Preferably, the initial banner request signal generated by the terminal 36 during the step 112 is a general content URL address that merely requests a banner to be displayed on the terminal 36, but does not specify which banner is to be displayed. The recipient of the initial banner request signal can then select which banner is to be displayed on the terminal 36 during the selection step 113, thereby allowing targeting and variation in the banners displayed, and return a specific content URL address to the terminal 36 during the step 114 in the form of a Status HTTP 302 Redirect (temporary) signal to the terminal 36 to tell the terminal 36 where the selected banner to be displayed on the user’s terminal 36 is located on the computer network 30, *i.e.*, to

provide the terminal 36 with the content specific URL address of the selected banner to be displayed on the user's terminal 36. An HTTP 302 temporary redirect signal does not create an association between the general content URL address signal generated by the terminal 36 during the step 112 and the banner to be displayed on the terminal 36 or the response signal sent to the terminal 36 during the step 114. Therefore, even though the banner displayed on the user's terminal 36 may be cached or stored on the user's terminal 36 or on the proxy server 50, the response sent during the step 114 to the general content URL address signal generated by the terminal 36 during the step 112 is not cached. Therefore, the signal sent by the terminal 36 during the step 112 will not be blocked or otherwise prevented from being transmitted over the computer network 30 by either the terminal 36 or the proxy server 50.

An alternative to using only the ^{HTTP} 302 Redirect signal is to use, in addition, standard HTML response header tags. More specifically, every time a server responds to a request for a document or page from a client's browser software, the response from the server can contain one or more response header lines. Each line of the response header describes a different aspect of the response, including its size, the type of content it is (image, text, etc.), a status code, and one or more tags which affect the changing nature of the document and how proxy servers or terminals should deal with the document.

The method 110 of the present invention can use HTML tags to tell proxy servers and terminals that the response sent during the step 114 is not cachable, even if the actual banner eventually served to the terminal is itself cachable. There are many types of tags that can be used for this purpose. For example, the Expiry tag which specifies the date and time beyond which a

cached copy of the response is no longer valid. By setting the Expiry tag to a date in the past, the response sent to the terminal 36 during the step 114 will not be considered valid for any further signals sent by the terminal during later steps 112. Therefore, the response sent to the terminal 36 during a previous step 114 is no longer valid and the signal sent by the terminal 36 during the current step 112 cannot be blocked by the terminal 36 or the proxy server 50. Another tag that could be used is the Last-Modified Tag which specifies the last time the response was modified. By setting the Last-Modified Tag for a response as a date far in the past, the terminal or proxy server may consider the response to be too "stale" to be considered valid. A third tag that could be used is the Cache-Control Tags or the obsolete pragma:no-cache tag which informs a receiver of the response that the response is not be cached or stored in the receiver.

Another option for implementing the method 110 of the present invention using standard HTML and HTTP protocols is to incorporate variable components into the links on a web page or hypertext document such that the variable components are incorporated into the general content URL addresses sent by the terminal during the step 112. For example, referring to the web page 60 in Figure 2, the hypertext links or URL addresses returned for the banners 62, 64, 66 when the web page 60 is displayed on the user's terminal 36 during steps 78, 84, or 86 can contain a variable component such as, for example, a random number, a time/date stamp, cgi-bin string, or a random page identifier. In this manner, each time the web page 60 is displayed on the terminal 36, the URL addresses for the needed banners 62, 64, 66 will be different. When the terminal 36 sends the initial banner request signal during step 112, the initial banner request signal can incorporate the variable component URL addresses generated when the web page 60 is served or

displayed on the terminal 36. Since the variable component URL addresses are, by definition, different every time, the initial banner request signal generated during the step 112 will be different every time, thereby preventing the terminal 36 or the proxy server 50 from blocking the transmission to the computer network 30 of the initial banner request signal generated during the step 112.

Another alternative for implementing the method 110 of the present invention is to use for the general content URL address, an URL address which, though constant, is interpreted by caching proxy servers and/or caching web browsers or terminals to resemble a constantly changing URL address and, as a result, is not cached. More specifically, caching proxy servers exist which will specifically avoid caching content related to any URL address containing the strings "cgi-bin" and "?" which are ^{strings} ~~strings~~ conventionally used in the construction of URL addresses for which responses are dynamically generated and, therefore, are unsuitable for caching. It should be noted that a general content URL address using this techniques such as, for example, <http://www.bannersitel.com/cgi-bin/image;spacedisc=contensitename?variable>, need not use the cgi-bin directory and need not use the variable after the "?". Since these markers exist in the URL address, some caching proxy servers will be led to conclude that the URL address should not be cached.

In order to speed up the process of downloading, transmitting, or serving a specific banner from an information server to the terminal 56, the content specific URL address of the requested or selected banner sent to the terminal during step 114 can contain the exact Internet Protocol (IP) address of the requested or selected banner. For example, instead of providing the specific content

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URL address for the banner 62 as <http://www.bannersite1.com/banner1.gif>, the specific content URL address for the banner 62 could be provided as, for example, <http://236.45.78.190/banner1.gif>, thereby removing any need to use the Domain Name System (DNS) to convert the alphanumeric address "www.bannersite1.com" of the information server to its exact IP address. The use of content general and content specific URL addresses and IP addressing is well known to people of ordinary skill in the art and need not be explained in any further detail for purposes of the present invention.

When the method 110 is to be used specifically to count the number of times a banner is displayed on a terminal, it has been determined that the best mode for practicing the method 110 is achieved by including or incorporating a HTTP 302 redirect signal in the signal sent to the terminal 36 during the step 114 and including or incorporating "cgi-bin" and "?" strings in the signal sent from the terminal 36 during the step 112. Some software browsers used on a terminal, particularly the browsers currently developed and marketed by the Microsoft Corporation, can block or terminate the signal generated by a terminal during the step 112 if the banner desired by the terminal is already stored on the terminal, even if an HTTP 302 redirect signal was used during a previous step 114 prior to the banner being stored on the terminal, such that the terminal does not transmit or send the signal during the step 112. In such cases, the banner is displayed directly on the terminal 36 in much the same way as during the step 78 in the prior art method 72 previously discussed above.

As a result of the blocking of the signal created by the terminal during the step 112 by the terminal 112, the display of the banner on the terminal is not, and cannot, be counted by other

5 devices, such as an information server or ad server, connected to the computer network which would normally receive the signal sent by the terminal during the step 112 and could count the display of the banner on the terminal. As a result of standard HTML and HTTP protocols, the use of "cgi-bin" and "?" strings in the signal sent by the terminal during the step 112 prevents the terminal from blocking the signal sent during the step 112. Therefore, by using a combination of the HTTP 302 redirect signal during the step 114 and the "cgi-bin" and "?" strings during the step 112, an accurate count of the displays of a banner on a terminal will be made.

10 The method 110 of the present invention has particular application to the advertising industry, as will now be discussed in more detail. While the previous discussions in regard to the prior art method 72 and the method 110 of the present invention have indicated that the banner information can be located on either the computer or web sites connected to a computer network or information servers connected to the computer network, the conventional practice in the advertising business is to have all of the banners located on one or more information or ad servers, such as the information servers 54, 56, 58. As previously discussed above, advertising agencies create the banners and then arrange or contract to have the banners be associated with web pages or web sites such that when users access the web sites and the web pages are displayed on the user's terminal, the banners are also displayed on the user's terminal. While the advertisements can be stored on the computer or web sites connected to the computer network, it is typically more convenient for the advertisements to be centrally stored on an information or ad server, particularly if the advertisements change or the advertisers want to target specific advertising banners to specific users. Therefore, when a web page requested by the user is served to the

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5 user's terminal and the web page contains advertising banners, the web page will often include the address information for the advertising banner to be displayed in conjunction with the requested web page so that the terminal can request the serving of the advertising banners. By keeping the advertising banners centrally located in an information server, the advertiser can keep each advertising banner's address information included in the web page constant while changing the actual advertising banner associated with the banner address information. In addition, the generation of content general URL addresses during the step 112, the selection of banners to be displayed by a central or primary information server during optional step 113, and the return of content specific URL addresses during the step 114 allow the advertiser to rotate and change the advertising banners displayed to users. Furthermore, if the device receiving the initial banner request signal generated by a user's terminal during step 112 has any demographic or other information about the user, the use of content general URL addresses and content specific URL addresses in the method 110 allows the device sending the banner location signal during step 114 to select an advertising banner targeted to the particular user during the step 113, thereby increasing the appeal and success of the advertising banner. In contrast, the prior art method 72 previously discussed above does not utilize content specific and content general URL addressing. Nor does the prior art method allow for the selection or targeting of banners to be made by an information server.

20 The prior art method 72 also does not allow each display of the banners associated with a page to be counted, while the method 110 of the present invention specifically allows for each such display of a banner to be counted and monitored. More specifically, allowing the user's

terminal or proxy server connected to the user's terminal to terminate or block a banner request from the user's terminal (created during step 90) when the banner is already stored in either the user's terminal or the proxy server connected to the user's terminal in the prior art method 72 prevents accurate banner display counts to be made. In contrast, the method 110 of the present invention specifically allows each banner display to be counted by preventing the user's terminal or the proxy server connected to the user's terminal from terminating or blocking the initial banner request signal (created during step 112) from reaching the information or ad server in which the desired banner is stored or which is controlling the selection of the banner to be served to the terminal.

In addition to the advantage of the method 110 described above, a significant feature of the method 110 of the present invention is that it does not significantly impact the operation or efficiency of the computer network 30. While the initial banner request signal created by the terminal during the step 112 and the banner location signal generated during the step 114 are additional signals created in the method 110 that are not created in the prior art method 72, thereby creating additional data traffic and overhead on the computer network 30, the initial banner request signal and the banner location signal are both extremely small, often comprising no more than a single packet or one-hundred to two-hundred bytes. Therefore, the overhead created by the additional banner signal during the step 112 and the banner location signal during step 114 is negligible. More importantly, since the method 110 still allows the web pages and the banner information to be cached or stored in the terminals and proxy servers, there is no unnecessary retransmission of the web pages or banners from the computer or web sites or the information or

ad servers to the terminals which would significantly increase the data traffic and overhead on the computer network 30.

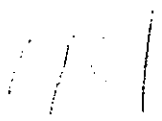
In a second embodiment of the method 110 of the present invention, multiple information servers storing the banner information used in conjunction with the displays of web pages on user terminals are connected to the computer network. Using mirror information servers allows for banners to be distributed faster to user terminals and increases the reliability of the method 110. For example, the computer network 30 illustrated in Figure 1 includes a primary information server 54 and mirror information servers 56, 58 which preferably contain a duplicate of the banners stored on the primary information server 54. When the terminal 36 creates and sends the initial banner request signal during the step 112, the initial banner request signal is preferably configured so that it sent to and received by the primary ad or information server 54 which in turn creates and sends the address location information of a selected banner to the terminal 36 during the step 114. The selected banner is preferably stored at the primary information server 54 and at also the mirror servers 56, 58. The address location information for the banner sent by the primary information server 54 to the terminal during the step 114 is preferably includes the address location for the banner at the information server best suited to handle a transmittal of the banner to the terminal 36 or includes other information with which the terminal 36 can determine the best suited information server to serve the banner. Typically, the information server best suited to handle the serving or transmittal of a banner to the terminal 36 will be the information server that can download or serve the banner to the terminal 36 in the shortest period of time. Other selection criteria can be used, however, in determining which information server is best

5 suited to download or serve a banner to a terminal, including the network topological distance between the terminal 36 and the information servers, the geographical distance between the terminal 36 and the information servers, the bandwidth of the information servers, or the round trip times for a message between the terminal 36 and the information servers. The use of a primary information server and mirror information servers allows all of the intelligence, databases, banner display counting processes, etc. for operating the method 110 of the present invention to be stored and operated in a single location, *i.e.*, the primary information server, while allowing mirror information servers to be little more than network accessible memory devices or servers on which the banners are stored. Many Internet Service Providers (ISPs) and other network service providers connected to computer networks will provide memory space and will store documents and other files for access and retrieval from the computer network for relatively low cost and such storage capabilities are easy to implement and maintain.

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20 As a further example, suppose that the user at the terminal 36 sends an initial banner request signal to the primary information server 54 during the step 112 and the primary information server selects a banner to be served to the during step 113. If desired, the primary information server 54 can update the count information for the particular banner selected to be displayed on the user's terminal 36. The primary information server 54 may determine that the mirror information server 56 is best suited for serving the selected banner to the terminal 36 since the mirror information server 56 can serve the selected banner to the terminal 36 in the shortest period of time. Alternatively, the primary information server 54 may determine that either it, the mirror information server 58, or some other information server (not shown) connected to the

computer network 30 can serve the selected banner to the terminal 36 in the shortest period of time. The information servers 54, 56, 58 may themselves be separated geographically or topologically such that every terminal connected to the computer network 30 has an optimal information server from which banners can be served, even if the terminals are scattered across a wide geographical or topological area. Therefore, for example, the terminal 36 may be optimally served by the mirror information server 56 while the terminal 32 may be optimally served by the primary information server 54 and the terminal 44 is optimally served by the mirror information server 58. When the primary information server 54 has determined which information server is best suited to handle the serving of the selected banner to the terminal 36, the primary information server 54 will return the banner location address for the selected banner at the selected information server to the terminal 36 during the return banner location address step 114. The terminal 36 can then request that the selected banner be served from the selected information server during the steps 98, 100, 104, 116, and 118 for display at the terminal 36.

As previously discussed above, the selection of which mirror information server is the best suited for serving a particular banner to a particular terminal can be made a variety of ways. The criteria to be considered can include precision, *i.e.*, the accuracy of the determination of which information server is best suited to serve a particular banner to a particular terminal, the ease of implementation, and the time required for the primary information server to make the determination of which information server is best suited to serve a particular banner to a particular terminal. The decision can be made by either the primary information server or by some other method.



As one example implementation of the decision criteria implemented in a primary information server, a table or matrix can be stored and maintained at the primary information server 54 which showing the relationship between each information server 54, 56, 58 and the particular terminal. The matrix preferably contains the round trip times for messages sent back and forth between each information server and the terminal. The information in the matrix can be updated continuously or periodically as desired. This information server determination method has several advantages. First, with such a matrix stored at the primary information server, the primary information server can quickly and accurately determine which information server is best suited to serve a particular banner to a particular terminal. Also, the time for the primary information server to make a decision is very fast and does not require additional searches of the computer network 30. Furthermore, the primary information server will know exactly which information server served each and every banner to every terminal on the computer network, which can be very valuable for evaluating the efficiency of the method 110.

This information server determination method described above does, however, also have several disadvantages. First, a significant effort is needed to generate the matrix and the information stored in the matrix, particularly if the computer network is quite large. More specifically, this method requires that monitoring software and/or hardware be operating at each information server to measure the round trip times between the information servers and the terminals. In addition, the matrix at the primary information server will need to be updated with the information created by the monitoring software and hardware at the mirror information servers so that accuracy of the matrix is maintained. Since the computer network may be continuously

changing or evolving as new devices and networks are connected or disconnected from the computer network, and portions of the computer network may become temporarily disabled or offline, the overhead of monitoring the round trip times can be significant. The ability to create a matrix with the round trip times between all of the information servers and all of the terminals may take too long to develop, particularly if there is a significant number of terminals that do not ever request a banner stored on the information servers. This problem can be reduced by assuming that the round trip time between an information server and a particular terminal is the same, or at least approximately the same as, for example, other terminals connected to the same proxy server, the same as other terminals connected to the same sub-network, or the same as other terminals in a /24 network (a set of 256 contiguous IP addresses).

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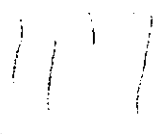
Another method in which the information server is best suited for serving a particular banner to a particular server uses and takes advantage of the Domain Name System (DNS) already being implemented on the Internet. As previously discussed above, DNS is a system for resolving or determining the thirty-two bit Internet Protocol (IP) addresses for each host computer or network device on the computer network. Every time a signal is generated by terminal or other device connected to the computer network requesting access to, or communication with, another device on the computer network, the IP address for the desired device must be determined if the signal does not already contain the IP address.

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The DNS process is very complex and so a complete description of it is beyond the purview necessary for a complete understanding of the present invention. In addition, the DNS process is well known to people of ordinary skill in this art. For purposes of a general explanation

of how the DNS process can be used for selection of the information server to serve a banner to a particular terminal, the DNS process uses name servers or resolvers located in the computer network to determine the IP addresses. The name servers maintain listings of each computer or device in the computer network and their IP addresses. If a particular name server does not know a specific IP address when it is queried for the IP address, the name server can forward the query to another name server. Once the correct IP address is determined, it is passed along the reverse path to the terminal and is stored on all name servers who received the query and forwarded the query along.

With the present invention, each information server 54, 56, 58 operates a name server. Furthermore, each name server is configured to respond to a DNS request with the IP address of the information server containing the name server. When the banner location signal is returned to the terminal 36 during the step 114 from the primary information server 54, the banner location signal contains a reference or general URL address of the banner to be served to the terminal, but not the specific IP address. The terminal 36 then initiates a DNS name resolving process prior to step 116 to determine the information server from which to serve the desired banner. Upon receiving the name resolving request from the terminal 36 or its nearby DNS name server, over the course of several transactions, each of the name server in each information servers returns an IP address to the terminal containing the IP address of the information server in which the name server is located. That is, name server in the information server 56 returns the IP address of the information server 56, while the name server in the information server 58 returns the IP address of the information server 58, etc. All of the IP addresses becomes stored in the DNS name server



closest topologically to the terminal 36 since that DNS name server would have been the first name server to receive the name resolution request from the terminal 36. The DNS name server keeps a list of all of the IP addresses for all of the information servers and the round trip times for communications between the DNS name server and the name servers located at the information servers. The round trip times are initially set to zero. When the DNS name server gets a request from the terminal 36, it selects the information server having the shortest round trip time and provides the terminal 36 with the IP address of the selected information server. Since initially all of the round trip times are set to zero (0), the DNS server will randomly select one IP address and return it to the terminal 36. The DNS name server will then monitor the round trip time between DNS server and the information server and update DNS name server's round trip time list for the particular information server's IP address returned to the terminal 36. The next time the terminal 36 requests name resolution from the DNS server, the DNS name server will return the IP address of a different information server since the round trip time of the first information server will no longer be zero (0). After this process is implemented at least as many times for each terminal or each specified group or domain of terminals as there are information servers, the best information server for serving banners to the terminals or groups or domains of terminals will be determined and the appropriate IP addresses will be returned to the terminal requesting the DNS process. The standard DNS process includes ways for insuring that the route trip times are updated so that particular terminals are not locked into always receiving banners from particular information servers if other information servers become better suited for serving banners to the particular terminals.

5 This second information server determination method described above has several advantages. Unlike the first method described above, this method takes advantage of the already existing DNS process and requires no special monitoring or sniffing software or hardware to be installed at the information servers. Also the second method does not require a matrix to be generated and stored in the primary information server or updates to a matrix to be made. In comparison, the operation of a name server at each mirror site is simple to implement and operate. Therefore, in contrast to the first method, the second method is easy and relatively inexpensive to implement. Unfortunately, in contrast to the first method, the second system may be less precise and take longer to implement since a DNS search or rotation process will have to be implemented each time a banner is to be served to a terminal. In addition, until the round trip times for each information server are determined, the second method may produce less than optimal results. Furthermore, updating of the round trip time information may require using an information server other than the optimal information server to serve a particular banner to a particular terminal. Finally, the shortest round trip time between the DNS name server and the name servers at the information servers may not be an accurate reflection of the round trip times between the terminal and the information servers, particularly if a given user's DNS name server is topologically distant from the terminal. As a result, the information server selected by the DNS name server may not always have the shortest round trip time to the terminal.

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20 Other methods for determining which information server is best suited to serve a particular banner to a particular terminal include looking at the information, if any, about the terminal received in the initial banner request signal generated during step 112. The information might

include things such as the country code or the network code in which or on which the terminal resides. In addition, the information might include information about how the initial banner request signal was routed from the terminal to the primary information server, thereby giving an indication of the topological location of the terminal in the computer network. The primary information server can then use this information dynamically or in conjunction with a matrix look-up process to determine which information server to select to serve the selected banner to the terminal requesting a banner.

Another important benefit of mirroring is that it allows for redundancy and back-up if one or more of the information servers connected to the computer network 30 goes offline or becomes otherwise inaccessible or incapable of serving banners to terminals. For example, in the preferred method, the initial banner request signal is preferably sent by a terminal to the primary information server 54 during the send initial banner request signal step 112, thereby allowing the primary information server 54 to be the centralized source of intelligence and the centralized source of banner display monitoring and counting. If however, the primary information server 54 becomes disabled or goes offline for any reason, one of the mirror information servers 56, 58 can temporarily or permanently become the primary information server for the computer network 30, thereby allowing the delivery of banners to terminals to continue. Preferably, the switch from the disabled primary information server 54 to the back-up information server 56 or 58 can take place very quickly such that little impact on the delivery of banner information is noticed or even created. It should be noted, however, that the backup primary information server will need to contain all of the centralized intelligence, databases, banner counting and monitoring software, etc.

operating on the original primary information server 54 such that the backup primary information server can operate appropriately if the original primary information server 54 becomes disabled or goes offline.

The switch over to the backup primary server can be handled in a variety a ways. For example, once again taking advantage of the Domain Name System (DNS) process and Internet Protocol (IP) addresses, both the primary information server and the backup information server will operate a name resolver or name server such that when the initial banner request signal is generated during the step 112 that does not contain the needed IP address, the IP address for the primary information server is returned to the terminal 36 and stored in all name servers receiving and processing the query for the IP address of the primary server. The backup information server will monitor the primary information server and, in the event that the primary information server goes offline or becomes otherwise disabled, the backup information server will shut down or disable the name server at the primary information server. Furthermore, the backup information server will begin returning its IP address instead of the IP address of the primary information server when queries are received. All IP address information stored in name servers has a time-to-live (TTL) value that is set by the name server returning the IP address. When the TTL value expires, the IP address information is no longer stored in the name server and the name server will have to forward any requests it receives for the IP address. Therefore, when either of the name servers in the primary information server or the backup information server returns an IP address for the primary information server, the IP address is set to have a finite TTL value of, for example ten to thirty minutes. In the event of the primary information server going offline, eventually the

IP addresses for the primary information server stored in the name servers will expire and queries for the IP address will reach the name server in the backup information server which will then return its IP address instead of the IP address of the primary information server. Thus, within a finite time and selected TTL, all name servers in the computer network that have stored or cached the IP address of the primary information server will have their caches or memory cleared. They will then ask for new addresses and receive the IP addresses of the backup information server in response

The use of a centralized primary information server along with at least one mirror information server on a computer network provides significant advantages for the delivery of banners containing advertising information to a terminal for display on the terminal. First, advertising banners are in most cases going to be delivered to the terminal requesting the advertising banner in quick and efficient manner since the information server best suited for delivering and serving a banner to a terminal will in most cases be the information server selected by the primary information server to deliver the banner to the terminal. The faster the advertising banner is delivered to a terminal, the more likely the user at the terminal is to look at the advertising banner, particularly if the advertising banner is displayed on the user's terminal for a longer period of time before the user exits the web page or selects a new page. In addition, mirroring of information servers allows for the relatively fault tolerant delivery of advertising banners to users at the terminals, thereby reducing or even eliminating lost opportunities to display advertising banners on terminals when the primary information server becomes disabled or otherwise goes offline. Furthermore, centralizing the intelligence at a primary information or ad

server allows the displays of advertising banners to be continuously and accurately monitored, thereby increasing the ability to judge the success or failure of specific advertising banners.

The foregoing description is considered as illustrative only of the principles of the invention. Furthermore, since numerous modifications and changes will readily occur to those skilled in the art, it is not desired to limit the invention to the exact construction and process shown and described above. Accordingly, all suitable modifications and equivalents may be resorted to falling within the scope of the invention as defined by the claims which follow. For example, while the method 110 of the present invention is directed primarily to the accurate counting of banner information displayed with web pages, the method 110 can also be used to provide an accurate count of the number of times specific web pages are displayed on a user's terminal by creating a send initial page request signal step in a similar manner to the send initial banner request step 112 and a return page address location step in a similar manner to the return banner location step 114 prior to the storage determination step 76. In addition, while the method 110 of the present invention has been described with connections to the computer network 30 being made primarily by terminals, computers, and proxy servers, it should be appreciated that the method 110 will also be suitable for use with other devices connected between the user's terminal and the computer network may exist which can cache or store the web pages or the banner information.

As yet another example of how the method 110 can be modified, if a primary information server receiving the initial banner request signal generated by a terminal during step 112 determines that the primary information server itself is the information server best suited for

downloading or serving a selected banner to the terminal, the primary information server may, instead of sending a banner location signal to the terminal during the step 114, simply transmit the selected banner to the terminal directly, thereby eliminating some of the steps in the method 110.

As yet another example of how the method 110 of the present invention can be modified, it is possible to move the steps 112 and 114 to between the steps 92 and 116 in Figure 4 so that the steps 112 and 114 are no longer performed after step 88 and before step 92. The steps 112 and 114 are instead implemented after the step 92 and before the step 116 if the answer in step 92 is "no". In this embodiment, web pages and banners that are stored in a user's terminal are automatically reloaded and displayed on the user's terminal without generating additional signals on the computer network. Therefore, if a user "backs" through a page, *i.e.*, the user moves through a series of pages, each of which are displayed on the user's terminal and stored in the terminal's memory along with the page's associated banners, and then decides to review or redisplay some of the pages (such as by using the "back" function of the browser software operating on the user's terminal), no initial banner request signal is generated during the step 112 since the steps 88, 92, 94 will be followed in sequence. While this embodiment of the method 110 of the present invention does not allow the redisplay of the banners on the same terminal (and presumably to the same user) to be counted or monitored, it still allows the redisplay of banners stored in the proxy server, but which are requested to be displayed on different terminals (and presumably to different users), to be counted and monitored.

While the method 110 of the present invention has been discussed in detail primarily with the counting, monitoring, and targeting of advertising or other content over computer networks,

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CLAIMS

The embodiments of the invention in which an exclusive property or privilege is claimed are defined as follows:

1. A method for storing information on a primary server connected to a computer network, wherein information delivered over the computer network to a terminal may contain references to other information to be delivered to the terminal, comprising the steps of:
- serving a first portion of the information to the terminal, wherein said first portion of the information contains a reference to a second portion of the information;
 - sending a first request signal from the terminal to the primary server requesting a location address for said second portion of the information from which said second portion of the information can be served to the terminal;
 - sending a location signal from the primary server to the terminal providing said location address of said second portion of the information; and
 - determining if said second portion of the information is already stored on the terminal and if said second portion of the information is not already stored on the

7. The method of claim 6, wherein said second request signal is a content specific request signal.

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8. The method of claim 6, wherein said content general request signal includes the strings "cgi-bin" and "?".

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9. The method of claim 1, wherein said first request signal includes the strings "cgi-bin" and "?".

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10. The method of claim 1, wherein said banner location signal includes an HTTP 302 redirect signal.

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11. The method of claim 10, wherein said first request signal includes the strings "cgi-bin" and "?".

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12. The method of claim 1, wherein said second portion of the information includes an advertisement.

13. A method for distributing a banner over a computer network to a device, wherein the banner is stored in one or more servers connected to the computer network and referenced in a hypertext document served to the device, and for counting the number of times a banner is displayed on a device, comprising the steps of:

5 sending a first banner request signal from the device to a server requesting that a banner be served to the device;

sending a banner location signal from said server to the device, wherein said banner location signal includes location information for a specified banner to be displayed on the device;

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determining if said specified banner is stored on the device and, if said specified banner is stored on the device, displaying said specified banner on the device, and if said specified banner is not stored on the device, sending a second banner request signal from the device requesting that said specified banner be served to the device for display on the device; and

counting displays of said specified banner on the device.

14. The method of claim 13, including the step of storing said specified banner in the device after said specified banner is served to the device.

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15. The method of claim 13, wherein said first banner request signal is a content general request signal.

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16. The method of claim 13, wherein said second banner request signal is a content specific request signal.

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17. The method of claim 13, wherein said first banner request signal includes the strings "cgi-bin" and "?".

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18. The method of claim 13, wherein said banner location signal includes an HTTP 302 redirect signal.

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19. The method of claim 13, wherein said banner includes an advertisement.

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20. The method of claim 13, wherein said step of counting displays of said specified banner on the device is done by said server.

21. The method of claim 20, wherein said step of counting displays of said specified banner on the device is done by said server after said server receives said first banner request

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³³~~25~~. The method of claim ³²~~24~~, wherein said banner location signal includes an HTTP 302 redirect signal.

³⁴~~26~~. The method of claim ³⁰~~22~~, wherein said banner location signal includes an HTTP 302 redirect signal.

³⁵~~27~~. The method of claim ³⁰~~22~~, wherein said banner includes advertising information.

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28. The method of claim 22, wherein said step of counting the number of times said specified banner is displayed on the device is performed by said first server.

29. The method of claim 28, wherein said step of counting the number of times said specified banner is displayed on the device is performed by said first server after said first server receives said first banner request signal sent by the device.

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~~ABSTRACT OF THE DISCLOSURE~~

A system for storing information on a computer network and allowing the information to be accessed by terminals connected to the computer network, either directly, or through an intermediary device such as a local or proxy server, includes computer or web sites which store pages requested by terminals for display on the terminals. The pages may include references to banners to be displayed in conjunction with the web pages on the terminal. The terminal initiates access or connection to a desired computer or web site to access a desired page. After the desired page is downloaded, transmitted, or served to the terminal from the computer or web site, the terminal initiates and sends an initial banner request signal to an information server. The information server returns a signal to the terminal telling the terminal the location of the desired banner on the computer network, which may be the information server, the computer site, or some other information server, computer site, or location accessible via the computer network. The terminal then initiates a second banner request signal to the location of the desired banner and the banner is served to the terminal for display on the terminal, unless the requested banner has previously been stored or cached in the terminal's memory or in the memory of a local or proxy server connected to the terminal, in which case the second banner request signal is not sent across the computer network and the banner is loaded directly from the terminal's memory or served to the terminal from the proxy server. The system allows each display of a banner, which may constitute an advertisement, on a terminal to be accurately monitored and counted.

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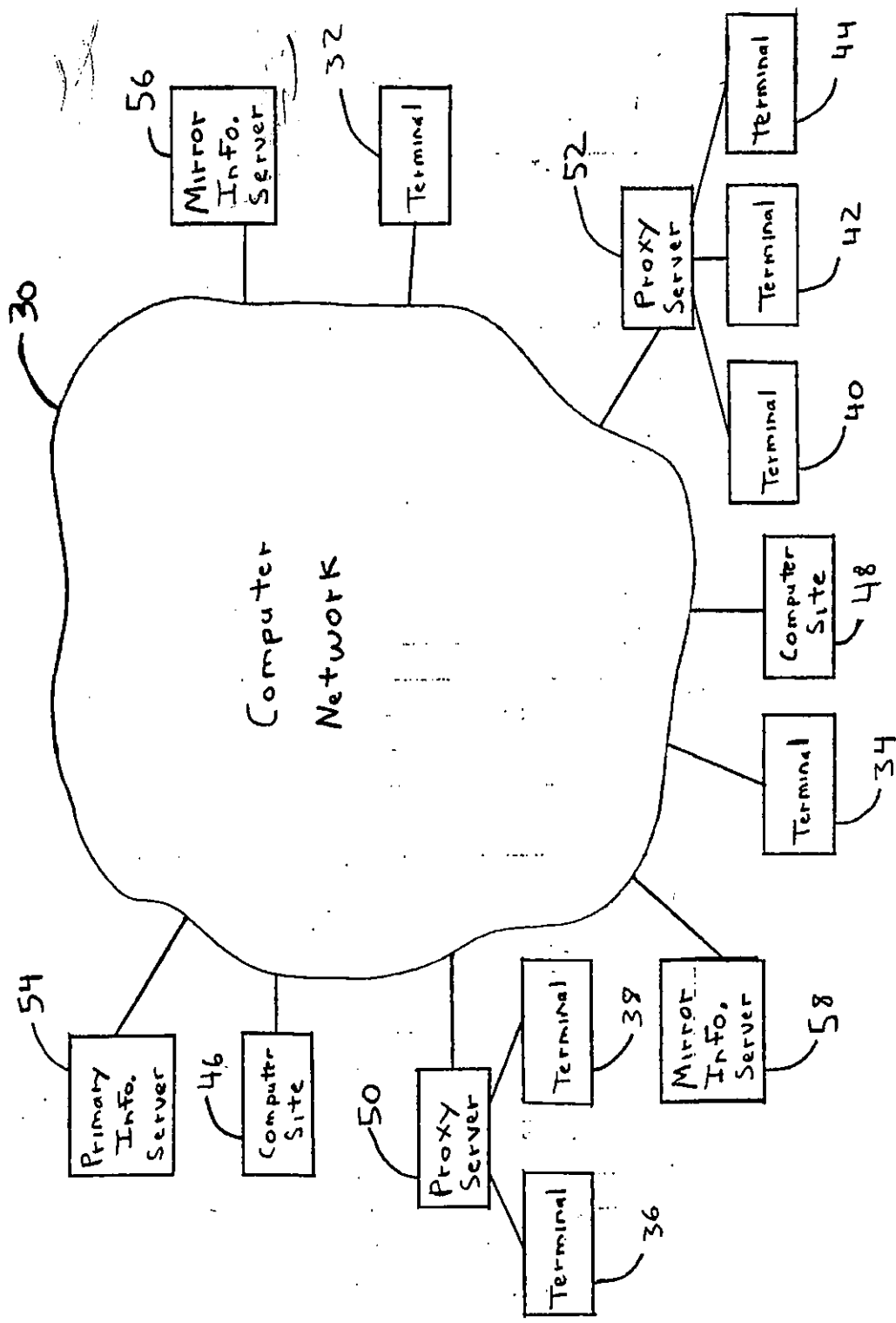


FIGURE 1

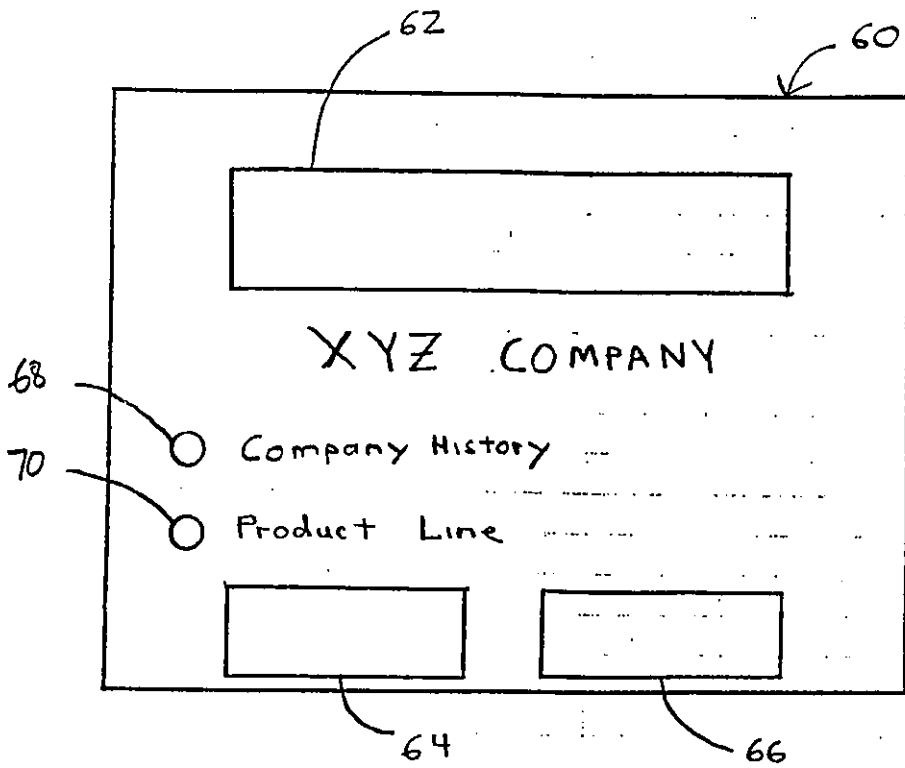


FIGURE 2

2025 RELEASE UNDER E.O. 14176

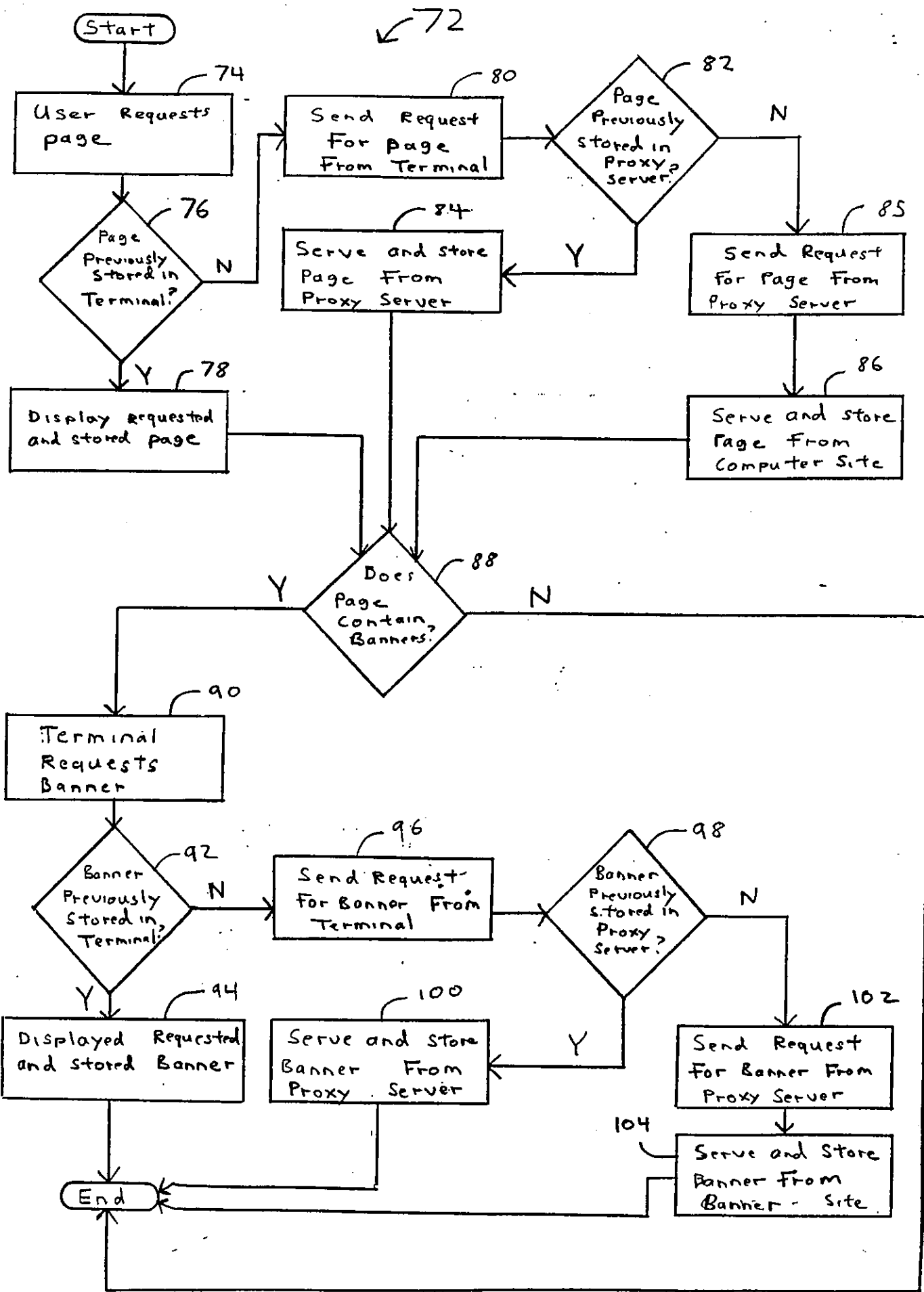


FIGURE 3
(PRIOR ART)

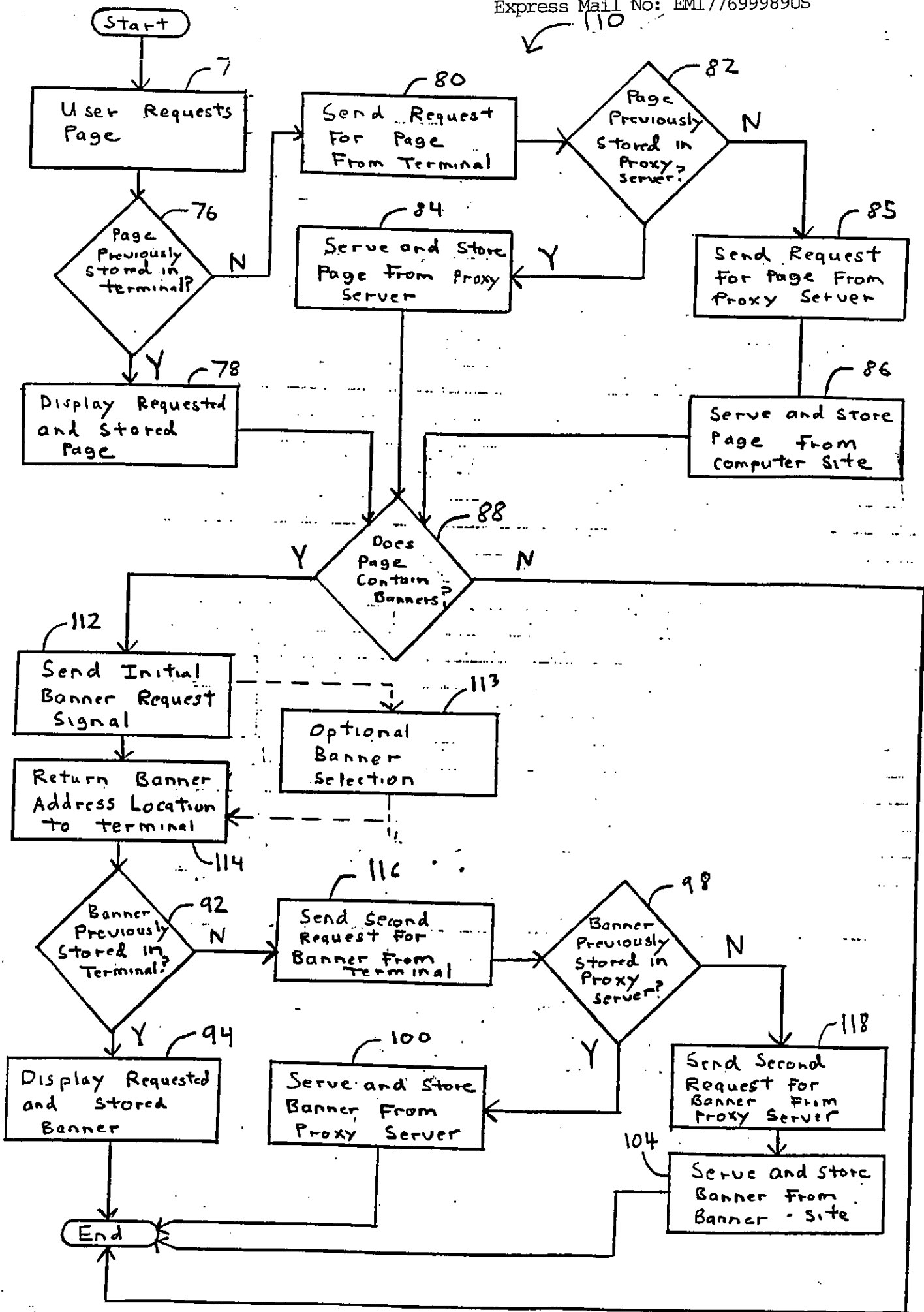


FIGURE 4

SECRET

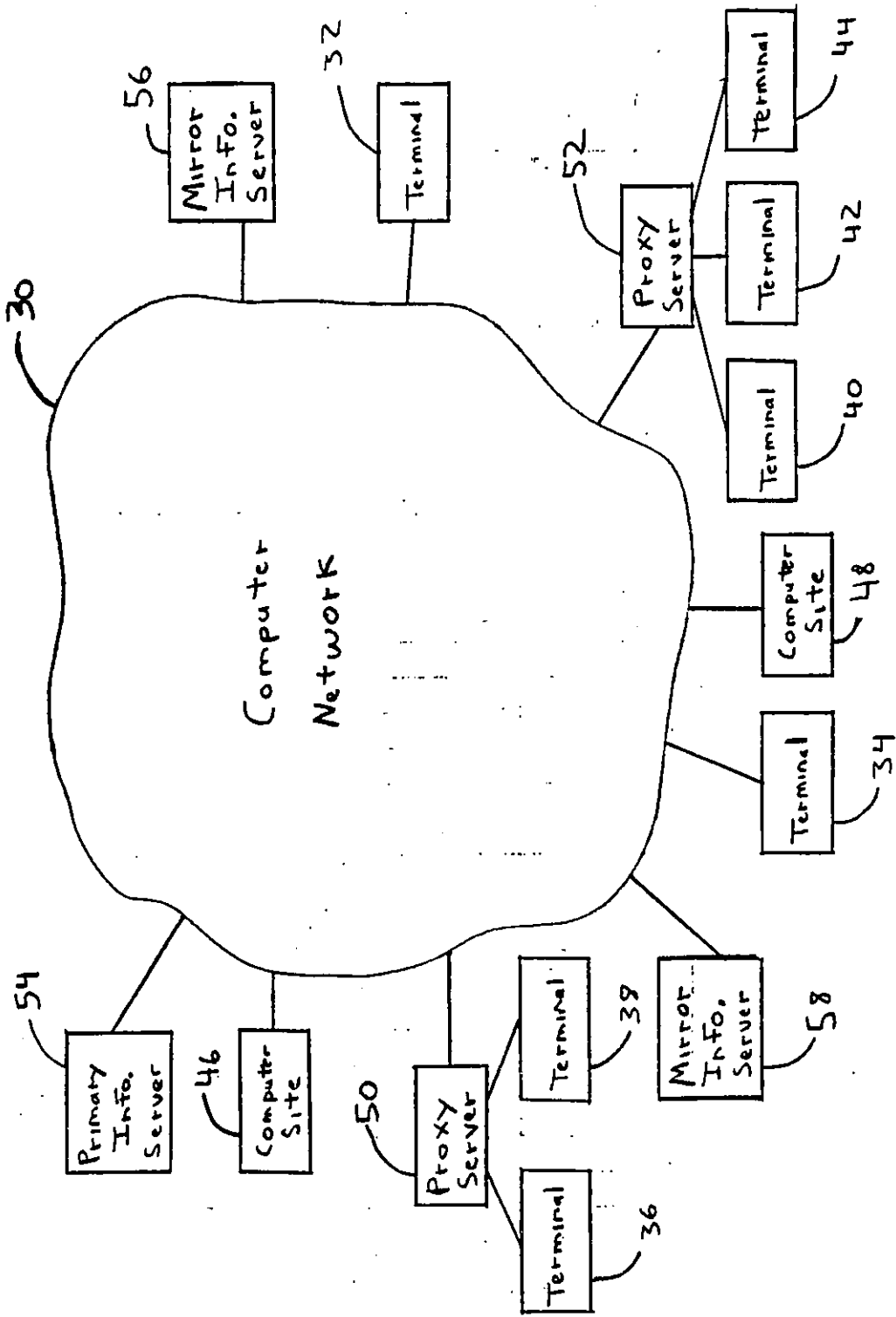


FIGURE 1

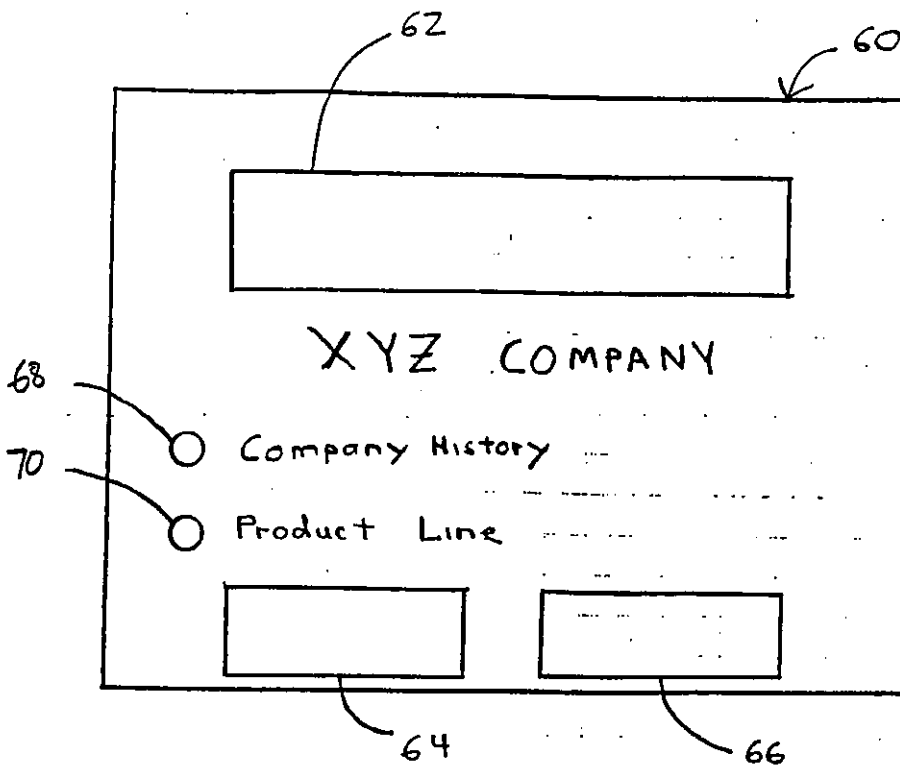


FIGURE 2

2025 RELEASE UNDER E.O. 14176

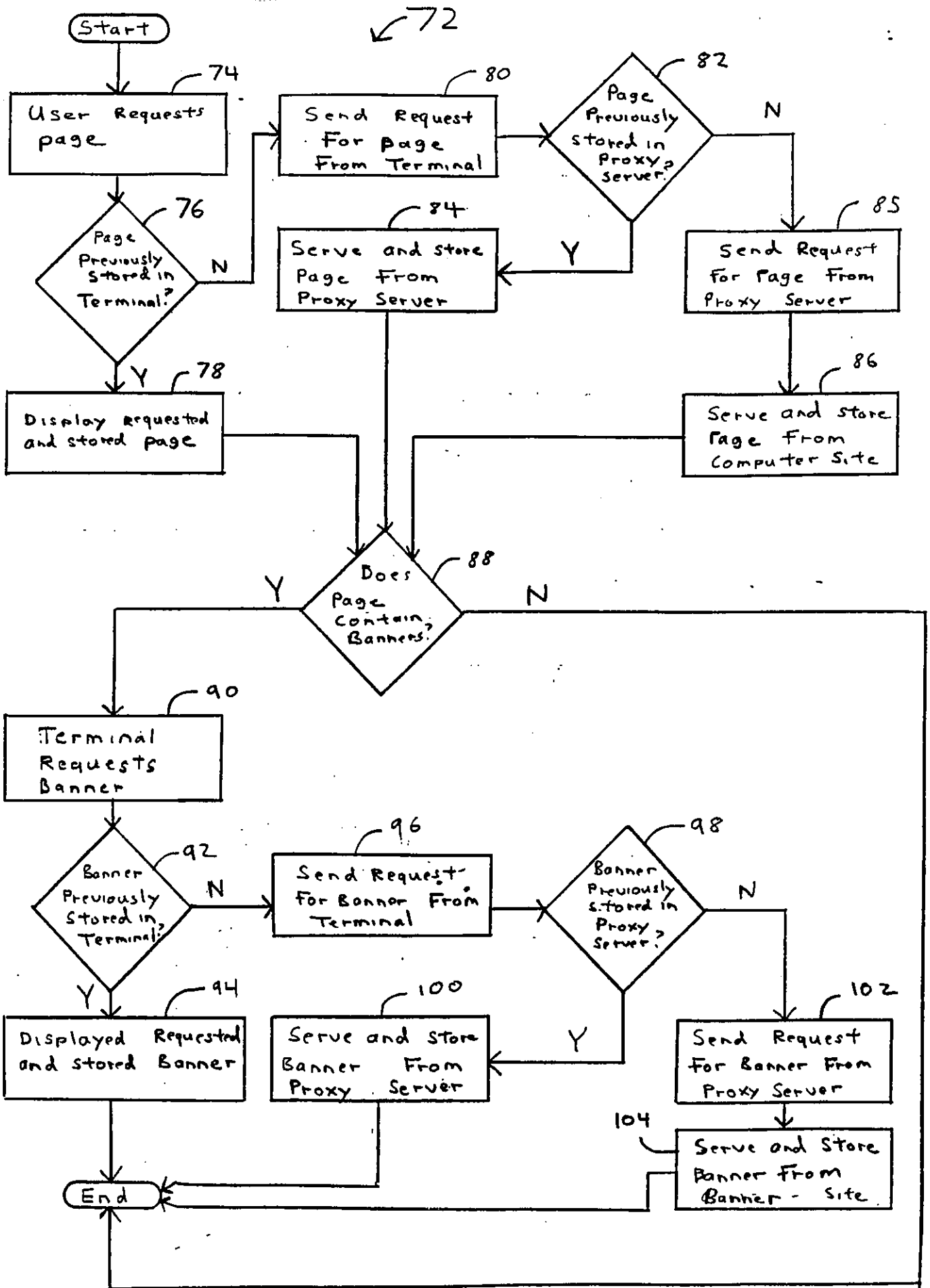


FIGURE 3
(PRIOR ART)



UNITED STATES DEPARTMENT OF COMMERCE
Patent and Trademark Office
 Address: COMMISSIONER OF PATENTS AND TRADEMARKS
 Washington, D.C. 20231

APPLICATION NUMBER	FILING/RECEIPT DATE	FIRST NAMED APPLICANT	ATTORNEY DOCKET NO./TITLE
--------------------	---------------------	-----------------------	---------------------------

08/872,971 06/11/97 GRIFFITHS M 18022-002

0242/1031

SCOTT B ALLISON
 CHRISMAN, BYNUM & JOHNSON
 1900 FIFTEENTH ST
 BOULDER CO 80302

NOT ASSIGNED

DATE MAILED: 2317

NOTICE TO FILE MISSING PARTS OF APPLICATION
Filing Date Granted

10/31/97

An Application Number and Filing Date have been assigned to this application. However, the items indicated below are missing. The required items and fees identified below must be timely submitted ALONG WITH THE PAYMENT OF A SURCHARGE for items 1 and 3-6 only of \$ 130 for a large entity small entity in compliance with 37 CFR 1.27. The surcharge is set forth in 37 CFR 1.16(e). Applicant is given TWO MONTHS FROM THE DATE OF THIS NOTICE within which to file all required items and pay any fees required above to avoid abandonment. Extensions of time may be obtained by filing a petition accompanied by the extension fee under the provisions of 37 CFR 1.136(a).

If all required items on this form are filed within the period set above, the total amount owed by applicant as a large entity small entity (verified statement filed), is \$ 700.

- 1. The statutory basic filing fee is:
 - missing.
 - insufficient.
 Applicant must submit \$ 790 to complete the basic filing fee and/or file a verified small entity statement claiming such status (37 CFR 1.27).
- 2. Additional claim fees of \$ _____, including any multiple dependent claim fees, are required. Applicant must either submit the additional claim fees or cancel additional claims for which fees are due.
- 3. The oath or declaration:
 - is missing.
 - does not cover the newly submitted items.
 - does not identify the application to which it applies.
 - does not include the city and state or foreign country of applicant's residence.
 An oath or declaration in compliance with 37 CFR 1.63, including residence information and identifying the application by the above Application Number and Filing Date is required.
- 4. The signature(s) to the oath or declaration is/are:
 - missing.
 - by a person other than inventor or person qualified under 37 CFR 1.42, 1.43, or 1.47.
 A properly signed oath or declaration in compliance with 37 CFR 1.63, identifying the application by the above Application Number and Filing Date, is required.
- 5. The signature of the following joint inventor(s) is missing from the oath or declaration:

An oath or declaration listing the names of all inventors and signed by the omitted inventor(s), identifying this application by the above Application Number and Filing Date, is required.
- 6. A \$ _____ processing fee is required since your check was returned without payment (37 CFR 1.21(m)).
- 7. Your filing receipt was mailed in error because your check was returned without payment.
- 8. The application does not comply with the Sequence Rules.
See attached "Notice to Comply with Sequence Rules 37 CFR 1.821-1.825."
- 9. OTHER:

Direct the response and any questions about this notice to "Attention: Box Missing Parts."

A copy of this notice MUST be returned with the response.

Kathy Amato
 Customer Service Center
 Initial Patent Examination Division (703) 308-1202

THE COMMISSIONER OF PATENTS AND TRADEMARKS
Washington, D.C. 20231

DATE: November 17, 1997

Sir:



#3

Transmitted herewith for filing is the patent application of

Inventors: Michael John Griffiths

For: METHOD FOR COUNTING DISPLAYS OF BANNERS ON TERMINALS CONNECTED TO A COMPUTER NETWORK

Enclosed are:

- Declaration for Patent Application
- An Assignment of the invention to MatchLogic, Inc.
- Verified Statements to Establish Small Entity Status Under 37 CFR 1.9 and 37 CFR 1.27.

The filing fee has been calculated as shown below:

	(Col. 1)	(Col. 2)	SMALL ENTITY	OR	Other than a		
FOR:	NO. FILED	NO. EXTRA	RATE	FEE	SMALL ENTITY		
BASIC FEE	XXXXXXX	XXXXXXXXX	XXXX	\$ 395	XXXX	\$ 790	
TOTAL CLAIMS	<u>29</u> - 20 =	<u>9</u>	X \$ 11	\$ <u>99</u>	X \$22	\$ <u> </u>	
INDEP CLAIMS	<u>3</u> - 3 =	<u>0</u>	X \$ 41	\$ <u> </u>	X \$82	\$ <u> </u>	
<u> </u> MULTIPLE DEPENDENT CLAIM PRESENTED			X \$135	\$ <u> </u>	X \$270	\$ <u> </u>	
			TOTAL	\$ <u>494</u>	OR	TOTAL	\$ <u> </u>

A check in the amount of \$599.00 to cover the filing fee (\$494.00), surcharge (\$65.00), and assignment recordal fee (\$40.00) is enclosed.

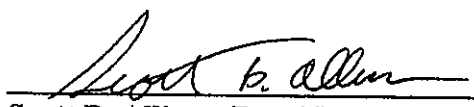
The Commissioner is hereby authorized to charge payment of the following fees associated with this communication or credit any overpayment to Deposit Account No. 03-1725. A duplicate copy of this sheet is enclosed.

- Any additional filing fees required under 37 CFR 1.16.
- Any patent application processing fees under 37 CFR 1.17.

The Commissioner is hereby authorized to charge payment of the following fees during the pendency of this application or credit any overpayment to Deposit Account No. 03-1725. A duplicate copy of this sheet is enclosed.

- Any patent application processing fees under 37 CFR 1.17.
- The issue fee set in 37 CFR 1.18 at or before mailing of the Notice of Allowance, pursuant to 37 CFR 1.311(b).
- Any filing fees under 37 CFR 1.16 for presentation of extra claims.

Respectfully submitted,

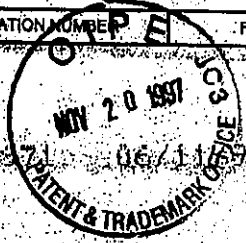

 Scott B. Allison, Reg. No. 38,370
 CHRISMAN, BYNUM & JOHNSON, P.C.
 1900 Fifteenth Street
 Boulder, CO 80302
 (303) 546-1300



UNITED STATES DEPARTMENT OF COMMERCE
Patent and Trademark Office
 Address: COMMISSIONER OF PATENTS AND TRADEMARKS
 Washington, D.C. 20231

APPLICATION NUMBER	FILING/RECEIPT DATE	FIRST-NAMED APPLICANT	ATTORNEY DOCKET NO./TITLE
--------------------	---------------------	-----------------------	---------------------------

08/672 06/11/97 GRIFFITH M 18022-002



0242/1031

NOT ASSIGNED

SCOTT B ALLISON
 CHRISMAN BYNUM & JOHNSON
 1900 FIFTEENTH ST
 BOULDER CO 80302

DATE MAILED:
 2317

NOTICE TO FILE MISSING PARTS OF APPLICATION
Filing Date Granted

10/31/97

An Application Number and Filing Date have been assigned to this application. However, the items indicated below are missing. The required items and fees identified below must be timely submitted ALONG WITH THE PAYMENT OF A SURCHARGE for items 1 and 3-6 only of \$ 130 for a large entity small entity in compliance with 37 CFR 1.27. The surcharge is set forth in 37 CFR 1.16(e). Applicant is given TWO MONTHS FROM THE DATE OF THIS NOTICE within which to file all required items and pay any fees required above to avoid abandonment. Extensions of time may be obtained by filing a petition accompanied by the extension fee under the provisions of 37 CFR 1.136(a).

If all required items on this form are filed within the period set above, the total amount owed by applicant as a large entity small entity (verified statement filed), is \$ 900.

- 1. The statutory basic filing fee is:
 - missing.
 - insufficient.
 Applicant must submit \$ 790 to complete the basic filing fee and/or file a verified small entity statement claiming such status (37 CFR 1.27).
- 2. Additional claim fees of \$ _____, including any multiple dependent claim fees, are required. Applicant must either submit the additional claim fees or cancel additional claims for which fees are due.
- 3. The oath or declaration:
 - is missing.
 - does not cover the newly submitted items.
 - does not identify the application to which it applies.
 - does not include the city and state or foreign country of applicant's residence.
 An oath or declaration in compliance with 37 CFR 1.63, including residence information and identifying the application by the above Application Number and Filing Date is required.
- 4. The signature(s) to the oath or declaration is/are:
 - missing.
 - by a person other than inventor or person qualified under 37 CFR 1.42, 1.43, or 1.47.
 A properly signed oath or declaration in compliance with 37 CFR 1.63, identifying the application by the above Application Number and Filing Date, is required.
- 5. The signature of the following joint inventor(s) is missing from the oath or declaration:

An oath or declaration listing the names of all inventors and signed by the omitted inventor(s), identifying this application by the above Application Number and Filing Date, is required.

- 6. A \$ _____ processing fee is required since your check was returned without payment (37 CFR 1.21(m)).
- 7. Your filing receipt was mailed in error because your check was returned without payment.
- 8. The application does not comply with the Sequence Rules. See attached "Notice to Comply with Sequence Rules 37 CFR 1.821-1.825."
- 9. OTHER:

12/31/97 (2 mo.)
 SBA
 Jmp

Direct the response and any questions about this notice to "Attention: Box Missing Parts."

A copy of this notice MUST be returned with the response.

Customer Service Center
 Initial Patent Examination Division (703) 308-1202

Section 8



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicants: Michael John Griffiths)
)
 Serial No.: 08/872,971) Art Unit: 2317
)
 Filing Date: June 11, 1997)
) Examiner: Not Yet Accorded
 Title: METHOD FOR COUNTING DISPLAYS)
 OF BANNERS ON TERMINALS)
 CONNECTED TO A COMPUTER)
 NETWORK)
 Our File No.: 18022-002)

CERTIFICATE OF MAILING UNDER 37 C.F.R. 1.8

Assistant Commissioner for Patents
Box Missing Parts
Washington, DC 20231

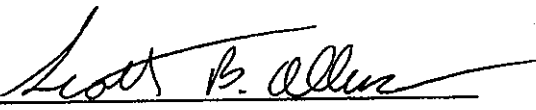
Sir:

I hereby certify that the following documents:

1. Check No. 10175 in the amount of \$599.00 (\$494.00 filing fee, \$65.00 surcharge fee, and \$40.00 assignment recordation fee);
2. Copy of Form PTO-1533 NOTICE TO FILE MISSING PARTS OF APPLICATION FILING DATE GRANTED;
3. Form PTO-1082;
4. DECLARATION FOR PATENT APPLICATION with Power of Attorney executed by the inventor, Michael John Griffiths;
5. VERIFIED STATEMENT CLAIMING SMALL ENTITY STATUS (37 CFR 1.9(f) & 1.27(b))--INDEPENDENT INVENTOR signed by the inventor;
6. VERIFIED STATEMENT CLAIMING SMALL ENTITY STATUS (37 CFR 1.9(f) & 1.27(c))--SMALL BUSINESS CONCERN, signed by Peter Estler, President of MatchLogic, Inc.;

7. Assignment signed by the inventor, with PTO 1595, Recordation Cover Sheet attached; and

return postcard are being deposited with the United States Postal Service as first-class mail, postage prepaid, in an envelope addressed to: Assistant Commissioner for Patents, BOX MISSING PARTS, Washington, D.C. 20231, on this 17th day of November, 1997.



DECLARATION FOR PATENT APPLICATION

DOCKET NUMBER (Optional)
18022-2

As below named inventor, I hereby declare that:

My residence, post office address and citizenship is as stated below in my name.

I believe I am the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventors (if plural names are listed below) of the subject matter which is claimed and for which a patent is sought on the invention entitled **METHOD FOR COUNTING DISPLAYS OF BANNERS ON TERMINALS CONNECTED TO A COMPUTER NETWORK**, the specification of which is attached hereto unless the following box is checked:

was filed on N/A as United States Application Number or PCT International Application Number N/A and was amended on N/A (if applicable).

I hereby state that I have reviewed and understand the contents of the above identified specification, including the claims, as amended by any amendment referred to above.

I acknowledge the duty to disclose information which is material to the examination of this application in accordance with Title 37, Code of Federal Regulations, §1.56(a).

I hereby claim foreign priority benefits under Title 35, United States Code, §119 of any foreign application(s) for patent or inventor's certificate listed below and have also identified below any foreign application for patent or inventor's certificate having a filing date before that of the application on which priority is claimed.

Prior Foreign Applications(s) (Number)	Priority Claimed (Country)	Priority Claimed (Day/Month/Year Filed)	Priority Claimed [] Yes [] No
---	-------------------------------	--	------------------------------------

I hereby claim the benefit under Title 35, United States Code, §120 of any United States application(s) listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States application in the manner provided by the first paragraph of Title 35, United States Code, §112, I acknowledge the duty to disclose material information as defined in Title 37, Code of Federal Regulations, §1.56(a) which occurred between the filing date of the prior application and the national or PCT International filing date of this application.

<u>NOT YET ACCORDED*</u> (Application Number)	<u>May 19, 1997</u> (Filing Date)	<u>Pending</u> (Status - patented, pending, abandoned)
--	--------------------------------------	---

I hereby appoint the following attorney(s) and/or agent(s) to prosecute this application and to transact all business in the Patent and Trademark Office connected therewith:

JAMES R. YOUNG, Reg. No. 27,847, STEVEN C. PETERSEN, Reg. No. 36,238, ROBERT G. CROUCH, Reg. No. 34,806, SCOTT B. ALLISON, Reg. No. 38,370, BARBARA A. GYURE, Reg. No. 34,614

Address all telephone calls to Scott B. Allison at telephone number (303) 546-1300

Address all correspondence to Scott B. Allison, Chrisman, Bynum & Johnson, 1900 Fifteenth Street, Boulder, Colorado 80302

I hereby declare that all statements made herein of our own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

Full name of sole or first inventor (given name, family name) Michael John Griffiths

Inventor's signature X [Signature] Date SEPT 17, 1997

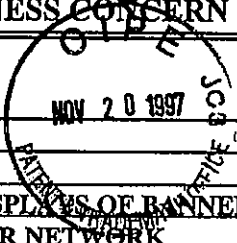
Residence 11334 North Eaton Way, Broomfield, Colorado, 80020, U.S.A. Citizenship Canada
Post Office Address _____

* Patent Application entitled "Information Storage and Delivery Over a Computer Network Using Centralized Intelligence to Monitor and Control the Information Being Delivered." Named inventors are Michael John Griffiths and James David McElhiney. Patent Application filed on May 19, 1997, with Express Mail Label EM484077838US.

**VERIFIED STATEMENT CLAIMING SMALL ENTITY STATUS
(37 CFR 1.9(f) & 1.27(c)--SMALL BUSINESS CONCERN**

Docket Number (optional)
18022-002

Applicants or Patentees: MICHAEL JOHN GRIFFITHS
Serial or Patent No.: 08/872,971
Filed or Issued: June 11, 1997
Title: METHOD FOR COUNTING DISPLAYS OF BANNERS ON TERMINALS
CONNECTED TO A COMPUTER NETWORK



I hereby declare that I am

- the owner of the small business concern identified below;
- an official of the small business concern empowered to act on behalf of the concern identified below:

NAME OF SMALL BUSINESS CONCERN: **MATCHLOGIC, INC.**
ADDRESS OF SMALL BUSINESS CONCERN: **400 S. McCaslin Boulevard
Louisville, Colorado 80027**

I hereby declare that the above identified small business concern qualifies as a small business concern as defined in 13 CFR 121.12, and reproduced in 37 CFR 1.9(d), for purposes of paying reduced fees to the United States Patent and Office, in that the number of employees of the concern, including those of its affiliates, does not exceed 500 persons. For purposes of this statement, (1) the number of employees of the business concern is the average over the previous fiscal year of the concern of the persons employed on a full-time, part-time or temporary basis during each of the pay periods of the fiscal year, and (2) concerns are affiliates of each other when either, directly or indirectly, one concern controls or has the power to control the other, or a third party or parties controls or has the power to control both.

I hereby declare that rights under contract or law have been conveyed to and remain with the small business concern identified above with regard to the invention described in:

- the specification filed herewith with title as listed above.
- the application identified above.
- the patent identified above.

If the rights held by the above identified small business concern are not exclusive, each individual, concern or organization having rights in the invention must file separate verified statements averring to their status as small entities, and no rights to the invention are held by any person, other than the inventor, who would qualify as an independent inventor under 37 CFR 1.9(c) if that person made the invention, or by any concern which would not qualify as a small business concern under 37 CFR 1.9(d), or a nonprofit organization under 37 CFR 1.9(e).

Each person, concern or organization having any rights in the invention is listed below:
 no such person, concern, or organization exists.
 each person, concern or organization is listed below.

Separate verified statements are required from each named person, concern or organization having rights to the invention averring to their status as small entities. (37 CFR 1.27)

I acknowledge the duty to file, in this application or patent, notification of any change in status resulting in loss of entitlement to small entity status prior to paying, or at the time of paying, the earliest of the issue fee or any maintenance fee due after the date on which status as a small entity is no longer appropriate. (37 CFR 1.28(b))

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application, any patent issuing thereon, or any patent to which this verified statement is directed.

NAME OF PERSON SIGNING: Peter Estler
TITLE OF PERSON IF OTHER THAN OWNER: President
ADDRESS OF PERSON SIGNING: MATCHLOGIC, INC.
400 S. McCaslin Boulevard
Louisville, Colorado 80027

SIGNATURE X

DATE X

9/19/97

**VERIFIED STATEMENT CLAIMING SMALL ENTITY STATUS
(37 CFR 1.9(f) & 1.27(b))--INDEPENDENT INVENTOR**

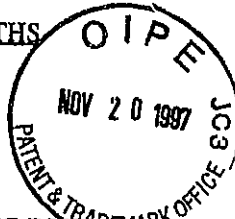
Docket Number (optional)
18022-002

Applicant or Patentee: MICHAEL JOHN GRIFFITHS

Serial or Patent No.: 08/872,971

Filed or Issued: June 11, 1997

Title: METHOD FOR COUNTING DISPLAYS OF BANNERS ON TERMINALS
CONNECTED TO A COMPUTER NETWORK



As a below named inventors, we hereby declare that we qualify as an independent inventors as defined in 37 CFR 1.9(c) for the purposes of paying reduced fees to the Patent and Trademark Office described in:

the specification filed herewith title as listed above.

the application identified above.

the patent identified above.

We have not assigned, granted, conveyed or licensed and am under no obligation under contract or law to assign, grant, convey or license, any rights in the invention to any person who would not qualify as an independent inventor under 37 CFR 1.9(c) if that person had made the invention, or to any concern which would not qualify as a small business concern under 37 CFR 1.9(d) or a nonprofit organization under 37 CFR 1.9(e).

Each person, concern or organization to which I have assigned, granted, conveyed, or licensed or am under an obligation under contract or law to assign, grant, convey, or license any rights in the invention is listed below:

No such person, concern, or organization exists.

Each such person, concern or organization is listed below.

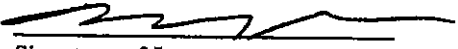
MatchLogic, Inc.

Separate verified statements are required from each named person, concern or organization having rights to the invention averring to their status as small entities. (37 CFR 1.27)

We acknowledge the duty to file, in this application or patent, notification of any change in status resulting in loss of entitlement to small entity status prior to paying, or at the time of paying, the earliest of the issue fee or any maintenance fee due after the date on which status as a small entity is no longer appropriate. (37 CFR 1.28(b))

We hereby declare that all statements made herein of our own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the of the application, any patent issuing thereon, or any patent to which this verified statement is directed.

MICHAEL JOHN GRIFFITHS
NAME OF INVENTOR


Signature of Inventor

10/2/97
Date



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

200 0260
#4
RE
6/24/98

Applicants: Michael John Griffiths)

Serial No.: 08/872,971)

Filing Date: June 11, 1997)

Title: METHOD FOR COUNTING DISPLAYS OF)
BANNERS ON TERMINALS CONNECTED)
TO A COMPUTER NETWORK)

Our File No.: 18022-002)

Group Art Unit:
Not Yet Accorded

Examiner:
Not Yet Accorded

INFORMATION DISCLOSURE STATEMENT

To: Assistant Commissioner for Patents
Washington, D.C. 20231

Dear Sir:

The applicants hereby submit their Information Disclosure Statement pursuant to 37 C.F.R. §§ 1.56, 1.97 and 1.98 and respectfully request the Examiner to consider the information disclosed in the patents and publications listed below:

CITATIONS

<u>U.S. Patents</u>	<u>Inventors</u>	<u>Issue Dates</u>
5,247,670	Matsunaga	September 21, 1993
5,289,371	Abel et al.	February 22, 1994
5,347,632	Filepp et al.	September 13, 1994
5,430,729	Rahnema	July 4, 1995
5,442,771	Filepp et al.	August 15, 1995
5,459,837	Caccavale	October 17, 1995
5,557,721	Fite et al.	September 17, 1996
5,572,643	Judson	November 5, 1996
5,583,991	Chatwani et al.	December 10, 1996
5,598,532	Liron	January 28, 1997
5,602,991	Berteau	February 11, 1997

5,617,540	Civanlar et al.	April 1, 1997
5,621,884	Beshears et al.	April 15, 1997
5,628,009	Kikuta et al.	May 6, 1997

ARTICLES AND PUBLICATIONS

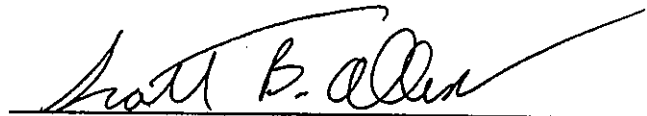
"Reload, Redraw, Repeat", Paul Boutin, downloaded from electronic webcite address as of May 16, 1997 of: <http://www.packet.com/packet/boutin/97/17/geek.html#l>, pp. 1-4.

"Advertisers, Privacy Advocates Clash Over Giving Users More 'Cookie' Control," Angela Drolte, *Electronic Information Policy & Law Report*, 2(21):530-531 (1997).

One (1) page of Form PTO-1449 and copies of all the above-cited prior art are enclosed for the Examiners convenience.

Dated this 14th day of September, 1997.

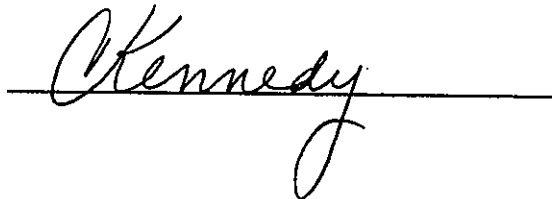
Respectfully submitted,



Scott B. Allison, Reg. No. 38,370
CHRISMAN, BYNUM & JOHNSON, P.C.
1900 Fifteenth Street
Boulder, Colorado 80302
Telephone: (303) 546-1300

CERTIFICATE OF MAILING UNDER 37 C.F.R. §1.8

I hereby certify that the foregoing INFORMATION DISCLOSURE STATEMENT along with PTO-Form 1449 and copies of all recited prior art, was mailed by first-class U.S. mail, postage prepaid to the Assistant Commissioner for Patents, Washington, DC 20231 on this 19th day of September, 1997.



FORM PTO-1449 (Rev. 7-80)	69055 U.S. DEPARTMENT OF COMMERCE PATENT AND TRADEMARK OFFICE	ATTY. DOCKET NO. 18022-002	SERIAL NO. 08/872.97i
LIST OF PRIOR ARTS (Use several sheets if necessary)		APPLICANT: Michael J. Griffiths	
		FILING DATE June 11, 1997	GROUP Not Yet Accorded

U.S. PATENT DOCUMENTS

*EXAMINER INITIAL	DOCUMENT NUMBER	DATE	NAME	CLASS	SUBCLASS	FILING DATE IF APPROPRIATE
DP AA	5,247,670	September 21, 1993	Matsunaga	395	650	
DP AB	5,289,371	February 22, 1994	Abel, et al.	364	401	
DP AC	5,347,632	September 13, 1994	Filepp, et al.	395	200	
DP AD	5,430,729	July 4, 1995	Rahnema	270	94.1	
DP AE	5,442,771	August 15, 1995	Filepp, et al.	395	650	
DP AF	5,459,837	October 17, 1995	Caccavale	395	184.01	
DP AG	5,557,721	September 17, 1996	Fite, et al.	395	148	
DP AH	5,572,643	November 5, 1996	Judson	395	793	
DP AI	5,583,991	December 10, 1996	Chatwani, et al.	395	200.01	
DP AJ	5,598,532	January 28, 1997	Liron	395	200.01	
DP AK	5,602,991	February 11, 1997	Berteau	395	200.01	
DP AL	5,617,540	April 1, 1997	Civanlar, et al.	395	200.11	
DP AM	5,621,884	April 15, 1997	Beshears, et al.	395	182.08	
DP AN	5,628,009	May 6, 1997	Kikuta, et al.	395	610	

OTHER PRIOR ART (Including Author, Title, Date, Pertinent Pages, Etc.)

DP	<input checked="" type="checkbox"/> AO	"Reload, Redraw, Repeat", Paul Boutin, downloaded from electronic website address as of May 16, 1997 of: http://www.packet.com/packet/boutin/97/17/geek.html#1 , pp. 1-4
DP	<input checked="" type="checkbox"/> AP	"Advertisers, Privacy Advocates Clash Over Giving Users More 'Cookie' Control," Angela Drolte, <i>Electronic Information Policy & Law Report</i> , 2(21):530-531 (1997).

EXAMINER *dupham* 12/03/98

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

PACKET

AD

Paul
Boutin
TECH

Reload, Redraw, Repeat

Redundant ad banners are a waste of time and bandwidth, but the solution requires an unlikely truce between the browser companies

Like it or not, advertising banners on the Web aren't going away any time soon. Even if you welcome them, they take up a maddening amount of bandwidth and time by constantly reloading, a characteristic that becomes especially annoying over a home-dialup connection. Fortunately, there's hope: our favorite browser makers could make ad delivery less painful for everyone. But whether or not they will remains to be seen.

The total time you spend downloading ads is a function of how many ads you download, and how large each one is. Size is enough of a problem, with banners running from 8 KB to 15 KB apiece, but the real criminal is that chunk of code from the ad site's server that reloads every time the banner is redrawn.

Consuming
push content
needs to be
as easy as
watching TV
before it
will really
catch on.

So why are ad banners reloaded every time you encounter a page you've already seen, when your browser already has a copy cached on your local hard disk? Because advertisers insist on paying per impression - they are billed each time the banner is shown to a user. In order to invoice an advertiser, managers of the host site need to log the number of times an ad is served. With the current technology, individual browsers can't report how many times they have rendered a specific ad banner. So we have to log the number of times the host's server has delivered a given ad.

Join us
in [Threads](#).

Normally, the browser would simply fetch an ad it has already displayed from the local hard disk. But to force it to reload each time, you have to convince the browser that it's never seen the ad before. Click [Geek This](#) to see how:



These reloads can be personally frustrating and they bog down the Web in general. The [Geek This](#) advertisers don't like them either; the long delays caused by ad reloads don't help to build a positive brand image.

[Subscribe](#) to
[PacketFlash](#),
for Packet news.

Microsoft and Netscape are in a unique position to remove the pox of perpetually reloading ads from the Web once and for all, simply by adding a reporting feature to their browsers. Instead of forcing the browser to revisit a server, the improved browser would count the number of times it displays a cached banner, and then report that information back to the ad server or a designated reporting site. These reports would each be far smaller than even one extra ad-banner reload and would free up substantial bandwidth. Web-site server loads would go down, and as

load times decrease, readership may well increase.

Both Microsoft and Netscape have some sort of reporting features planned for their 4.0 browsers. Microsoft's Channel Definition Format (CDF) standard for push-media content sites includes a Tracking Element - a URL to report user behavior to. Netscape points out that its licensed Castanet channel technology already provides a back channel through which information can be passed from client to server.

But a real solution isn't here yet, because standardized reporting software won't come with the 4.0 browsers. If Microsoft and Netscape can agree on a cross-platform standard, cost-per-impression reports will be easy to sell to advertisers, easy to train webmasters and ad-sales staffs on, and easy to support. But needless to say, getting the browser companies to work together is a tall order.



Talk back to Paul Boutin in his column's Threads.

Join the HotWired Network, it's free. Members log in.

Previously in Boutin ...

Previously in Garfinkel ...

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Lead Report

AP

Privacy

Advertisers, Privacy Advocates Clash Over Giving Users More 'Cookie' Control

A request for comment on an Internet Engineering Task Force proposal to give users more control over "cookies"—the technology that tracks a user's clicks through a World Wide Web site—has pitted advertisers against privacy advocates.

The HTTP State Management Mechanism proposal (RFC 2109), dated February 1997, would make it easier to control the use of cookies by changing the default setting for "third party cookies."

Third party cookies are cookies that occur through "unverifiable transactions," according to David M. Kristol, technical staff member at Bell Laboratories, Lucent Technologies, Murray Hill, N.J. Kristol is a co-author of RFC 2109.

The RFC is in the comment phase.

'Cookie,' 'Third Party Cookie.' A cookie is a data package that a World Wide Web server sends to a Web browser. It can contain a variety of information, including a user's virtual identity—i.e., the identifier that a Web site assigns a user to identify the user each time he or she visits the site.

Cookies can also be used to store password and login information so that a user visiting a secured Web site is automatically identified and does not have to re-submit that information on each visit.

Advertisers like cookies because they can be used to tailor ads to customers, based on their likes, dislikes, and shopping habits. Some vendors simply ask a user to fill out a questionnaire to get this information; cookies, however, can create a customer profile by tracking where the user goes on a Web site and what links the user clicks on.

Advertisers can keep track of ads that consumers have seen on various Web sites through third party cookies. A third party cookie enables a third party—i.e., a Web site other than the host site—to obtain data about a user through the unrelated Web site. The process works as follows: A user visits a Web site, which contains a URL reference to the advertiser's Web site. The existence of the URL reference is not apparent to the user, and when the user clicks on a Web page having the reference, user information is transferred to the advertising site unbeknownst to the user.

The first time a user clicks on a Web site containing the advertiser's embedded URL, the advertiser sends the user's browser a cookie, which contains the identifier that the advertiser assigned the user. Thereafter, each time the user clicks on a Web site containing an embedded URL to the advertiser, the user's browser sends the advertiser's server the cookie.

These cookies enable the advertiser to keep track of the ads that it has shown your virtual persona. Based on

the collected information, the advertiser can choose a particular ad to display on the host Web site. Without the user supplying additional information, such as his or her name or e-mail address, the advertiser simply knows that a user with a particular assigned virtual persona has seen its ad X number of times on specified Web sites. The more information the advertising Web site has collected about your virtual persona, the better able it is to tailor specific ads to you as you browse the World Wide Web.

Privacy Concerns. Although cookies are not new, their existence has recently garnered increasing publicity, creating a stir among users who worry that their privacy may be compromised through the use of cookies.

Concern has been further heightened by reports of some Web sites sharing information about their visitors with each other. That practice could permit an advertiser or other Web site operator to piece together information the user has submitted for one purpose—say, to sign up for a service—with other information—e.g., that collected through cookies, thereby being able to match an individual's virtual persona with his or her real persona. The end result is a potential boom for advertisers, who, equipped with detailed information about a user, could further tailor ads to particular users.

Although some browsers enable the user to view the cookie files that have been written to the user's hard drive, there is currently no way to intercede the transmission of a third party cookie.

People are troubled by what transpires behind their backs, Kristol said. RFC 2109 would change the specifications for third party cookies to direct the browser not to accept the cookie. The specifications would permit browser manufacturers and vendors to build alerts into their systems, flagging users to third party cookies. Those alerts would be available, however, only if the user rejects the default setting.

In an April 7 letter, a coalition of consumer, civil liberties, and children's advocacy groups expressed their support for the IETF proposal. The letter was signed by the Center for Media Education, the Consumer Project on Technology, the Electronic Privacy Information Center, Computer Professionals for Social Responsibility, the Consumer Federation of America, the Electronic Frontier Foundation, the National Association of Elementary School Principals, NetAction, Privacy International, the U.S. Privacy Council, and more than 100 Internet users.

"The proposal will allow users to exercise greater control over the creation and collection of personal information resulting from transactions between web clients and web servers," the groups said.

"We believe that 'transparency'—the ability of users to see and exercise control over the disclosure of personally identifiable information—is a critical guideline for the development of sensible privacy practices on the Internet," they added.

"There should never be a case where private firms and government agencies are writing and reading information on a consumer's hard disk, without explicit authorization," CPT Director James Love said in a press release. "These transactions must be more transparent, and the users must have the practical ability to say no."

Adverse Impact on E-Commerce? Predictably, advertisers are positioned in the opposite side of the ring. The Association of Online Professionals urged the IETF to retain the current cookie defaults in Web browsers.

The proposal will adversely impact the industry, the association said, including:

- the potential loss of services from online services relying on cookies for passwords, preferences, and other tasks;

- the loss of electronic commerce relying on cookies, including those using the "shopping cart" models;

- the loss of a major method for assessing advertising effectiveness for Web sites relying economically on those revenues and sponsorships;

- the loss of "[h]undreds of thousands of . . . man-hours for reprogramming of web sites"; and

- added technical support costs for Internet service providers, online services, and browser software companies, "who will have to deal with subscribers who do not understand Cookies or their use, when web sites 'don't work.'"

"If there were a valid threat to privacy, or a single documented case of the technology being abused to the detriment of consumers, we might feel differently," AOP Executive Director Dave McClure said in an April 22 press release. We cannot allow "vague fears to dictate the technology, the structure or the growth of the online industry," he added.

"Abandoning a widely used and largely effective technology just because it might possibly be abused is not a rational response to privacy concerns," McClure said. He said the proposal should not be adopted because users can easily control Web browsers and because, to date, there is no record of cookie abuse.

Cookies Abound. In a discussion with BNA, McClure explained that users can see what cookies have been set on a browser file. Cookies simply record the name of the Web site and the identification number assigned to the user. In fact, they are so widely used, that if you used a browser option designed to alert you every time a cookie file is written to your hard drive, alarms would be sounding incessantly as you browse the World Wide Web, McClure said.

It is true that some Web sites have decided to share databases of information they have collected on Web site visitors, McClure said. While this is a reason to not visit those sites, it is not a reason to change the cookie settings. Although not in favor of it, McClure said a possible solution would be to make it unlawful to share information without the user's authorization.

McClure also pointed out the potential effect on service fees that a requirement to obtain authorization before sharing information would have. He noted that junk mail subsidizes the U.S. postal system. What if Internet access were to cost \$200 per month? McClure queried. Would one be willing to trade low-cost access for greater privacy protections? he asked.

A simple rule, he said, is that if one does not want personal information traded, one should not give out

that information in the first place—in the real world, or online.

Privacy is a social and regulatory issue—not a technology issue, McClure said. You do not solve social issues with technology; rather, you solve them with sound and reasonable policies, he told BNA.

Long Process. The eventual outcome of the IETF proposal may not be known for some time. The RFC process for IETF proposals tends to be fairly long. Although IETF standards are voluntary, they have, in the past, been followed as law.

According to Peter Harter, public policy counsel for Netscape Communications Corp., Netscape is backing the RFC as originally drafted. Indeed, the proposal's other co-author is Lou Montulli, a Netscape founding engineer.

The IETF proposal would permit common standards for how cookies are set—e.g., what it looks like and how it is set. As such, it is a management protocol, Harter noted.

Through a browser, cookies can be sent to certain files so that a user knows what cookies have been set. Netscape 3.0 allows a user to program an alarm to sound when a cookie is activated. Montulli wanted an open standard for this mechanism, Harter said.

Open standards for cookies, including how they are created, would not only give users better control over the collection of personal information online, but would help Web site operators because the resulting products would be interoperable, Harter said. Interoperability, coupled with user control, will make cookies a more effective tool for online commerce, he said.

'eTRUST' Would Be an Add-On. The online world is addressing privacy concerns as well. One program, "eTRUST," aims to rate Internet sites according to defined privacy standards that govern how personal information is collected and used (1 EPLR 621). The program is a collaborative effort among the Electronic Frontier Foundation, CyberSource Corp., Portland Software, TestDrive Corp., and InfoOnline.

According to Kristol, the eTRUST ratings system would not substitute for RFC 2109, but would constitute an add-on function.

As a proposed standard, the RFC must be out for comment for the earlier of six months or the appearance of two independent, interoperable implementations of the specification.

If changes are made to the proposal, it will then become a draft standard. After a minimum of two months, it would then be eligible to become a standard. That stage of the process tends to move relatively quickly, Kristol said.

Kristol noted that he has issued a second draft of the proposal, containing technical changes but not changing the substance of the proposed third party cookie specification. While IETF received a flurry of comments in February and March on the original proposal, Kristol's second draft has not received any, he said.

By ANGELA DROLTE

The text of RFC 2109, along with other documents in the Request for Comments series, is available at InterNIC's World Wide Web site, <http://rs.internic.net/nic-support/>.



CERTIFICATE OF MAILING UNDER 37 C.F.R. 1.8

I hereby certify that this correspondence is being deposited with the United States Postal Service as first class mail in an envelope addressed to Assistant Commissioner for Patents, Washington, DC 20231 on April 13, 1998.

Kennedy

#5
ajc
4/22

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicants:	Michael John Griffiths)	
)	
Serial No.:	08/872,971	)	Art Unit: 2317
)	
Filing Date:	June 11, 1997)	
		)	Examiner: Not Yet Accorded
Title:	METHOD FOR COUNTING)	
	DISPLAYS OF BANNERS ON)	
	TERMINALS CONNECTED TO A)	
	COMPUTER NETWORK)	
)	
Our File No.:	18022-002)	

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GROUP 2600

**INTERVENTION BY ASSIGNEE,
REVOCATION OF POWER OF ATTORNEY
AND
APPOINTMENT OF NEW POWER OF ATTORNEY
AND ADDRESS FOR CORRESPONDENCE**

To: Assistant Commissioner for Patents
Washington, D.C. 20231

Sir:

Intervention and Revocation

MATCHLOGIC, INC., a corporation organized and existing under the laws of the State of Colorado, the assignee of record of the entire right, title, and interest in and to the invention and the above-referenced patent application, hereby intervenes in this patent application and revokes all powers of attorney previously appointed by the inventors or by any other entity in this patent application.

Appointment of Power of Attorney

MATCHLOGIC, INC., hereby appoints, effective immediately, as principal attorneys and/or patent agents: James R. Young, Reg. No. 27,847; Steven C. Petersen, Reg. No. 36,238; Robert G. Crouch, Reg. No. 34,806; Scott B. Allison, Reg. No. 38,370, and Barbara A. Gyure, Reg. No. 34,614.

Address for Correspondence

Please direct all communications to the following address:

Scott B. Allison
CHRISMAN, BYNUM & JOHNSON, P.C.
1900 Fifteenth Street
Boulder, Colorado 80302
Telephone: (303) 546-1300
Fax: (303) 449-5426

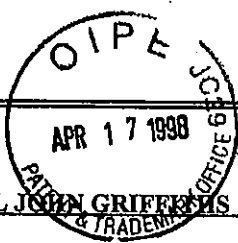
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I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

MATCHLOGIC, INC.

John Moimester

Date: 4/13/98



CERTIFICATE UNDER 37 CFR 3.73(b)

Applicant: MICHAEL JOHN GRIFFITHS

Application No.: 08/872,971

Filed: June 11, 1997

Entitled: METHOD FOR COUNTING DISPLAYS OF BANNERS ON TERMINALS CONNECTED TO A COMPUTER NETWORK

MATCHLOGIC, INC., a COLORADO CORPORATION

(Name of Assignee)

(Type of Assignee, e.g. corporation, partnership, university, government agency, etc.)

certifies that it is the assignee of the entire right, title and interest in the patent application identified above by virtue of either:

A. An assignment from the inventor(s) of the patent application identified above. The assignment was recorded in the Patent and Trademark Office at Reel _____, Frame _____, or for which a copy is attached.

OR

B. A chain of title from the inventor(s) of the patent application identified above, to the current assignee as shown below:

1. From: _____ To: _____
The document was recorded in the Patent and Trademark Office at Reel _____, Frame _____, or for which a copy thereof is attached.

2. From: _____ To: _____
The document was recorded in the Patent and Trademark Office at Reel _____, Frame _____, or for which a copy thereof is attached.

3. From: _____ To: _____
The document was recorded in the Patent and Trademark Office at Reel _____, Frame _____, or for which a copy there is attached.

Additional documents in the chain of title are listed on a supplemental sheet.

Copies of assignment or other documents in the chain of title are attached.

The undersigned has reviewed all the documents in the chain of title of the patent application identified above and, to the best of undersigned's knowledge and belief, title is in the assignee identified above.

The undersigned (whose title is supplied below) is empowered to sign this certificate on behalf of the assignee.

I hereby declare that all statements made herein of my own knowledge are true, and that all statements made on information and belief are believed to be true; and further, that these statements are made with the knowledge that willful false statements, and the like so made, are punishable by fine or imprisonment, or both, under Section 1001, Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application or any patent issuing thereon.

4/13/98
Date

Signature

JOHN MOINSTER
Typed or printed name

CHIEF FINANCIAL OFFICER Title

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ASSIGNMENT

WHEREAS, I, Michael John Griffiths, 11334 North Eaton Way, Broomfield, Colorado 80020, have invented a certain new and useful METHOD FOR COUNTING DISPLAYS OF BANNERS ON TERMINALS CONNECTED TO A COMPUTER NETWORK, for which application for Letters Patent of the United States was filed on June 11, 1997, and assigned Serial No. 08/872,971.

WHEREAS, MatchLogic, Inc., 400 S. McCaslin Boulevard, Louisville, Colorado 80027, a Delaware Corporation fully organized and existing under the laws of the State of Delaware is desirous of acquiring the entire right, title and interest therein and thereto;

NOW, THEREFORE, be it known that for and in consideration of the sum of One Dollar (\$1.00) and certain other good and valuable consideration to us in hand paid, the receipt of which is hereby acknowledged, I, Michael John Griffiths, by these presents do sell, assign and transfer unto the said MatchLogic, Inc., its successors, legal representatives and assigns, our entire right, title and interest in and to the said invention and the aforesaid patent application, for the territory of the United States of America and for all foreign countries and to all Letters Patent, continuations and reissues, and extensions to be obtained therefore; and I further agree to cooperate with the assignee hereunder in the obtaining and sustaining of any and all such Letters patent, but at the expense of said assignee.

I further hereby assign and agree to assign to MatchLogic, Inc., the entire right, title and interest, domestic and foreign which I may have in discoveries, improvements and inventions made, conceived or developed by me in connection with the development of said METHOD FOR COUNTING DISPLAYS OF BANNERS ON TERMINALS CONNECTED TO A COMPUTER NETWORK, and do further agree to execute all applications for patent, assignments and other appropriate documents and to perform all acts and to do all things

necessary to make this Agreement effective and to perfect all right, title and interest in and to said discoveries, improvements or inventions in MatchLogic, Inc. The Commissioner of Patents is hereby authorized and requested to issue the letters Patent solely in accordance with the terms of this Assignment to MatchLogic, Inc., its successors, legal representatives and assigns, as the assignee of the entire right, title and interest therein.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed my seal on the date set forth hereinafter.



Michael J. Griffiths


STATE OF COLORADO)
) ss.
COUNTY OF BOULDER)

Before me, a Notary Public in and for the said County and State, personally appeared Michael John Griffiths, known to be the person whose name is subscribed to the foregoing instrument, and acknowledged to me that he executed the same for the purposes and consideration therein expressed.

Given under my hand and seal of office this 25TH day of SEPTEMBER, 1997.

My commission expires: 11/12/2000.

(SEAL)



Notary Public

GP-2317
2782



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicants:	Michael John Griffiths)
Serial No.:	08/872,971	) Art Unit: 2317
Filing Date:	June 11, 1997)
Title:	METHOD FOR COUNTING DISPLAYS OF BANNERS ON TERMINALS CONNECTED TO A COMPUTER NETWORK) Examiner: Not Yet Accorded
Our File No.:	18022-002)

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CERTIFICATE OF MAILING UNDER 37 C.F.R. §1.8

To: Assistant Commissioner for Patents
Washington, D.C. 20231

I hereby certify that the following documents:

1. Intervention by Assignee, Revocation of Power of Attorney and Appointment of New Power of Attorney and Address for Correspondence;
2. Certificate Under 37 CFR §3.73(b); and

Return Post Card are being deposited with the United States Postal Service as first-class mail, postage prepaid, in an envelope addressed to the Assistant Commissioner for Patents, Washington, D.C. 20231, on this 13th day of April, 1998.

Kennedy



UNITED STATES DEPARTMENT OF COMMERCE
Patent and Trademark Office

Address: COMMISSIONER OF PATENTS AND TRADEMARKS
Washington, D.C. 20231

SERIAL NUMBER	FILING DATE	FIRST NAMED APPLICANT	ATTORNEY DOCKET NO.
---------------	-------------	-----------------------	---------------------

081872971 6/11/97 Michael John Griffiths

EXAMINER

ART UNIT PAPER NUMBER

DATE MAILED:

6
4/24/98

This is in response to the Power of Attorney filed

4/17/99

- 1. The Power of Attorney to you in this application has been revoked by the applicant. Future correspondence will be mailed to the new address of record. 37 CFR 1.33.
- 2. The Power of Attorney to you in this application has been revoked by the assignee who has intervened as provided by 37 CFR 3.71. Future correspondence will be mailed to the new address of record. (37 CFR 1.33).
- 3. The withdrawal as attorney in this application has been accepted. Future correspondence will be mailed to the new address of record. 37 CFR 1.33.

This is a communication from the
Patent and Trademark Office

- 4. The Power of Attorney in this application is accepted. Correspondence in this application will be mailed to the below-noted address as provided by 37 CFR 1.33.
- 5. The Power of Attorney in this application is not accepted for the reason(s) checked below:
 - a. The Power of Attorney is from an assignee and the Certificate required by 37 CFR 3.73 (b) has not been received.
 - b. The person signing for the assignee has omitted their empowerment to sign on behalf of the assignee.
 - c. The inventor(s) is without authority to appoint attorneys since the assignee has intervened as provided by 37 CFR 3.71.
 - d. The signature of _____, a co-inventor in this application, has been omitted. The Power of Attorney will be entered upon receipt of confirmation signed by said co-inventor.
 - e. The person(s) appointed in the Power of Attorney is not registered to practice before the U. S. Patent & Trademark Office.
 - f. The revocation is not signed by the applicant, the assignee of the entire interest, or one particular principal attorney having the authority to revoke.

Scott B. Allison
Chrisman Bynum & Johnson
1900 Fifteenth St
Boulder, CO 80302


This is a communication from the
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**UNITED STATES DEPARTMENT OF COMMERCE
Patent and Trademark Office**

Address: COMMISSIONER OF PATENTS AND TRADEMARKS
Washington, D.C. 20231

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
087872,971	06/11/97	GRIFFITHS	12022-002

SCOTT B ALLISON
CHRISMAN BYNUM & JOHNSON
1900 FIFTEENTH ST
BOULDER CO 80302

LM21/1210

EXAMINER PHAM, B

ART UNIT 2756	PAPER NUMBER 7
------------------	-------------------

DATE MAILED: 12/10/98

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

Office Action Summary

Application No. 08/872,971	Applicant(s) Michael John Griffiths
Examiner Dennis Pham	Group Art Unit 2756

Responsive to communication(s) filed on Jun 11, 1997

This action is FINAL.

Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

A shortened statutory period for response to this action is set to expire 3 month(s), or thirty days, whichever is longer, from the mailing date of this communication. Failure to respond within the period for response will cause the application to become abandoned. (35 U.S.C. § 133). Extensions of time may be obtained under the provisions of 37 CFR 1.136(a).

Disposition of Claims

Claim(s) 1-29 is/are pending in the application.

Of the above, claim(s) _____ is/are withdrawn from consideration.

Claim(s) _____ is/are allowed.

Claim(s) 1-29 is/are rejected.

Claim(s) _____ is/are objected to.

Claims _____ are subject to restriction or election requirement.

Application Papers

See the attached Notice of Draftsperson's Patent Drawing Review, PTO-948.

The drawing(s) filed on _____ is/are objected to by the Examiner.

The proposed drawing correction, filed on _____ is approved disapproved.

The specification is objected to by the Examiner.

The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119

Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).

All Some* None of the CERTIFIED copies of the priority documents have been received.

received in Application No. (Series Code/Serial Number) _____

received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

*Certified copies not received: _____

Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

Attachment(s)

Notice of References Cited, PTO-892

Information Disclosure Statement(s), PTO-1449, Paper No(s). 4

Interview Summary, PTO-413

Notice of Draftsperson's Patent Drawing Review, PTO-948

Notice of Informal Patent Application, PTO-152

--- SEE OFFICE ACTION ON THE FOLLOWING PAGES ---

Art Unit: 2756

DETAILED ACTION

Drawings

1. The drawings are objected to because of the notice of the Draftsperson, see Form PTO948 for detail. Correction is required.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371© of this title before the invention thereof by the applicant for patent.

3. Claims 1-7, 12-16, 19-23, and 27-29 are rejected under 35 U.S.C. 102(e) as being anticipated by Davis et al, U.S. Patent No. 5,796,952.
4. Regarding claim 1, Davis discloses a method for storing information on a primary server connected to a computer network, wherein information delivered over the computer network to a terminal may contain references to other information to be delivered to the terminal, comprising the steps of:

Art Unit: 2756

serving a first portion of the information to the terminal, wherein said first portion of the information contains a reference to a second portion of the information (col. 5, lines 14-23).

sending a first request signal from the terminal to the primary server requesting a location address for said second portion of the information from which said second portion of the information can be served to the terminal (col. 3, lines 33-42).

sending a location signal from the primary server to the terminal providing said location address of said second portion of the information (col. 6, lines 64-67, col. 7, lines 9-15).

determining if said second portion of the information is already stored on the terminal and, if said second portion of the information is not already stored on the terminal, sending a second request signal from the terminal containing said location address of said second portion of the information and requesting that said second portion of the information be served to the terminal for display on the terminal, and, if said second portion of the information is already stored on the terminal, displaying said second portion of the information on the terminal (col. 8, lines 21-25, lines 53-63).

5. Regarding claim 2, Davis discloses the method of claim 1, wherein said first request signal is not blocked from reaching said primary server by either the terminal or any intermediary device located topologically between the terminal and the primary server as a result of previous caching of said first portion of the information or said second portion of the information in the terminal or said intermediary device (col. 9, lines 16-30).

Art Unit: 2756

6. Regarding claim 3, Davis discloses the method of claim 1, including the step of counting each time said second portion of the information is displayed on the terminal (col. 13, lines 5-15).

7. Regarding claim 4, Davis discloses the method of claim 3, wherein said step of counting each time said second portion of the information is displayed on the terminal is performed by the primary server after said primary server receives said first request signal from the terminal (col. 9, lines 16-45).

8. Regarding claim 5, Davis discloses the method of claim 1, including the steps of serving said second portion of the information to the terminal if said second portion of the information is not already stored on the terminal and updating a counter of displays of said second portion of the information on the terminal (col. 3, lines 33-53).

9. Regarding claim 6, Davis discloses the method of claim 3, wherein first request is a content general request signal (col. 5, lines 14-23).

10. Regarding claim 7, the method of claim 6, wherein said second request signal is a content specific request signal (col. 14, lines 2-18).

Art Unit: 2756

11. Regarding claim 12, Davis discloses the method of claim 1, wherein said second portion of the information includes an advertisement (col. 14, lines 2-18). 3, lines 14-22, lines 33-40).

12. Regarding claim 13, Davis teach a method for distributing a banner over a computer network to a device, wherein the banner is stored in one or more servers connected to the computer network and referenced in a hypertext document served to the device, and for counting the number of times a banner is displayed on a device, comprising the steps of:

 sending a first banner request signal from the device to a server requesting that a banner be served to the device (col. 3, lines 33-53).

 sending a banner location signal from said server to the device, wherein said banner location signal includes location information for a specified banner to be displayed on the device (col. 7, lines 1-15).

 determining if said specified banner is stored on the device and, if said specified banner is stored on the device, displaying said specified banner on the device, and if said specified banner is not stored on the device, sending a second banner request signal from the device requesting that said specified banner be served to the device for display on the device (col. 8, lines 21-29, col. 9, lines 23-24).

 counting displays of said specified banner on the device (col. 13, lines 11-16).

Art Unit: 2756

13. Regarding claim 14, Davis discloses the method of claim 13, including the step of storing said specified banner in the device after said specified banner is served to the device (col. 8, lines 21-29).
14. Regarding claim 15, Davis discloses the method of claim 13, wherein said first banner request signal is a content general request signal (col. 5, lines 14-23).
15. Regarding claim 16, Davis discloses the method of claim 15, wherein said second banner request signal is a content specific request signal (col. 14, lines 2-18).
16. Regarding claim 19, Davis discloses the method of claim 13, wherein said banner includes an advertisement (col. 14, lines 2-18).
17. Regarding claim 20, Davis discloses the method of claim 13, wherein said step of counting displays of said specified banner on the device is done by said server (col. 13, lines 11-15, lines 54-56).
18. Regarding claim 21, Davis discloses the method of claim 20, wherein said step of counting displays of said specified banner on the device is done by said server after said server receives said first banner request signal (col. 8, lines 53-66, col. 9, lines 15-45).

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19. Regarding claim 22, the above rejections of claims 1 and 13 read on the limitations of claim 22. Even though Davis does not mention about second server but since the requested information is not stored locally so it must be stored somewhere else. Therefor, claim 22 is rejected under the same rationale.

20. Regarding claim 23, Davis discloses the method of claim 22, wherein said second server is said first server (col. 5, lines 16-22, col. 8, lines 54-63).

21. Regarding claims 27-29, the above rejections of claims 19-21 read on the limitations of claims 27-29. Therefor, claims 27-29 are rejected under the same rationale.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

22. Claims 8-11, 17-18, and 24-26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Davis et al in view of Graber et al., U.S. Patent No. 5,712,979.

Art Unit: 2756

23. Regarding claim 8, Davis discloses the method of claim 6, but is silent about the content general request signal includes the strings "cgi-bin" and "?". Graber discloses a method for directing on-line user from the first site on WWW to second site on WWW in which the request signal including the string "cgi-bin" and "?" (Graber, col. 12, lines 40, col. 14, Table II).

It would have been obvious to one with ordinary skill in the art at the time the invention was made to enhance the method of Davis by incorporating the method of Graber for redirecting user request to a different site containing the requested information.

24. Regarding claim 9, the method of claim 1, wherein said first request signal includes the strings "cgi-bin" and "?" (Graber, col. 12, lines 40, col. 14, Table II).

25. Regarding claim 10, Davis-Graber teach the method of claim 1, wherein said banner location signal includes an HTTP 302 redirect signal (Davis, col. 7, lines 1-29; Graber, col. 3, lines 15-34).

26. Regarding claim 11, Davis-Graber teach the method of claim 10, wherein said first request signal includes the strings "cgi-bin" and "?" (Graber, col. 12, lines 40, col. 14, Table II).

Art Unit: 2756

27. Regarding claim 17, Davis-Graber teach the method of claim 13, wherein said first banner request signal includes the strings "cgi-bin" and "?" (Graber, col. col. 12, lines 40, col. 14, Table II).

28. Regarding claim 18, Davis-Graber teach the method of claim 13, wherein said banner location signal includes an HTTP 302 redirect signal (Davis, col. 7, lines 1-29; Graber, col. 3, lines 15-34).

29. Regarding claims 24-26, the above rejections of claims 9-11 read on the limitations of claims 24-26. Therefor, claims 24-26 are rejected under the same rationale.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dennis Pham whose telephone number is (703) 305-0086. The examiner can normally reached on Monday-Friday from 8:00 a.m. to 5:00 p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Frank Asta, can be reached on (703) 305-3817.

Any response to this action should be mailed to:

Commissioner of Patents and Trademark

Washington, D.C. 20231

Application/Control Number: 08/872,971

Page 10

Art Unit: 2756

or faxed to:

(703) 308-9051, (for formal communication intended for entry)

or:

(703) 305-5358 (for informal or draft communication, please label
"PROPOSED" or "DRAFT").

Hand-delivered responses should be brought to Crystal Park II,
2121 Crystal Drive, Arlington.

VA., Sixth Floor (Receptionist).

Any inquiry of a general nature or relating to the status of this application or proceeding
should be directed to the Group receptionist whose telephone number is (703) 305-9700.

Dennis Pham

December 7, 1998


FRANK J. ASTA
SUPERVISORY PATENT EXAMINER
GROUP 2700

NOTICE OF DRAFTERPERSON'S PATENT DRAWING REVIEW

The drawing filed (insert date) 6-11-97 are:

A. not objected to by the Drafterperson under 37 CFR 1.84 or 1.152.
B. objected to by the Drafterperson under 37 CFR 1.84 or 1.152 as indicated below. The Examiner will require submission of new, corrected drawings where necessary. Corrected drawings must be submitted according to the instructions on the back of this notice.

- | | |
|--|--|
| <p>1. DRAWINGS. 37 CFR 1.84(a): Acceptable categories of drawings:
Black ink. Color.
<input type="checkbox"/> Color drawing are not acceptable until petition is granted.
Fig.(s) _____
<input type="checkbox"/> Pencil and non black ink is not permitted. Fig(s) _____</p> <p>2. PHOTOGRAPHS. 37 CFR 1.84(b)
<input type="checkbox"/> Photographs are not acceptable until petition is granted,
<input type="checkbox"/> 3 full-tone sets are required. Fig(s) _____
<input type="checkbox"/> Photographs not properly mounted (must be on bristol board or photographic double-weight paper). Fig(s) _____
<input type="checkbox"/> Poor quality (half-tone). Fig(s) _____</p> <p>3. TYPE OF PAPER. 37 CFR 1.84(e)
<input type="checkbox"/> Paper not flexible, strong, white and durable.
Fig.(s) _____
<input checked="" type="checkbox"/> Erasures, alterations, overwritings, interlineations, folds, copy machine marks not acceptable. (too thin) <u>FIG. 1-4</u>
<input type="checkbox"/> Mylar, vellum paper is not acceptable (too thin).
Fig(s) _____</p> <p>4. SIZE OF PAPER. 37 CFR 1.84(F): Acceptable sizes:
<input type="checkbox"/> 21.0 cm by 29.7 cm (DIN size A4)
<input type="checkbox"/> 21.6 cm by 27.9 cm (8 1/2 x 11 inches)
<input type="checkbox"/> All drawings sheets not the same size.
Sheet(s) _____</p> <p>5. MARGINS. 37 CFR 1.84(g): Acceptable margins:
Top 2.5 cm Left 2.5 cm Right 1.5 cm Bottom 1.0 cm
SIZE: A4 Size
Top 2.5 cm Left 2.5 cm Right 1.5 cm Bottom 1.0 cm
SIZE: 8 1/2 x 11
<input checked="" type="checkbox"/> Margins not acceptable. Fig(s) <u>1,3,4</u>
<input checked="" type="checkbox"/> Top (T) <input checked="" type="checkbox"/> Left (L)
<input checked="" type="checkbox"/> Right (R) <input checked="" type="checkbox"/> Bottom (B)</p> <p>6. VIEWS. CFR 1.84(h)
REMINDER: Specification may require revision to correspond to drawing changes.
<input type="checkbox"/> Views connected by projection lines or lead lines.
Fig.(s) _____
Partial views. 37 CFR 1.84(h)(2)
<input type="checkbox"/> Brackets needed to show figure as one entity.
Fig.(s) _____
<input type="checkbox"/> Views not labeled separately or properly.
Fig.(s) _____
<input type="checkbox"/> Enlarged view not labeled separately or properly.
Fig.(s) _____</p> | <p>7. SECTIONAL VIEWS. 37 CFR 1.84(h)(3)
<input type="checkbox"/> Hatching not indicated for sectional portions of an object.
Fig.(s) _____
<input type="checkbox"/> Sectional designation should be noted with Arabic or Roman numbers. Fig.(s) _____</p> <p>8. ARRANGEMENT OF VIEWS. 37 CFR 1.84(i)
<input type="checkbox"/> Words do not appear on a horizontal, left-to-right fashion when page is either upright or turned, so that the top becomes the right side, except for graphs. Fig.(s) _____
<input type="checkbox"/> Views not on the same plane on drawing sheet. Fig.(s) _____</p> <p>9. SCALE. 37 CFR 1.84(k)
<input type="checkbox"/> Scale not large enough to show mechanism with crowding when drawing is reduced in size to two-thirds in reproduction.
Fig.(s) _____</p> <p>10. CHARACTER OF LINES, NUMBERS, & LETTERS. 37 CFR 1.84(l)
<input checked="" type="checkbox"/> Lines, numbers & letters not uniformly thick and well defined, clean, durable and black (poor line quality).
Fig.(s) <u>1-4</u></p> <p>11. SHADING. 37 CFR 1.84(m)
<input type="checkbox"/> Solid black areas pale. Fig.(s) _____
<input type="checkbox"/> Solid black shading not permitted. Fig.(s) _____
<input type="checkbox"/> Shade lines, pale, rough and blurred. Fig.(s) _____</p> <p>12. NUMBERS, LETTERS, & REFERENCE CHARACTERS. 37 CFR 1.84(p)
<input checked="" type="checkbox"/> Numbers and reference characters not plain and legible.
Fig.(s) <u>1-4</u>
<input type="checkbox"/> Figure legends are poor. Fig.(s) _____
<input type="checkbox"/> Numbers and reference characters not oriented in the same direction as the view. 37 CFR 1.84(p)(3) Fig.(s) _____
<input type="checkbox"/> English alphabet not used. 37 CFR 1.84(p)(3) Fig.(s) _____
<input type="checkbox"/> Numbers, letters and reference characters must be at least .32 cm (1/8 inch) in height. 37 CFR 1.84(p)(3) Fig.(s) _____</p> <p>13. LEAD LINES. 37 CFR 1.84(q)
<input type="checkbox"/> Lead lines cross each other. Fig.(s) _____
<input type="checkbox"/> Lead lines missing. Fig.(s) _____</p> <p>14. NUMBERING OF SHEETS OF DRAWINGS. 37 CFR 1.84(t)
<input type="checkbox"/> Sheets not numbered consecutively, and in Arabic numerals beginning with number 1. Fig.(s) _____</p> <p>15. NUMBERING OF VIEWS. 37 CFR 1.84(u)
<input type="checkbox"/> Views not numbered consecutively, and in Arabic numerals, beginning with number 1. Fig.(s) _____</p> <p>16. CORRECTIONS. 37 CFR 1.84(w)
<input type="checkbox"/> Corrections not made from PTO-948 dated _____</p> <p>17. DESIGN DRAWINGS. 37 CFR 1.152
<input type="checkbox"/> Surface shading shown not appropriate. Fig.(s) _____
<input type="checkbox"/> Solid black shading not used for color contrast.
Fig.(s) _____</p> |
|--|--|

COMMENTS

REVIEWER S. F. Felde DATE 2-8-98 TELEPHONE NO. _____

ATTACHMENT TO PAPER NO. 8

PTO COPY

Notice of References Cited

Application No. 08/872,971	Applicant(s) Michael John Griffiths		
Examiner Dennis Pham	Group Art Unit 2756	Page 1 of 1	

U.S. PATENT DOCUMENTS

	DOCUMENT NO.	DATE	NAME	CLASS	SUBCLASS
A	5,572,843	11/05/96	Judson	395	793
B	5,712,979	01/27/98	Graber et al	395	200.11
C	5,715,453	02/03/98	Stewart	395	615
D	5,727,129	03/10/98	Barrett et al	395	12
E	5,742,768	04/21/98	Gennaro et al	395	200.33
F	5,764,235	06/09/98	Hunt et al	345	428
G	5,781,739	07/14/98	Bach et al	395	200.57
H	5,793,972	08/11/98	Shane	395	200.49
I	5,796,952	08/18/98	Davis et al	395	200.54
J					
K					
L					
M					

FOREIGN PATENT DOCUMENTS

	DOCUMENT NO.	DATE	COUNTRY	NAME	CLASS	SUBCLASS
N						
O						
P						
Q						
R						
S						
T						

NON-PATENT DOCUMENTS

	DOCUMENT (Including Author, Title, Source, and Pertinent Pages)	DATE
U		
V		
W		
X		



#8

CASE DOCKET NO. 18022-002

In re Application of: Michael Chrisman

Serial No.: 08/872,971

Filed: 06/11/97

For: METHOD FOR COUNTING DISPLAYS OF BANNERS ON TERMINALS CONNECTED TO A COMPUTER NETWORK

RECEIVED MAR 24 1999 Group 2700

THE COMMISSIONER OF PATENTS AND TRADEMARKS Washington, D.C. 20231

Sir:

Transmitted herewith is an amendment in the above-identified application.

Small entity status of this application under 37 CFR 1.9 and 1.27 has been established by a verified statement previously submitted.

A verified statement to establish small entity status under 37 CFR 1.9 and 1.27 is enclosed.

No additional fee is required.

The fee has been calculated as shown below:

(Col. 1) CLAIMS REMAINING AFTER AMENDMENT	(Col. 2) HIGHEST NO. PREVIOUSLY PAID FOR	(Col. 3) PRESENT EXTRA	SMALL ENTITY RATE FEE	OR	Other than a SMALL ENTITY RATE FEE	OTHER THAN
TOTAL 50 MINUS 29 = 21			x\$9= \$ 189		x\$18= \$	
INDEP. 5 MINUS 3 = 2			x\$39= \$ 78		x\$78= \$	
MULTIPLE DEPENDENT CLAIMS			x\$130= \$		x\$260= \$	
			TOTAL \$ 267		TOTAL \$	

Please charge my Deposit Account No. _____ in the amount of \$ _____. A duplicate copy of this sheet is attached.

Our Firm's check No. 73441 in the amount of \$267.00 is attached.

The Commissioner is hereby authorized to charge payment of the following fees associated with this communication or credit any overpayment to Deposit Account No. 03-1725. A duplicate copy of this sheet is attached.

Any filing fees under 36 CFR 1.16 for the presentation of extra claims.

Any patent application processing fees under 37 CFR 1.17.

Respectfully submitted,

Scott B. Allison

Scott B. Allison, Reg. No.: 38,370
Chrisman, Bynum & Johnson, P.C.
1900 Fifteenth Street
Boulder, CO 80302
(303) 546-1300



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

#8/A
LDT
3-24-99
entire

Applicants: Michael J. Griffiths)
 Serial No.: 08/872,971) Art Unit: 2317
 Filing Date: June 11, 1997)
 Title: METHOD FOR COUNTING DISPLAYS)
 OF BANNERS ON TERMINALS)
 CONNECTED TO A COMPUTER)
 NETWORK)
 Our File No.: 18022-002)

RECEIVED
MAR 24 1999
Group 2700

AMENDMENT UNDER 37 C.F.R. § 1.111

To: Honorable Commissioner of
Patents and Trademarks
Washington, D.C. 20231

Dear Sir:

In response to the Patent Examiner's Office Action, Paper No. 5, dated December 10, 1998 please amend the above-identified patent application, as follows:

In the Specification:

On page 1, line 1, replace after "Serial No. _____," with --Serial No. 08/858,650,--.

On page 24, line 16, change "The method 72" to --The prior art method 72--.

On page 34, line 11, before "302" insert --HTTP--.

On page 36, line 11, replace "stings" with --strings--.

On page 36, line 14, replace "bannersite1.cm" with --bannersite1.com--.

In the Claims:

Please cancel claim 2 without prejudice to the subject matter claimed therein.

A

03/17/1999 00000044 08072971
189.00 OP
76.00 OP
01 FC:203
02 FC:202

Please amend the following claims:

1. (Amended) A method for storing delivering information [on a primary server connected to a computer network] to a terminal connected to a computer network, wherein information delivered over the computer network from a primary server to [a] the terminal ^{contains} ~~contains~~ references to other information to be delivered to the terminal from the primary server or from one or more other servers connected to the computer network, comprising [the steps of]:

servicing a first portion of [the] information to the terminal, wherein said first portion of [the] information contains a reference to a second portion of [the] information;

sending a first request signal from the terminal to the primary server requesting a location address for said second portion of [the] information from which said second portion of [the] information can be served to the terminal, wherein said first request signal cannot be blocked from reaching said primary server by either the terminal or any intermediary device located topologically between the terminal and the primary server as a result of previous caching or storing of said first portion of information or said second portion of information by the terminal or said intermediary device;

sending a location signal from the primary server to the terminal providing said location address of said second portion of [the] information; and

determining if said second portion of [the] information is already stored on the terminal and, if said second portion of [the] information is not already stored on the terminal, sending a second request signal from the terminal containing said location address of said second portion of [the] information and requesting that said second portion of [the] information be served to the terminal for display on the terminal, and, if

A1
end

said second portion of [the] information is already stored on the terminal, displaying said second portion of [the] information on the terminal.

~~22~~

(Amended) The method of claim 1, including [the step of] counting each time said second portion of [the] information is displayed on the terminal.

~~34~~

(Amended) The method of claim ~~2~~, wherein said [step of] counting each time said second portion of [the] information is displayed on the terminal is performed by the primary server after said primary server receives said first request signal from the terminal.

A2

5. (Amended) The method of claim 1, including [the steps of] serving said second portion of [the] information to the terminal if said second portion of [the] information is not already stored on the terminal and updating a counter of displays of said second portion of [the] information on the terminal.

6. (Amended) The method of claim [3] 1, wherein said first request signal is a content general request signal.

A3

~~48~~

(Amended) The method of claim [6] ~~2~~, wherein said content general request signal includes the strings "cgi-bin" and "?".

~~1112~~

(Amended) The method of claim 1, wherein said second portion of [the] information includes an advertisement.

A4

~~17~~

(Amended) A method for distributing a banner over a computer network to a client device, wherein the banner is stored in one or more servers connected to the computer network and referenced in a hypertext document served to the client device, and for counting the number of times a banner is displayed on [a] the client device, comprising [the steps of]:

sending a first banner request signal from the device to a server requesting that a

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banner be served to the client device, wherein said first banner request signal cannot be blocked from reaching said server by either the client device or any intermediary device located topologically between the client device and the server as a result of previous caching or storing of said banner by the client device or said intermediary device;

sending a banner location signal from said server to the client device, wherein said banner location signal includes location information for a specified banner to be displayed on the client device;

determining if said specified banner is stored on the client device and, if said specified banner is stored on the client device, displaying said specified banner on the client device, and if said specified banner is not stored on the client device, sending a second banner request signal from the client device requesting that said specified banner be served to the client device for display on the client device; and

18
14. counting each display [displays] of said specified banner on the client device.
(Amended) The method of claim 13, including [the step of] storing said specified banner in the client device after said specified banner is served to the client device.

24
20. (Amended) The method of claim 13, wherein said [step of] counting each display [displays] of said specified banner on the client device is done by said server.

A 5
25
21. (Amended) The method of claim 20, wherein said [step of] counting each display [displays] of said specified banner on the client device is done by said server after said server receives said first banner request signal.

30
22. (Amended) A method for counting the number of times a banner is displayed on a device, wherein the banner is referenced in a document served to the device, the banner is

stored in one or more servers connected to the computer network, and the device is connected to the computer network via an intermediary server, comprising [the steps of]:

sending a first banner request signal from the device to a first server requesting that a banner be served to the device, wherein said first banner request signal cannot be blocked from reaching said first server by either the device or the intermediary server as a result of previous caching or storing of said banner by the device or the intermediary server;

sending a banner location signal from said first server to the device, wherein said banner location signal includes location information for a specified banner stored on a second server;

determining if said specified banner is stored on the device and, if said specified banner is not stored on the device, then sending a second banner request signal from the device to the intermediary server and determining if said specified banner is stored on the intermediary server, wherein if said specified banner is not stored on the intermediary server, sending said second banner request signal from said intermediary server to said second server requesting that said second server serve said specified banner to the device;

displaying said specified banner on the device; and

counting the number of times said specified banner is displayed on the device.

A5
end

³¹⁸ (Amended) The method of claim ³⁰ 22, wherein said [step of] counting the number of times said specified banner is displayed on the device is performed by said first server.

A6

³¹⁹ (Amended) The method of claim ³⁶ 28, wherein said [step of] counting the

A6
end

number of times said specified banner is displayed on the device is performed by said first server after said first server receives said first banner request signal sent by the device.

Kindly add the following new claims:

~~30~~³⁰. The method of claim ~~22~~³⁰, wherein the intermediary server is a proxy server.--

~~31~~¹². The method of claim 1, wherein browser software is operating on said terminal and said browser software generates said first request signal and said second request signal.--

~~32~~¹³. The method of claim 1, wherein said reference to said second portion of information includes at least a portion of a URL.--

~~33~~¹⁴. The method of claim 1, wherein said location signal includes at least a portion of a URL.--

~~34~~¹⁵. The method of claim 1, wherein said intermediary device is a proxy server.--

~~35~~¹⁶. The method of claim 1, wherein said first portion of information is a world wide web page.--

~~36~~²⁶. The method of claim ~~13~~¹⁷, wherein browser software is operating on said client device and said browser software generates said first banner request signal and said second banner request signal.--

~~37~~²⁷. The method of claim ~~13~~¹⁷, wherein said banner location signal includes at least a portion of a URL.--

~~38~~²⁸. The method of claim ~~13~~¹⁷, wherein said first banner request signal includes at least a portion of a URL.--

~~39~~²⁹. The method of claim ~~13~~¹⁷, wherein said intermediary device is a proxy server.--

~~40~~³⁹. A method for serving a banner to a client device, wherein a primary server serves

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a HTML document to the client device and the HTML document contains an initial URL associated or pointing to a banner to be served to the client device in order to complete rendering of the HTML document on the client device, comprising:

causing a first TCP/IP compliant request for the banner containing at least a portion of the initial URL to be sent from the client device to the primary server without allowing said first TCP/IP compliant request to be blocked from being received by the primary server;

serving a signal from the primary server to the client device that includes a second URL associated with the banner's location;

determining if the banner is stored on the client device and, if the banner is stored on the client device, rendering the banner on the client device, and if the banner is not stored on the client device, causing a second TCP/IP compliant request to be sent from the client device requesting that the banner be served to the client device; and

counting at least one rendering of the banner on the client device.--

⁴⁰
~~41~~. The method of claim ³⁹~~40~~, wherein said first TCP/IP compliant request includes the strings "cgi-bin" and "?".--

⁴¹
~~42~~. The method of claim ³⁹~~40~~, wherein said signal sent from said primary server to said client device includes an HTTP 302 redirect command.--

⁴²
~~43~~. The method of claim ³⁹~~40~~, wherein said first TCP/IP compliant request cannot be blocked from being received by the primary server as a result of previous caching or storing of the banner by the client device or an intermediary device connected to the computer network.--

⁴³
~~44~~. The method of claim ⁴²~~43~~, wherein said intermediary device is located topologically

on said computer network between the client device and the primary server.--

~~44~~
~~45~~. A method for enabling accurate counting of the number of times a banner is displayed on a client device, wherein the banner is referenced in a document served to the client device, the banner is stored in one or more servers connected to the computer network, and the client device is connected to the computer network via an intermediary server, comprising:

causing a first banner request signal to be sent from the client device to a first server requesting that a banner be served to the client device, wherein said first banner request signal cannot be blocked from reaching said first server by either the client device or the intermediary server as a result of previous caching or storing of said banner by the client device or the intermediary server;

A⁷
sending a banner location signal from said first server to the client device, wherein said banner location signal includes location information for a specified banner stored on a second server; and

determining if said specified banner is stored on the client device and, if said specified banner is not stored on the client device, causing a second banner request signal to be sent from the client device to the intermediary server and determining if said specified banner is stored on the intermediary server, wherein if said specified banner is not stored on said intermediary server, causing a third banner request signal to be sent from the intermediary server to said second server requesting that said second server serve said specified banner to the client device.--

~~45~~
~~46~~. The method of claim ~~45~~⁴⁴, wherein the intermediary server is a proxy server.--

~~46~~
~~47~~. The method of claim ~~45~~⁴⁴, wherein said third banner request signal is identical to

said second banner request signal.--

~~47~~ ~~48~~. The method of claim ~~45~~⁴⁴, including counting the number of times said specified banner is displayed on the client device.--

~~48~~ ~~49~~. The method of claim ~~45~~⁴⁴, wherein said first banner request signal includes the strings "cgi-bin" and "?".--

~~49~~ ~~50~~. The method of claim ~~45~~⁴⁴, wherein said first server and said second server are the same server.--

A7
end

REMARKS

In the Office Action, Paper No.5, dated December 10, 1998, the patent examiner rejected claims 1-7, 12-16, 19-23, and 27-29 under 35 U.S.C. § 102(e) as being anticipated by U.S. Patent No. 5,796,952 issued to *Davis et al.* and claims 8-11, 17-18, and 24-26 under 35 U.S.C. § 103(a) as being unpatentable over the *Davis et al.* patent in view of U.S. Patent No. 5,712,979 issued to *Graber et al.*

The applicant has carefully considered the patent examiner's rejections, the reasons for the rejections, and the prior art cited by the patent examiner. In response, the applicant has deleted claim 2 and added new claims 30-50. In addition, the applicant has amended originally filed claims 1, 3-6, 8, 12-14, 20-22, and 28-29 to define more clearly the essence of his invention and to remove recited language not required for allowability of the claims. No new matter is introduced by this amendment.

The Applicant's Invention and the Prior Art References Cited by the Patent Examiner

Turning now to the substantive rejections of the applicant's claims over the *Davis et al.* patent and the *Graber et al.* patent, it is important to first put those two references in perspective

with the applicant's invention. In order to do so, it is also important to recognize at least three of the fundamental principles of the applicant's invention.

First, applicant's invention is specifically directed to the serving of banners or other information from a server device to a client device via a computer network and the accurate counting of such display of banners or other information on the terminal or client device. *See*, Applicant's disclosure, page 6, lines 4-6; page 11, lines 9-16; page 13, line 11 to page 14, line 1; page 37, lines 8-12; page 38, line 8 to page 39, line 6. Inaccurate counting of banners or advertisement displays on the client device is often caused by caching or storage of the banner or advertisement on the client device or on proxy servers or other intermediate devices topologically connected between the client device and the server device. *See*, Applicant's disclosure, page 11, lines 12-16; page 12, line 8 to page 13, line 10; page 17, line 21 to page 19, line 10; page 24, line 16 to page 25, line 18. Applicant's invention reduces the inaccurate display counting caused by caching of the banners or advertisements. *See*, Applicant's disclosure, page 28, line 9 to page 29, line 2. It should be noted that no specific limitations are intended by the use of the terms "terminal," "device," "client device," or "server" as those terms are used in the applicant's patent application, in the applicant's claims, or in this response to the first Office Action.

Second, applicant's invention allows such serving and counting to occur without significantly increasing data traffic on the computer network or unnecessarily delaying the display of the banners or other information on the client device. *See*, Applicant's disclosure, page 6, lines 7-9; page 26, line 9 to page 26, line 13; page 28, lines 1-5; page 36, line 18 to page 37, line 5; page 40, line 10 to page 41, line 2. Applicant's invention controls the use of cached

banners or advertisements such that accurate counting of displays of the banners and advertisements can be made, as previously discussed above, but allows and takes advantage of caching when appropriate and possible to reduce congestion or unnecessary data traffic on the computer network. *See*, Applicant's disclosure, page 40, line 10 to page 41, line 2.

Third, applicant's invention allows banners or advertisements to be targeted to users to increase the banners or advertisements effectiveness. *See*, Applicant's disclosure, page 6, lines 2-3; page 27, lines 14-21; page 28, lines 5-8; page 39, lines 6-18. Therefore, applicant's invention allows advertisements to be selected for display to a user based on demographic or other information known about the user and uses content general or content specific request signals as part of the disclosed method. *See*, Applicant's disclosure, page 28, lines 5-8; page 29, line 3 to page 34, line 10.

In contrast to the applicant's invention, the *Davis et al.* patent is primarily directed to monitoring client interaction with a file or resource downloaded from a server to the client via a computer network. *See, for example, Davis et al.* patent, Abstract; col. 1, lines 8-10; col. 4, lines 3-18, 37-55; col. 5, lines 4-13; col. 8, line 30 to col. 9, line 45. "[T]he tracked resource may, for example, be a file such as a Web Page or part of a Web page (such as an ad banner)." *Davis et al.* patent, col. 5, lines 11-13. The resources may also be "images, video or sound" or other files needed to fully render or display a web page on the client. *Davis et al.* patent, col. 7, lines 19-22. The client's monitoring of the tracked resource is enabled by downloading of a tracking program to the client and operation of the tracking program on the client device. *See, Davis et al.* patent, col. 4, lines 37-55. The tracking program monitors the client's interaction with the file or resource and sends information regarding such monitoring to a server. *See, Davis et al.* patent,

col. 4, lines 56-63. The server may use the information to build historical profiles of users in a database and to target information that is sent to users. See, *Davis et al.* patent, col. 4, line 64 to col. 5, line 3. A server resident and operating program may also be used to build the historical database or to extract other information from client generated requests. See, *Davis et al.* patent, col. 5, lines 23-28, 35-44; col. 7, lines 10-19.

While *Davis et al.* do disclose ad banners as being potential resources that can be tracked using their disclosed method, *Davis et al.* do not address the problems associated with accurate ad counting that applicant's invention resolves. Furthermore, *Davis et al.* do not disclose any knowledge or solving of the problems of inaccurate banner or advertisement display counting caused by caching of banners or advertisements. In fact, *Davis et al.* expressly provide that their disclosed method will work regardless of whether the file or resource to be downloaded to the client has been previously cached or temporarily stored by or on the client. More specifically, *Davis et al.* state:

In some cases, clients will "cache" a resource obtained over the network (or temporarily store a copy of the resource on the user's computer), and may use the cached copy of the resource instead of obtaining it over the Internet when the resource is needed at a later time (for example, in order to completely render a Web page). In such cases, neither the basic operations nor functions of the tracking program nor the transmission of tracked information to a server, differ from the cases where cached copies where not used.

Davis et al. patent, col. 8, lines 21-29 (*emphasis added*). Thus, *Davis et al.*'s approach does not control, block, or constrain the use of cached resources served to or used by a client and, as a result, is direct contrast to applicant's invention that does control or limit the use of cached banners or advertisements. Therefore, request signals for resources generated by the client are not prevented from being blocked or terminated prior to reaching the server as a resulting of

previous caching or storing of the resource on the client or on a device, such as a proxy server, located topologically on the computer network between the client and the server. In addition, *Davis et al.* simply are not concerned with, and do not address, the effect of controlling or limiting use of cached resources on the amount of data traffic or congestion on a computer network that may hinder timely delivery of resources from a server to a client connected to the computer network. Finally, *Davis et al.* are not concerned with, and do not address, the differences between a content specific request signal and a content general request signal that might be generated by the client and sent to the server.

Also in contrast to the applicant's invention, the *Graber et al.* patent is primarily directed to a method and apparatus for tracking the navigation path of a user connected to the world wide web and for redirecting a user from a first location (*e.g.*, a first world wide web site) on the world wide web to a second location (*e.g.*, a second world wide web site) on the world wide web. *See, Graber et al.* patent, Abstract; col. 1, lines 10-15; col. 2, lines 61-64; col. 3, lines 15-18, 35-38. Moreover, the *Graber et al.*'s disclosed method is directed to using relative URL addressing for such redirection of the user in a way that retains UNIX symbolic link/CMID information. *See, Graber et al.* patent, col. 1, line 60 to col 2, line 14; col. 2, lines 28-32; col. 10, lines 20-23; col. 10, line 45 to col. 14, line 13. In the embodiments disclosed in the *Graber et al.* patent, when a user wants to move from his current location or Universal Resource Locator (URL) to a new location having a destination URL, the user's current URL and the user's destination URL are parsed and used to form a third or new URL containing UNIX symbolic link/CMID information which is returned to the user. The user or the user's browser software then uses the third URL to move to the world wide web site or page indicated by the third URL. *See, Graber et al.* patent,

col. 2, line 61 to col. 3, line 47; col 10, line 45 to col. 12, line 51.

Graber et al. are not even remotely concerned with serving or counting of banners or advertisements and do not disclose any use of their method or apparatus with serving or counting of banners or advertisements. Moreover, like *Davis et al.*, *Graber et al.* do not address the problems associated with accurate ad counting that applicant's invention resolves. Similarly, *Graber et al.* do not disclose any knowledge or solving of the problems of inaccurate banner or advertisement display counting caused by caching of banners or advertisements. Therefore, *Graber et al.*'s disclosed method and apparatus are unrelated to, and far removed from, applicant's invention.

Anticipation Rejections

The patent examiner rejected claims 1-7, 12-16, 19-23, and 27-29 under 35 U.S.C. § 102(e) as being anticipated by the *Davis et al.* patent. With regard to applicant's independent claim 1, as previously discussed above, among other things, *Davis et al.* do not disclose, teach, or even fairly suggest "sending a first request signal from the terminal to the primary server requesting a location address for said second portion of information from which said second portion of information can be served to the terminal, wherein said first request signal cannot be blocked from reaching said primary server by either the terminal or any intermediary device located topologically between the terminal and the primary server as a result of previous caching or storing of said first portion of information or said second portion of information by the terminal or said intermediary device," as recited in applicant's amended independent claim 1. Similarly, with regard to applicant's independent claim 13, among other things, *Davis et al.* do not disclose, teach, or even fairly suggest "sending a first banner request signal from the device

to a server requesting that a banner be served to the client device, wherein said first banner request signal cannot be blocked from reaching said server by either the client device or any intermediary device located topologically between the client device and the server as a result of previous caching or storing of said banner by the client device or said intermediary device," as recited in applicant's amended independent claim 13. Likewise, with regard to applicant's independent claim 22, among other things, *Davis et al.* do not disclose, teach, or even fairly suggest "sending a first banner request signal from the device to a first server requesting that a banner be served to the device, wherein said first banner request signal cannot be blocked from reaching said first server by either the device or the intermediary server as a result of previous caching or storing of said banner by the device or the intermediary server," as recited in applicant's amended independent claim 22. With regard to applicant's new independent claim 40, among other things, *Davis et al.* do not disclose, teach, or even fairly suggest "causing a first TCP/IP compliant request for the banner containing at least a portion of the initial URL to be sent from the client device to the primary server without allowing said first TCP/IP compliant request to be blocked from being received by the primary server" as recited in applicant's new independent claim 40. Finally, with regard to applicant's new independent claim 45, among other things, *Davis et al.* do not disclose, teach, or even fairly suggest "causing a first banner request signal to be sent from the client device to a first server requesting that a banner be served to the device, wherein said first banner request signal cannot be blocked from reaching said first server by either the client device or the intermediary server as a result of previous caching or storing of said banner by the client device or the intermediary server" as recited in applicant's new independent claim 45. Therefore, each of the amended original independent claims 1, 13,

and 22 and the new independent claims 40 and 45 are clearly allowable over the cited prior art.

Since applicant's amended independent claims 1, 13, and 22 and new independent claims 40 and 45 are clearly allowable over the prior art, while the applicant disagrees with the patent examiner's assertions regarding anticipation of the applicant's dependent claims, the applicant's dependent claims are also allowable and the applicant need not address the patent examiner's specific anticipation rejections of the applicant's dependent claims at this time. However, with respect to applicant's amended dependent claim 6, which depends directly from applicant's independent claim 1, in contrast to the patent examiner's assertions *Davis et al.* do not disclose a content general request signal that is sent by or from a terminal, as recited in applicant's amended dependent claim 6. Rather, the specific language in the *Davis et al.* patent cited by the patent examiner is directed to specific embedded URLs in an HTML document that point to one or more specific graphical images. Therefore, applicant's amended claim dependent claim 6 and claim 7, which depends from claim 6, are clearly not anticipated by the *Davis et al.* patent and are, therefore, allowable. Similarly, applicant's dependent claims 15, 16 are also clearly not anticipated by the *Davis et al.* patent and are, therefore, allowable.

Obviousness Rejections

The patent examiner rejected claims 8-11, 17-18, and 24-26 under 35 U.S.C. § 103(a) as being unpatentable over the *Davis et al.* patent in view of the *Graber et al.* patent. As previously discussed above, *Graber et al.* are directed to effecting functionality and redirecting of users on the world wide web. *Graber et al.*'s references to cgi-bin commands are to instruct a server to execute a program stored on the server and provide the results as directed by the program. For example, *Graber et al.*'s Table II includes the HTML statement:

Enroll page on OLS
140

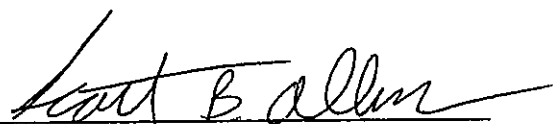
The cgi-bin command or reference in the HTML statement directs a server to execute a program located on the server called page_link wherein enroll&cmi form parameters to be used by the page_link program. See, *Graber et al.* patent, col. 11, line 49 to col. 15, line 12 for a discussion of the page_link program. *Graber et al.* are specifically using cgi-bin commands to cause the execution of one or more programs on a server. In contrast, applicant's claimed invention uses the fact that, while most HTML files or documents are usually cacheable, many proxy servers, servers, and other devices will not cache or store documents associated with URLs having "cgi-bin" or "?" strings. Applicant's claimed invention, unlike *Graber et al.*'s disclosure, takes advantage of the dynamic caching properties of cgi-bin commands to avoid using programs, documents, or results previously cached or stored in a proxy server or other device. *Graber et al.* are simply not concerned with, and do not disclose or even fairly suggest, using the dynamic caching property of cgi-bin commands. Furthermore, modifying *Graber et al.*'s disclosed program to do so would destroy the intended function of their invention. It is not *prima facie* obvious to modify a reference so as to destroy its intended function. In re Gordon, 733 F.2d 900, 221 USPQ 1125 (Fed. Cir. 1984). Finally, *Davis et al.* and *Graber et al.* are directed to solving completely different problems that are unrelated to each other or to the problem that the applicant is attempting to solve. A combination of *Davis et al.*'s and *Graber et al.*'s disclosed inventions clearly would not create or result in, or even fairly suggest, the applicant's claimed invention. The inquiry into obviousness is not whether each element existed in the prior art, but whether the prior art made obvious the invention as a whole for which patentability is claimed. Hartness

International, Inc., v. Simplimatic Engineering Co., 819 F.2d 1100, 2 USPQ2d 1826 (Fed. Cir. 1987). Furthermore, there is simply no suggestion in either the *Davis et al.* patent or the *Graber et al.* patent to combine these references. Without some suggestion or incentive in the prior art, independent of applicant's claims, it is improper to combine the prior art references in a manner necessary to show the applicant's invention in a 35 U.S.C. § 103 obviousness rejection. In re Samour, 197 USPQ 1 (CCPA 1978); In re Rinehart, 189 USPQ 143 (CCPA 1976); Ex parte Shepard and Gushue, 188 USPQ 536 (Bd. Pat. App. & Int. 1974). Given this, all of the applicant's claims are non-obvious over the *Davis et al.* patent in light of the *Graber et al.* patent.

Conclusion

The applicant believes that all of the claims are in a condition for allowance. Therefore, the patent examiner is requested to reconsider his rejections in light of the amendments and explanations above and to grant an early allowance. If any questions remain to be resolved, the patent examiner is requested to contact applicant's attorney at the telephone number listed below.

Respectfully submitted,



Scott B. Allison, Reg. No. 38,370
CHRISMAN, BYNUM & JOHNSON, P.C.
1900 Fifteenth Street
Boulder, Colorado 80302
Tel: (303) 546-1300

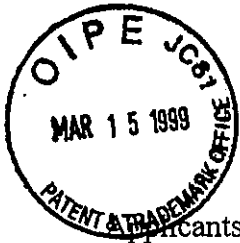
Dated: 3/10/99

CERTIFICATE OF MAILING UNDER 37 C.F.R. § 1.8

I hereby certify that the attached AMENDMENT UNDER 37 C.F.R. § 1.111 is being deposited with the United States Postal Service, first class postage prepaid, in an envelope addressed to Assistant Commissioner for Patents, Washington, DC 20231, on this tenth day of March, 1999.

Scott B. Allen

GR 2347/#
2782



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Inventors:	Michael J. Griffiths)
Serial No.:	08/872,971	) Art Unit: 2317
Filing Date:	June 11, 1997)
Title:	METHOD FOR COUNTING DISPLAYS OF BANNERS ON TERMINALS CONNECTED TO A COMPUTER NETWORK) Examiner: Dennis Rham
Our File No.:	18022-002)

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CERTIFICATE OF MAILING UNDER 37 C.F.R. 1.8

BOX FEE RESPONSE
Assistant Commissioner for Patents
Washington, DC 20231

Sir:

I hereby certify that the following documents:

1. Amendment Under 37 C.F.R. § 1.111;
2. Form PTO-1083;
3. Our firm's check No.: 73441 in the amount of \$267.00 for additional claims; and
4. Return Postcard;

are being deposited with the United States Postal Service as first-class mail, postage prepaid, in an envelope addressed to: BOX FEE RESPONSE, Assistant Commissioner for Patents, Washington, DC 20231, on this 10th day of March 1999.

Scott B. Allen

03/22/1999 ZARDALLA 00000060 031725 08872971
 01 FC:203 189.00 CH
 02 FC:202 78.00 CH

Mistake

03/22/1999 ZARDALLA 00000011 031725 08872971
 Sale Ref: 00000060 DAI: 031725 08872971
 01 FC:203 189.00 CH
 02 FC:202 78.00 CH

Void Date: 03/22/1999 ZARDALLA 00000060 031725 08872971
 01 FC:203 189.00 CR
 02 FC:202 78.00 CR

Mistake

Void Date: 03/22/1999 ZARDALLA 00000060 031725 08872971
 01 FC:203 189.00 CR
 02 FC:202 78.00 CR

JUN-03-99 THU 01:57 PM

FAX NO. 3034495426

P. 01

#9

CHRISMAN BYNUM & JOHNSON

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TELEPHONE 303.441.1620
FACSIMILE 303.449.5426

FAX COVER SHEET

		PHONE:	FAX:
TO:	Examiner Luu	703-305-9650	703-305-7201
FROM:	Scott B. Allison		
DATE:	June 2, 1999		
RE:	Final - Supplemental Amendment for Serial # 08/872,971		



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CB&J MATTER NUMBER: 18022-002

COMMENTS:

Supplemental Amendment
08/872,971

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#9B
S. Sand
6/4/99

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicants:	Michael J. Griffiths)	
)	
Serial No.:	08/872,971	)	Art Unit: 2317
)	
Filing Date:	June 11, 1999)	
		)	Examiner: Luu
Title:	METHOD FOR COUNTING DISPLAYS OF BANNERS ON TERMINALS CONNECTED TO A COMPUTER NETWORK)	
)	
Our File No.:	18022-002)	

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Group 2700

OFFICIAL

SUPPLEMENTAL AMENDMENT UNDER 37 C.F.R. §1.111

To: Assistant Commissioner for Patents
Washington, D.C. 20231

Dear Sir:

As a supplement to the Amendment Under 37 C.F.R. §1.111 filed in the U.S. Patent and Trademark Office on March 10, 1999, and in response to a telephone call from Examiner Luu on June 2, 1999, to Applicant's attorney in the above-identified patent application.

Please amend the abstract as follows:

A system for [storing] ~~delivering~~ information on a computer network and allowing the information to be accessed by terminals connected to the computer network, either directly or through [an] intermediary [device] ~~devices~~ such as [a] local or proxy [server] ~~servers~~, [includes] ~~including~~ computer or web sites [which store] ~~storing~~ pages ~~which are~~ requested by terminals for display [on the terminals]. The pages may include references ~~for the display of banners~~ [to banners to be displayed in conjunction with the web pages on the terminal]. The terminal initiates access or connection to a desired computer or web site to access a desired page. After the desired page is downloaded and served to the terminal from the computer or web site, the terminal initiates and sends an initial banner request signal to an information server. The information server returns a redirect signal to the terminal telling the terminal the location of the

desired banner on the computer network, which may be the information server, the computer site, or some other information server, computer site, or location accessible via the computer network. The terminal then initiates a second banner request signal to the location of the desired banner and the banner is downloaded to the terminal for display on the terminal, unless the requested banner has previously been stored or cached in the terminal's memory or in the memory of a local or proxy server connected to the terminal, in which case the second banner request signal is not sent across the computer network and the banner is loaded directly from the terminal's memory or [downloaded to the terminal from] the proxy server.

Please further amend the claims as follows:

In claim 1, lines 3-4, change "the terminal may contain" to -- the terminal contains --.

REMARKS

The Applicant wishes to thank Examiner Luu for discussing this case with Applicant's attorney, Scott B. Allison, in telephone interviews on June 1-2, 1999. The amendment presented herein is a supplement to the Amendment Under 37 C.F.R. §1.111, filed on March 10, 1999. The amendment to claim 1 is made to comply with the Examiner's request regarding 35 U.S.C. §112. The amendment to the abstract is made to comply with the word limitation for abstracts as requested by the Examiner.

The changes made in this Supplemental Amendment are believed to place the patent application in condition for allowance pursuant to the telephone interview with the Examiner, during which these changes were discussed. Therefore, the Examiner is requested to grant an early allowance. If any issues remain to be resolved, the Examiner is requested to contact Applicant's attorney at the telephone number listed below.

JUN-03-99 THU 01:57 PM

FAX NO. 303 4495426

P. 04

Respectfully submitted,

6/3/99
Date

Scott B. Allison
Scott B. Allison, Reg. No. 38,370
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1900 Fifteenth Street
Boulder, CO 80302
Telephone: (303) 546-1300
Fax: (303) 449-5426

CERTIFICATE OF TRANSMISSION VIA FACSIMILE

I hereby certify that this Supplemental Amendment Under 37 C.F.R. §1.111 is being transmitted via facsimile to Examiner Luu at the United States Patent and Trademark Office at facsimile number (703) 305-7201 this 3rd day of June 1999.

Scott B. Allison

08/872971

ABSTRACT OF THE DISCLOSURE

B
A system for delivering information on a computer network and allowing the information to be accessed by terminals connected to the computer network, either directly or through intermediary devices such as local or proxy servers, including computer or web sites storing pages which are requested by terminals for display. The pages may include references for the display of banners. The terminal initiates access or connection to a desired computer or web site to access a desired page. After the desired page is downloaded and served to the terminal from the computer or web site, the terminal initiates and sends an initial banner request signal to an information server. The information server returns a redirect signal to the terminal telling the terminal the location of the desired banner on the computer network, which may be the information server, the computer site, or some other information server, computer site, or location accessible via the computer network. The terminal then initiates a second banner request signal to the location of the desired banner and the banner is downloaded to the terminal for display on the terminal, unless the requested banner has previously been stored or cached in the terminal's memory or in the memory of a local or proxy server connected to the terminal, in which case the second banner request signal is not sent across the computer network and the banner is loaded directly from the terminal's memory or the proxy server.



Receipt #10

CERTIFICATE OF MAILING UNDER 37 C.F.R. 1.10

I hereby certify that this correspondence is being deposited with the United States Postal Service as Express Mail in an envelope addressed to: Assistant Commissioner for Patents, Attn: Application Processing Division, Customer Correction Branch, Washington, DC 20231 on:

June 9, 1999, Scott B. Allison

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicants: Michael J. Griffiths)
) Group Art Unit: 2317
 Serial N^o: 08/872,971)
) Examiner: Luu
 Filed: June 11, 1997)
) Atty Dkt. No. 18022-002
 Title: METHOD FOR COUNTING DISPLAYS OF BANNERS)
 ON TERMINALS CONNECTED TO A COMPUTER)
 NETWORK)

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CORRECTION OF FILING RECEIPT

To: Assistant Commissioner of Patents
ATTN: APPLICATION PROCESSING DIVISION
CUSTOMER CORRECTION BRANCH
Washington, DC 20231

Dear Sir/Madam:

We recently received a Filing Receipt for the above-referenced patent application. The Filing Receipt, a copy of which is enclosed, reflects an error in the Title.

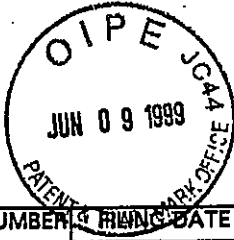
In the APPLICANT section, please replace "GRIFFTHS," with -- GRIFFITHS --.

June 9, 1999

Respectfully submitted,

Scott B. Allison
 Scott B. Allison, Reg. No. 38,370
 CHRISMAN, BYNUM & JOHNSON, P.C.
 1900 Fifteenth Street
 Boulder, CO 80302
 Telephone: (303) 546-1300

FILING RECEIPT



UNITED STATES DEPARTMENT OF COMMERCE
Patent and Trademark Office
ASSISTANT SECRETARY AND COMMISSIONER
OF PATENTS AND TRADEMARKS
Washington, D.C. 20231

APPLICATION NUMBER	FILING DATE	GRP ART UNIT	FIL FEE REC'D	ATTORNEY DOCKET NO.	DRWGS	TOT CL	IND CL
08/872,971	06/11/97	2317	\$0.00	18022-002	4	29	3

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JUN 23 1999

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JUN 24 1999

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SCOTT B ALLISON
CHRISMAN BYNUM & JOHNSON
1900 FIFTEENTH ST
BOULDER CO 80302

Receipt is acknowledged of this nonprovisional Patent Application. It will be considered in its order and you will be notified as to the results of the examination. Be sure to provide the U.S. APPLICATION NUMBER, FILING DATE, NAME OF APPLICANT, and TITLE OF INVENTION when inquiring about this application. Fees transmitted by check or draft are subject to collection. Please verify the accuracy of the data presented on this receipt. If an error is noted on this Filing Receipt, please write to the Application Processing Division's Customer Correction Branch within 10 days of receipt. Please provide a copy of the Filing Receipt with the changes noted thereon.

Applicant(s)

MICHAEL J. GRIFFITHS

GRIFFITHS

FOREIGN FILING LICENSE GRANTED 10/30/97

TITLE

METHOD FOR COUNTING DISPLAYS OF BANNERS ON TERMINALS CONNECTED TO A
COMPUTER NETWORK

PRELIMINARY CLASS: 395

PATTSY

DUE DATE(S)	N/A
ATTORNEY	SBA
DOCKETED	mmp



UNITED STATES DEPARTMENT OF COMMERCE
Patent and Trademark Office

Address: COMMISSIONER OF PATENTS AND TRADEMARKS
Washington, D.C. 20231

APPLICATION NUMBER	FILING DATE	FIRST NAMED APPLICANT	ATTORNEY DOCKET NO.
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08/872,971 06/11/97 GRIFFITHS

M 18022-002

EXAMINER

LM51/0721

SCOTT B ALLISON
CHRISMAN BYNUM & JOHNSON
1900 FIFTEENTH ST
BOULDER CO 80302

LAB UNIT

PAPER NUMBER

11

DATE MAILED:

07/21/99

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COMMISSIONER OF PATENTS AND TRADEMARKS

NOTICE OF ALLOWABILITY

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance and Issue Fee Due or other appropriate communication will be mailed in due course.

This communication is responsive to Amendment A filed on 09/10/99
 The allowed claim(s) is/are 1, 3-50

- The drawings filed on _____ are acceptable.
- Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).
 - All Some* None of the CERTIFIED copies of the priority documents have been
 - received.
 - received in Application No. (Series Code/Serial Number) _____
 - received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

*Certified copies not received; _____

- Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

A SHORTENED STATUTORY PERIOD FOR REPLY to comply with the requirements noted below is set to EXPIRE THREE MONTHS FROM THE "DATE MAILED" of this Office action. Failure to timely comply will result in ABANDONMENT of this application. Extensions of time may be obtained under the provisions of 37 CFR 1.136(a).

- Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL APPLICATION, PTO-152, which discloses that the oath or declaration is deficient. A SUBSTITUTE OATH OR DECLARATION IS REQUIRED.
- Applicant MUST submit NEW FORMAL DRAWINGS
 - because the originally filed drawings were declared by applicant to be informal.
 - including changes required by the Notice of Draftperson's Patent Drawing Review, PTO-948, attached hereto or to Paper No. 7.
 - including changes required by the proposed drawing correction filed on _____, which has been approved by the examiner.
 - including changes required by the attached Examiner's Amendment/Comment.

Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the reverse side of the drawings. The drawings should be filed as a separate paper with a transmittal letter addressed to the Official Draftperson.

- Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Any reply to this notice should include, in the upper right hand corner, the APPLICATION NUMBER (SERIES CODE/SERIAL NUMBER), if applicant has received a Notice of Allowance and Issue Fee Due; the ISSUE BATCH NUMBER and DATE of the NOTICE OF ALLOWANCE should also be included.

Attachment(s)

- Notice of References Cited, PTO-892
- Information Disclosure Statement(s), PTO-1449, Paper No(s) _____
- Notice of Draftperson's Patent Drawing Review, PTO-948
- Notice of Informal Patent Application, PTO-152
- Interview Summary, PTO-413
- Examiner's Amendment/Comment
- Examiner's Comment Regarding Requirement for Deposit of Biological Material
- Examiner's Statement of Reasons for Allowance

[Handwritten signature]
[Handwritten signature]

11 C
S. Boyd
7/20/99
2

Serial Number: 08/872,971
Art Unit: 2756

1. An Examiner's Amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 C.F.R. § 1.312. To ensure consideration of such an amendment, it **MUST** be submitted no later than the payment of the Issue Fee.

2. Pursuant to MPEP 606.01, the title has been changed to read:

-- A SYSTEM USING FIRST BANNER REQUEST THAT CAN NOT BE
BLOCKED FROM REACHING A SERVER FOR ACCURATELY COUNTING
DISPLAYS OF BANNERS ON NETWORK TERMINALS --

3. Any comments considered necessary by applicant must be submitted no later than the payment of the Issue Fee and, to avoid processing delays, should preferably accompany the Issue Fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

4. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Le H. Luu, whose telephone number is (703) 305-9650. The examiner can normally be reached Monday through Friday from 7:00 AM to 4:30 PM.

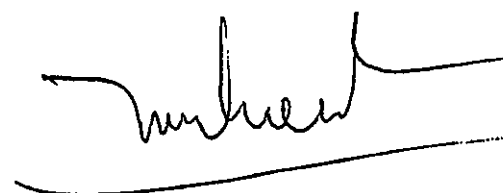
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Frank J. Asta, can be reached at (703) 305-3817. The fax phone number for

Serial Number: 08/872,971
Art Unit: 2756

3

this Group is (703) 305-9731.

Any inquiry of a general nature of relating to the status of this application should be directed to the Group receptionist whose telephone number is (703) 305-9600.

A handwritten signature in black ink, appearing to read 'Le H. Luu', is written over a horizontal line.

Le H. Luu

Primary Examiner

July 20, 1999



UNITED STATES DEPARTMENT OF COMMERCE
Patent and Trademark Office

NOTICE OF ALLOWANCE AND ISSUE FEE DUE

LM51/0721

SCOTT B ALLISON
CHRISMAN BYNUM & JOHNSON
1900 FIFTEENTH ST
BOULDER CO 80302

APPLICATION NO.	FILING DATE	TOTAL CLAIMS	EXAMINER AND GROUP ART. UNIT	DATE MAILED
08/872,971	06/11/97	049	LULI, L	2756 07/21/99
First Named Applicant GRIFFITHS,		35 USC 154(b) term ext. = 0 Days.		

TITLE OF INVENTION SYSTEM USING FIRST BANNER REQUEST THAT CAN NOT BE BLOCKED FROM REACHING A SERVER FOR ACCURATELY COUNTING DISPLAYS OF BANNERS ON NETWORK TERMINALS (AS AMENDED)

ATTY'S DOCKET NO.	CLASS-SUBCLASS	BATCH NO.	APPLN. TYPE	SMALL ENTITY	FEE DUE	DATE DUE
1	18022-002	709-224.000	W11 UTILITY	YES	\$605.00	10/21/99

THE APPLICATION IDENTIFIED ABOVE HAS BEEN EXAMINED AND IS ALLOWED FOR ISSUANCE AS A PATENT. PROSECUTION ON THE MERITS IS CLOSED.

THE ISSUE FEE MUST BE PAID WITHIN THREE MONTHS FROM THE MAILING DATE OF THIS NOTICE OR THIS APPLICATION SHALL BE REGARDED AS ABANDONED. THIS STATUTORY PERIOD CANNOT BE EXTENDED.

HOW TO RESPOND TO THIS NOTICE:

- I. Review the SMALL ENTITY status shown above.
 - If the SMALL ENTITY is shown as YES, verify your current SMALL ENTITY status:
 - A. If the status is changed, pay twice the amount of the FEE DUE shown above and notify the Patent and Trademark Office of the change in status, or
 - B. If the status is the same, pay the FEE DUE shown above.
 - If the SMALL ENTITY is shown as NO:
 - A. Pay FEE DUE shown above, or
 - B. File verified statement of Small Entity Status before, or with, payment of 1/2 the FEE DUE shown above.
- II. Part B-Issue Fee Transmittal should be completed and returned to the Patent and Trademark Office (PTO) with your ISSUE FEE. Even if the ISSUE FEE has already been paid by charge to deposit account, Part B Issue Fee Transmittal should be completed and returned. If you are charging the ISSUE FEE to your deposit account, section "4b" of Part B-Issue Fee Transmittal should be completed and an extra copy of the form should be submitted.
- III. All communications regarding this application must give application number and batch number. Please direct all communications prior to issuance to Box ISSUE FEE unless advised to the contrary.

IMPORTANT REMINDER: Utility patents issuing on applications filed on or after Dec. 12, 1980 may require payment of maintenance fees. It is patentee's responsibility to ensure timely payment of maintenance fees when due.

PATENT AND TRADEMARK OFFICE COPY

PTOL-85 (REV. 10-96) Approved for use through 06/30/99. (0651-0033)

*U.S. GPO: 1998-437-839/80023

OFFICIAL

#12

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicants: Michael John Griffiths)
)
 Serial No.: 08/872,971)
)
 Filing Date: June 11, 1997)
)
 Title: METHOD FOR COUNTING DISPLAYS OF)
 BANNERS ON TERMINALS CONNECTED)
 TO A COMPUTER NETWORK)
)
 Our File No.: 18022-002)

Group Art Unit:
~~2317~~ ~~2799~~ (2756)
 Examiner:
 Dennis Pham

FAX RECEIVED
 AUG 16 1999
 Group 2700

SUPPLEMENTAL INFORMATION DISCLOSURE STATEMENT
UNDER 37 C.F.R. §§ 1.56, 1.97 and 1.98

To: Assistant Commissioner for Patents
 Washington, D.C. 20231

Dear Sir:

The applicant hereby submits his Supplemental Information Disclosure Statement pursuant to 37 C.F.R. §§ 1.56, 1.97 and 1.98 and respectfully requests the Examiner to consider the information disclosed in the patents and publications listed below:

CITATIONS

<u>U.S. Patents</u>	<u>Inventors</u>	<u>Issue Dates</u>
5,774,660	Brendel et al.	June 30, 1998
5,341,477	Pitkin et al.	August 23, 1994
5,794,210	Goldhaber et al.	August 11, 1998
5,764,906	Edelstein et al.	June 9, 1998
5,781,550	Templin et al.	July 14, 1998
5,796,952	Davis et al.	August 18, 1998
5,712,979	Graber et al.	January 27, 1998

ARTICLES AND PUBLICATIONS

NetGravity Ad Server 2.0 Announcement. Available at <http://www.netgravity.com>. 10/96.

Khoda et al. "Ubiquitous advertising on the WWW: Merging advertisement on the browser," *Computer Network and ISDN System*, 28 (1996) 1493-1499. 5/96.

The Goldhaber, Edelstein et al. And Templin et al. references were cited in the Written Opinion by the International Preliminary Examining Authority and the Davis et al. and Graber et al. references were cited in the International Preliminary Examination Report in the counterpart foreign application, and are being submitted pursuant to M.P.E.P. Chapter 609-A(3) and B(2). A copy of the PCT Written Opinion and International Preliminary Examination Report are provided with the citations, and the Examiner is requested to reference item 2 in paragraph 2 in the PCT Written Opinion and item 2 of the International Preliminary Examination Report which are titled Citations and Explanations for the concise explanation of relevance of the cited references.

The Brendel et al. and Pitkin et al. references were cited in the corresponding pending U.S. patent application serial number 08/58,650.

Pursuant to C.F.R. §1.17(p), Applicant submits herewith check no. 73524 in the amount of \$240.00 as payment for the filing of this Supplemental Information Disclosure Statement.

One (1) page of Form PTO-1449 and copies of all the above-cited prior art and the International Preliminary Examining Authority's Written Opinion and International Preliminary Examination are enclosed for the Examiner's convenience. This Information

Disclosure Statement Under 37 C.F.R. §§ 1.56 and 1.97 is not to be construed that no other material information as defined in 37 C.F.R. §1.56(a) exists, or that these citations constitute prior art under 35 U.S.C. §102.

Dated this 17th day of March, 1999.

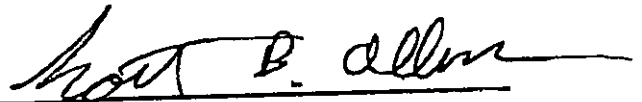
Respectfully submitted,



Scott B. Allison, Reg. No. 38,370
CHRISMAN, BYNUM & JOHNSON, P.C.
1900 Fifteenth Street
Boulder, Colorado 80302
Telephone: (303) 546-1300

CERTIFICATE OF MAILING UNDER 37 C.F.R. §1.8

I hereby certify that the foregoing SUPPLEMENTAL INFORMATION DISCLOSURE STATEMENT UNDER 37 C.F.R. §§ 1.56, 1.97 AND 1.98 together with PTO-Form 1449, copies of all recited prior art, and Check No. 73524 in the amount of \$240.00 were mailed by first-class U.S. mail, postage prepaid to the Assistant Commissioner for Patents, Washington, DC 20231 on this 17th day of March 1999.



FORM PTO-1449 (Rev. 7-80)	U.S. DEPARTMENT OF COMMERCE PATENT AND TRADEMARK OFFICE	ATTY. DOCKET NO. 18022-002	SERIAL NO. 08/872,971
LIST OF PRIOR ART CITED BY APPLICANT (Use several sheets if necessary)		APPLICANTS: Griffiths	
		FILING DATE June 11, 1997	GROUP 2317

OFFICIAL

U.S. PATENT DOCUMENTS

*EXAMINER INITIAL	DOCUMENT NUMBER	DATE	NAME	CLASS	SUBCLASS	FILING DATE IF APPROPRIATE
DD <i>ll</i>	5,774,660	06/30/98	Brendel et al.	395	200.31	
DD <i>ll</i>	5,341,477	08/23/94	Pitkin et al.	395	200.56	WAX RECEIVE
LB <i>ll</i>	5,794,210	08/11/98	Goldhaber et al.	395	200.48	AUG 16 1999
LB <i>ll</i>	5,764,906	06/09/98	Edelstein et al.	395	200.48	Group 2700
LB <i>ll</i>	5,781,550	07/14/98	Templin et al.	395	200.48	
LB <i>ll</i>	5,796,952	08/18/98	Davis et al.	395	200.54	
LB <i>ll</i>	5,712,979	01/27/98	Graber et al.	395	200.11	

OTHER PRIOR ART (Including Author, Title, Date, Pertinent Pages, Etc.)

	NetGravity Ad Server 2.0 Announcement. Available at http://www.netgravity.com . 10/96
	Kohda et al. "Ubiquitous advertising on the WWW: Merging advertisement on the browser." <i>Computer Network and ISDN System</i> , 28 (1996) 1493-1499. 5/96
EXAMINER	<i>[Signature]</i> 08/26/99

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

AUG 13 1999 FRI 01:03 PM

FAX NO. 3034495426

P. 08

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FAX RECEIVED

AUG 16 1999

Group 2700

RE: MatchLogic, Inc.
SERIAL NO.: 08/872,971
FILING DATE: June 11, 1997
FOR: Method for Counting Displays of Banners on
Terminals Connected to a Computer Network
DATE: 17th March 1999
ITEMS ENCLOSED: 1. SUPPLEMENTAL
INFORMATION DISCLOSURE STATEMENT
UNDER 37 C.F.R. §§ 1.56, 1.97 AND 1.98; 2. PTO-
Form 1449 WITH COPIES OF ALL RECIPIED
PRIOR ART; 3. Check No. 73524 IN THE AMOUNT
OF \$240.00; and 4. CERTIFICATE OF MAILING
UNDER 37 CFR 1.8.



card and return it to us
Office of receipt of the

Our File No.: 18022-002



NetGravity

FOR IMMEDIATE RELEASE

October 14, 1996

NetGravity Announces AdServer 2.0, Raises the Standard in Online Advertising Management Software

Industry-Leading Advertising Management Software Gives Sites Enhanced Targeting Ability, Modular Architecture, Greater Performance and Extensibility

SAN MATEO, Calif., October 14, 1996 - NetGravity, the proven leader in online advertising management software, today announced the release of NetGravity AdServer 2.0, its industry-leading Internet advertising management software. NetGravity AdServer, used by more than 30 of the top advertising-supported sites on the Web - including Netscape, Time Inc.'s Pathfinder, CondéNet, Individual Inc. and Nations Restaurant News - was the first product developed specifically for Web sites to optimize the effectiveness and profitability of online advertising. NetGravity AdServer 2.0 delivers second generation online ad management, enhancing the performance, extensibility, reliability and targeting abilities of the product. NetGravity has experience in delivering mission-critical software to advertising-supported Web sites and offers 24 hour-a-day, seven-day-a-week support.

"For more than a year NetGravity has defined the market for online advertising management software," said John Danner, president of NetGravity, "We listened to our customers' requests while integrating further innovations into NetGravity AdServer 2.0, making it the only time-tested ad management product on the market. NetGravity realizes that when a revenue generating application is not working, a site is losing money. We deliver an ad management tool that is 100 percent reliable under the most demanding conditions."

Scalable, Distributed, Extensible, High Performance Architecture

The ability to serve ads efficiently and scale operations quickly is a must for any successful ad-supported site. NetGravity AdServer 2.0's scalable, distributed architecture delivers a number of benefits to customers, including intelligent caching and unlimited growth potential. AdServer 2.0 automatically remembers which ads have been scheduled for the most popular pages, greatly optimizing the speed at which ads get served. As a site grows, AdServer easily scales to support the additional traffic. AdServer's distributed architecture ensures the performance of a site will never be slowed down by serving ads. This distributed system also enables sites to run separate modules on different hardware platforms.

AdServer 2.0's extensibility enables sites to customize and extend AdServer functionality to suit their specific needs. For example, using NetGravity's API a Web site may choose to create custom reports to augment existing AdServer 2.0 reports. A Web site can also extend AdServer's targeting abilities by including additional custom targeting criteria.

"With the online advertising market heading towards \$5 billion by the year 2000, it's crucial for sites to have access to the tools they need to manage placement and targeting," said Adam Schoenfeld, vice president publishing at Jupiter Communications. "Without powerful ad management tools, sites can't offer true value to their advertisers, and run the risk of turning their most crucial business relationships over to outsiders."

NetGravity AdServer Delivers 100 Percent Reliability

Proving its ability to meet the demands of almost any site on the World Wide Web, NetGravity is used by more than 30 of the most volume -and content-intensive sites. NetGravity AdServer manages the highest traffic site online, Netscape, demonstrating the scalability and reliability of the AdServer software.

"NetGravity has shown the ability to scale to Netscape's Internet site - which receives more than one hundred million hits a day," said Robert Andrews, Webmaster/director at Netscape. "NetGravity is consistently meeting our performance requirements and expanding along with Netscape's phenomenal growth. NetGravity continues to implement new features, capabilities and problem solving solutions, such as their ability to operate on the multiple platforms that we support."

NetGravity AdServer 2.0 is also used on Time Inc.'s Pathfinder, the most complex publishing site online, demanding ad-specific targeting geared toward the specialized audiences of 90 different content providers.

"Pathfinder is one of the largest and most visited sites on the Web today," said Bruce Judson, general manager of Time Inc. New Media. "This traffic creates special challenges for managing our advertising base. The NetGravity AdServer 2.0 meets these challenges and gives Pathfinder advanced ad targeting performance and capability as well as robust reliability."

NetGravity AdServer 2.0 Delivers Distributed Architecture and Platform Portability

NetGravity AdServer 2.0's distributed, scalable architecture allows sites to customize their configuration to meet their specific needs, adding components as the site grows. This component approach creates a high-performance system that accommodates the demands of each individual site. NetGravity AdServer 2.0 enables sites to easily migrate between different Web servers and hardware platforms. This modularity allows NetGravity's customers to upgrade affordably as their business scales.

NetGravity AdServer's Ad Targeting: Right Ad, Right Place, Right Time

NetGravity AdServer 2.0 allows for specific targeting by the user's browser type, computer platform, country of origin, proxy server, high-level domain, search terms and keywords, and time of day or day of the week. Sites can also use NetGravity AdServer's open API to extend their targeting, by creating their own target groups utilizing "cookie," demographic profiles from existing user databases or other information.

NetGravity AdServer 2.0 allows ad managers to target ads by keyword and subject matter. This targeting function delivers specified ads to complement the topic of the search. For instance, if the keyword is "car," an advertisement for a sport utility vehicle would be displayed in the winter months, and an ad for a convertible would appear in the summer. Targeting ads by subject matter allows sites to display advertising that directly relates to what the user is searching for at that moment. For example, an ad for Chardonnay might appear along with a search for a chicken recipe, while a Pinot Noir ad may come up when looking for a steak recipe.

"CondéNet is pleased to offer our advertisers the dynamic targeting and ad placement which the NetGravity AdServer allows us to deliver," said Sarah Chubb, director of CondéNet. "AdServer 2.0's reliability and NetGravity's superior customer service and support is helping us to create one of the



Computer Networks and ISDN Systems 28 (1998) 1493-1499



Ubiquitous advertising on the WWW: Merging advertisement on the browser

Youji Kohda^{*}, Susumu Endo[†]

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Abstract

We propose a new advertising framework on the WWW. Some popular WWW sites now provide advertising space in their Web pages. However the actual effectiveness of the advertising is questionable. In our advertising framework, an advertising agent is placed between advertisers and users. The agent's business is to deliver advertisements to users who wish to see advertisements on their Web browser. Users will see a variety of advertisements at the sites they visit, even if the sites have no advertisements on the Web servers. This will make the advertising business on the WWW really ubiquitous.

Keywords: World Wide Web; Advertisements; Advertising agent; HTML; Internet; Web server; Web browser; Web page; Web site

1. Introduction

To sell goods or services, advertisement is the first step to making them available to the public. TV and newspapers are representative media that have advertising spaces for commercial purposes. The operational cost of commercial TV stations and newspaper publishing companies is covered by the advertising revenue. This makes it possible for people to receive TV programs at no charge and to subscribe to newspapers very cheaply.

The World Wide Web is a new way of presenting information to the public via the Internet. Advertising on the World Wide Web has increased rapidly over the last few years. However, the mode of

advertising has so far been similar to that used in TV and newspapers in essence.

Service providers on the WWW such as Yahoo! [1], a popular Internet directory service, prepare advertising space in their Web pages and sell this space to advertisers by the hour. The anchors (links to advertiser's Web servers) are placed on the sold small spaces, and are displayed to users as small clickable images. When they click one of the anchors, they are then connected to that advertiser's own commercial Web server.

WWW advertising in its current state is better than nothing, but the cost benefit is questionable for the following reasons. Firstly, the host Web server must be very popular on the Internet. If the host is not sufficiently popular, the number of the people seeing advertisements placed on the server will be small. Secondly, the advertising host server does not usually permit a competitor company's advertise-

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Y. Kohda, S. Endo / Computer Networks and ISDN Systems 2A (1998) 1493-1499

ments to be displayed. For instance, Microsoft is most unlikely to advertise IBM products in their Web server.

Therefore, the advertising host server should be very popular on the Internet and, at the same time, unbiased, to earn enough money from the advertising business. Network directory services and virtual shopping/business mails are possible candidates. However, the services offered by such servers are gateway services in essence. Users are normally busy searching for information resources through the gateway services, and there is no reason for them to waste their time reading advertisements. This creates an "advertising vacuum".

We propose a new advertising framework on the World Wide Web. It will fill this "advertising vacuum". An advertising agent is placed between the advertisers and the users. Advertisements, fetched from advertisers' Web servers are merged with Web pages from ordinary Web servers by the agent, and the merged pages are displayed on the users' Web browser. Thus, the users see advertisements on any server around on the Internet. Moreover the agent has chances to deliver appropriate advertisements which suit each user's taste. This is a move away from the current state of advertising on the WWW and will make the advertising business on the WWW really ubiquitous.

2. A new framework for advertising on the WWW

Fig. 1 illustrates the ordinary usage of the WWW. This can be compared with Fig. 2, which is an overview of our new advertising framework. In Fig. 2, the advertising agent company's Web server is new. It has an important role: Delivering advertise-

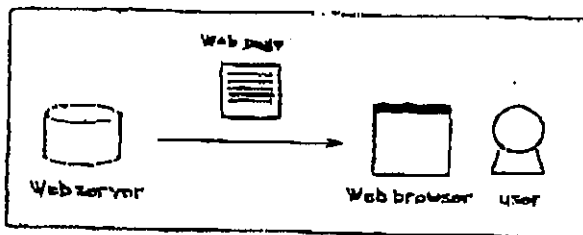


Fig. 1. Ordinary WWW usage.

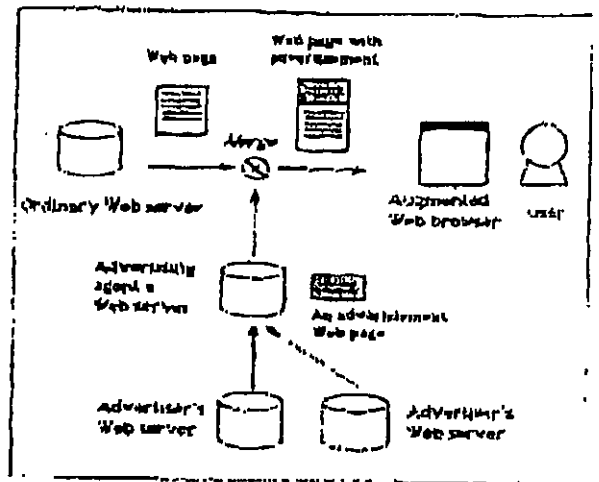


Fig. 2. A new advertising framework on the WWW.

ments to users whenever they access ordinary Web servers.

2.1. Making contracts with advertising agents

First of all, the advertising agent company makes a contract with advertiser companies. Remark that ordinary users can become advertisers or advertising agents if they are ready to pay for it, but we use the word, company, to make the explanation brief. The agent company is responsible for delivering advertisements to users. The advertisements are stored on the agent's Web server. Otherwise they might be kept on the advertiser's Web servers with just the links to them stored in the agent's Web server.

Next, the advertising agent company also negotiates with users, who agree to see advertisements while browsing. This is similar to subscription procedure for technical magazines, which are full of technical articles and advertisements which target is the subscribers of the magazines. The agent company is responsible for delivering the appropriate advertisements to the users. Thus, the contract should at least allow the users to specify what categories of advertisements they wish to see. For example, a user can declare that he or she is interesting in new books, new personal computers, and used cars. It is wonderful if we could determine a user's current and long

tern) interests with no declaration, but it is not quite ripe for the real use. Moreover the contract may request user's private information, such as sex, age, and home address in real life. If the agent has user's private information, it can pick up more focused advertisement for each user.

At last, the agent company should offer some clear benefit to attract the users to the business, because people do not positively want to see advertisement. The agent company could pay for all or part of the customers' connection charges.

2.2. Delivering advertisements to customers

Users who have made a contract with an advertising agent are given a Web browser by the agent. The Web browser software knows how to receive advertisements from the agent. Technically, the browser merges Web pages fetched from more than one Web server and displays a composite Web page on the window. In Section 3, we will describe the browser mechanism in some detail. You will find the modification to the current browsers is very small and reasonable.

When a user clicks an anchor on a page displayed on the browser, the browser contacts the Web server and returns a Web page designated by the anchor. Simultaneously, the browser contacts the advertising agent's Web server. The agent's Web server returns a Web page of one of its advertisements. Then the browser merges those returned Web pages, and displays a composite page on the screen.

Note that the agent is aware of the identity of the user and which page the user is about to read on the browser, so the advertising agent can tailor advertisements for *individuals and their current interests*. Thus it prevents the user from having to see advertisements that are unrelated to their current interests. Unexpected advertisements would irritate users in much the same way as a magazine article that is split up with intervening advertisements.

2.3. Assessing advertising agents

Advertisements returned from the advertising agent's Web server can have links to other pages which might, for example, be more detailed adver-

tisements or online order forms for the advertised goods or services. When users follow these links, the advertising agent can detect these actions: Who, when, to what page. The agent records the actions, and the accumulated record can be used by the agent to show the effectiveness of their services to the advertisers.

2.4. Competition between advertising agents

An advertising agent must have a good strategy in order to beat the competition. The role of an advertising agent company is to offer mutual benefits to advertisers and users. If the users feel there are no benefits from using the services of one advertising agent, they will go to another. Similarly, if advertisers judge from the records that their advertisements have not been delivered to appropriate users, they will also go to another advertising agent.

There are three possible strategies for an advertising agent. Firstly, there is no need to deliver advertisements continuously. It might be more effective and impressive to deliver advertisements at some intervals. Secondly, other useful information, such as the latest news and latest weather information, might be delivered instead of advertisements at the user's convenience. Thirdly, more "intelligent" advertising is possible. Suppose that a user obtains an online order form for some goods. The advertising agent can detect this event. It then examines the order form to see what goods the user wants and the price offered. Then the advertising agent can create a special offer and deliver it to the user, which tells the user that another company (one of the agent's advertisers) would sell the same goods at a lower price than the company that has the online order form.

2.5. Privacy issues

In the Internet, privacy is one of the first issues. Advertising agents keep their customer's private information, such as age and home address. Therefore the contract between advertising agents and the customers should include a privacy clause which prohibits the agents from forwarding their private information to advertisers without permission.

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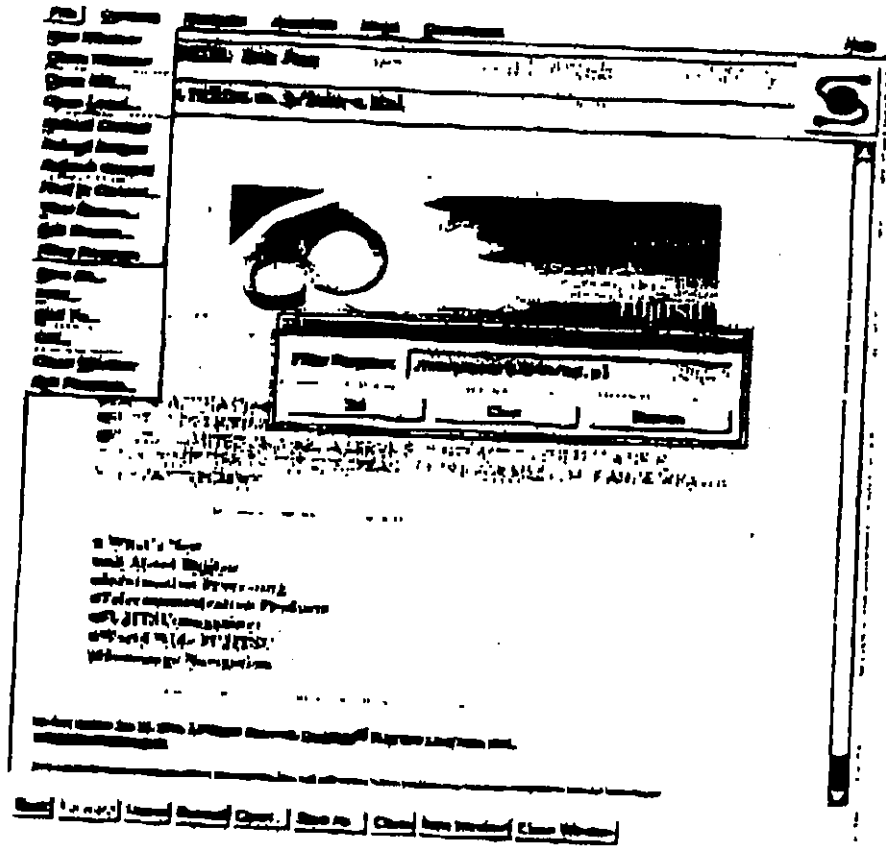


Fig. 3. "Filter Program" menu item is added.

3. A prototype of ubiquitous advertising on the WWW

In this section we describe a simple prototype of our new advertising framework.

3.1. Invoking filter programs when opening URLs

We use a slightly augmented Web browser which can merge Web pages from different Web servers. As shown in Fig. 3, a special "Filter Program" menu item has been added to the ordinary browser. Selecting this item, a window is opened and the names of filter programs can be specified. Filters are programs which have one input, one output, and perform a useful transformation on data as it passes

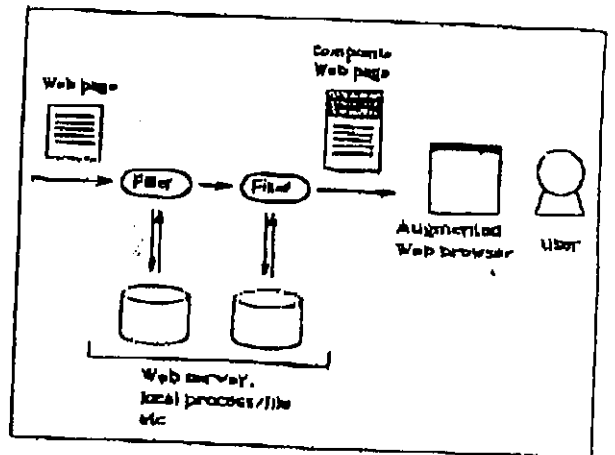


Fig. 4. A pipeline of filter programs.

through [2]". Those filters can be piped in order as illustrated in Fig. 4.

The filters are invoked when an anchor is clicked in the browser's window. At invocation, environment information is passed to each filter program as invocation parameters. The environment information includes at least the identity of the user and information about the selected anchor. The contents of a Web page designated by the anchor are input into the pipe of filters, and the output from the pipe is displayed on the browser's window as an HTML document.

3.2. A filter program which weaves advertisements

A special filter program is shipped from the advertising agent to a user, once the user has made

contract with the agent, and the user puts the filter program in his/her browser. The filter keeps in memory the contact path (URL) to the agent's Web server. When it is invoked, it forwards the invocation parameters passed from the browser to the agent's Web server, and waits for a reply. Then, the agent's Web server returns one of its advertisements or other useful information. The filter merges the reply from the agent's Web server before the input from the pipe, i.e., Web pages from other Web servers.

Fig. 5 is an example of a Web page with an advertisement; a new product advertisement and a Home page. The strategy on how to weave advertisements in this example is quite easy: advertisement is inserted before. Please note that the advertisement in Fig. 5 has an anchor (labeled as "For More Information") in it. When a user clicks this anchor, a more

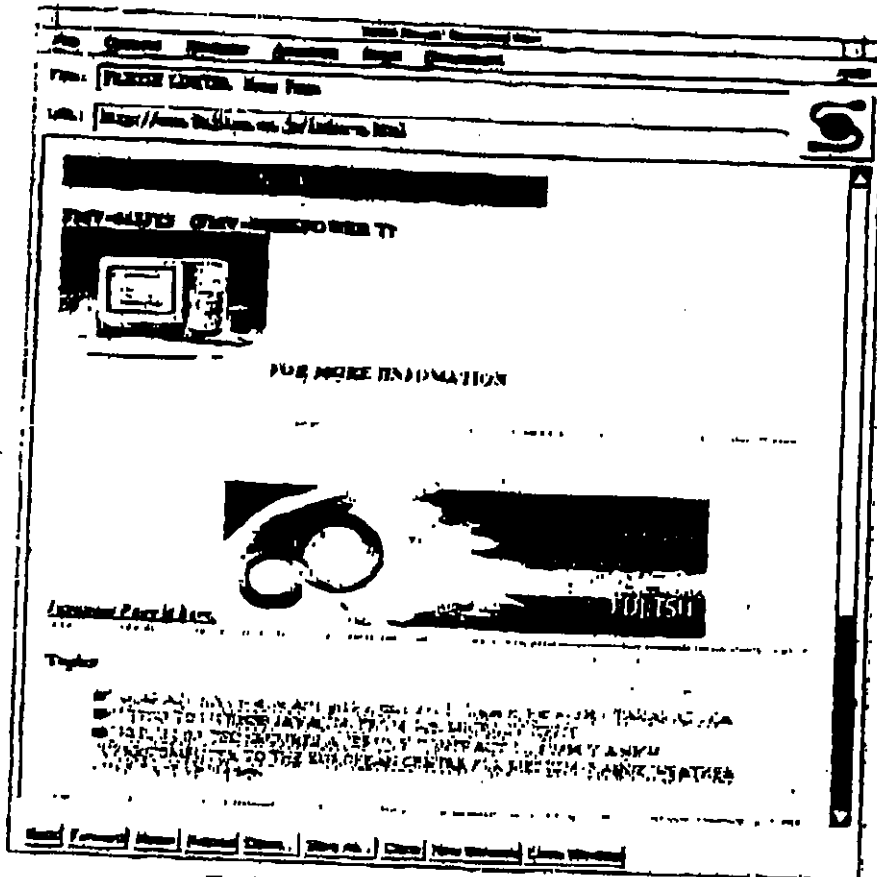


Fig. 5. A Web page with an inserted advertisement.

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V. Kishu, S. Endo / Computer Networks and ISDN Systems 28 (1996) 1493-1499

detailed advertisement would be displayed. At the same time, the click action is recorded at the advertising agent. The advertising agent can show a summary of the record whenever the advertisers request it.

3.3. Comments on the current implementation

We have already implemented a working prototype of this ubiquitous advertising on the WWW. Figs. 3 and 5 are snapshots taken from the computer screen.

We have made a very small improvement to NCSA Mosaic. We have added a new menu item, "Filter Program", just after "Edit Source.." menu item. "Edit Source.." in NCSA Mosaic invokes an editor whose initial content is the HTML document of the currently displayed Web page. When exiting the editor, the edited HTML document is displayed as a new Web page. Filter programs set by "Filter Program" menu item do the almost same work without user intervention. For example, if we put a "capitalize" filter (though it should remain intact between <A> and), the characters displayed on the browser are all capitalized. We believe that this additional feature is simple and powerful, and therefore it is reasonable to add this feature to ordinary browsers as a standard facility. Instead of specially tailored proxy server could realize the same functionality, but authentication of users should be incorporated in the proxy server at the same time to distinguish individuals.

A sample filter program which inserts advertisements before the original Web contents has been coded in Perl, which includes access to remote Web servers. This advertisement-insertion needs extra time and might make users irritated, but we believe this performance degradation will soon become smaller.

A sample Web server for advertising agents has been implemented as a set of Perl programs which are invoked through CGI. The programs include a program for advertisement delivery that searches an appropriate advertisement and delivers it to the browser, when the advertisement-insertion filter program set in the browser invokes the program via CGI. The call address to the delivery program will be coded in the filter program at the shipping time. The programs also include two programs for con-

tracts, one for agent-to-user, the other for agent-to-advertiser. This means that users and advertisers can make a contract with an advertising agent on the Internet just with their Web browsers.

In this paper, we have proposed and prototyped the ubiquitous advertising on the WWW. However further research effort is still necessary, e.g., a test for advertiser/consumer acceptance, before putting this idea in the market.

One more comment on privacy issues. You can take off the advertisement-insertion filter program temporarily from your browser anytime you want, when you want to escape from the "supervision" of your advertising agent. This guarantees your freedom of exploration in the Internet, though you might miss some useful and important advertisements for you.

4. Conclusion

We have proposed a new advertising framework, in which an advertising agent plays a central role. It delivers advertisements to users under contract and the advertisements are woven into ordinary Web pages on the browser. This differs from the current advertising technology in WWW; advertisements are woven in the servers which users contact. The Post-Cast Network is a typical example, which delivers personalized news, weather and other information, possibly including advertisements, through a special browser [3].

Our proposed framework can be seen as one feasible step toward 1:1 advertising on the WWW [4]. First, the advertisement is merged into an ordinary Web page on the Web browser, instead of on the Web servers. Hence, users could encounter a variety of advertisements on any server in the world. Secondly, the advertisement delivered is chosen, according to the user and the Web page he or she is about to read. Therefore, it focuses advertisements on the interests of the user. Thirdly, the actions of users in relation to a particular advertisement (i.e., reading its details or buying the goods or services) are recorded by the advertising agent. This record can be used to prove the effectiveness of the advertising agent to the advertisers.

References

- [1] Yahoo!: Internet Directory, <http://www.yahoo.com/>
- [2] B.W. Kernighan and P.J. Plauger, *Software Tools*, Addison-Wesley, Reading, MA (1976).
- [3] PointCast: Internet News Network, <http://www.pointcast.com/>
- [4] D. Peppers and M. Rogers, *The 1:1 Future: Building Relationships One Customer at a Time*, Doubleday, New York, 1st ed. (1997) ISBN 0-385-42328-7.



Youji Kohda received the B.S. degree in Information Science and M.E. and Dr. Eng. degrees in Information Engineering from University of Tokyo, Tokyo, Japan, in 1981, 1983, and 1986, respectively. In 1986, he joined Fujitsu Limited, and in 1990 he joined Fujitsu Laboratories Ltd. His research interests include advanced user interface, groupware and socialware.



Susumu Endo received the B.E. degree in Information Engineering and M.S. degree in Information Science from Tohoku University, Sendai, Japan, in 1992 and 1994, respectively. In 1994, he joined Fujitsu Laboratories Ltd. He has been engaged in research on socialware.

AUG-19-99 THU 02:17 PM

FAX NO. 3034495426

P. 01

#13

CHRISMAN BYNUM & JOHNSON

CHRISMAN, BYNUM & JOHNSON, P.C.
ATTORNEYS AND COUNSELORS AT LAW
1900 FIFTEENTH STREET
BOULDER, COLORADO 80302

TELEPHONE 303.444.4820
FACSIMILE 303.449.5426

OFFICIAL

FAX COVER SHEET

TO: Examiner Le H. Luan
U.S. Patent and Trademark Office
Phone: (703) 305-9650
Fax: (703) 305-7201

FAX RECEIVED

AUG 20 1999

FROM: Scott B. Allison

Group 2700

DATE: August 19, 1999

RE: Title: Method for Counting Displays of Banners On Terminals
Connected to A Computer Network
Our File No.: 18022-002



TOTAL NUMBER OF PAGES INCLUDING THIS ONE: 6

ORIGINAL TO FOLLOW BY MAIL: YES _____ NO x

If you do not receive all pages, please call (303) 546-1300 immediately.
Our fax number is (303) 449-5426.

LONG DISTANCE CALL: YES x NO _____

CB&J MATTER NUMBER: 18022-002

COMMENTS: Please see attached Communication to Examiner.

CONFIDENTIALITY NOTICE: The information contained in this facsimile message is attorney privileged and confidential information. It is intended only for the use of the individual or entity named above. If you are not the intended recipient, you are notified that any disclosure, copying, distribution or use of this communication is prohibited. If you received this communication in error, please notify us immediately by telephone and return the original message to us at the above address via the U.S. Postal Service. Thank you.

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicants:	Michael J. Griffiths	)	2756
Serial No.:	08/872,971	)	Art Unit: 2317
Filing Date:	June 11, 1997	)	Examiner: Le H. Luu
Title:	METHOD FOR COUNTING DISPLAYS OF BANNERS ON TERMINALS CONNECTED TO A COMPUTER NETWORK)	
Our File No.:	18022-002)	

OFFICIAL

FAX RECEIVED

AUG 20 1999

Group 2700

COMMUNICATION TO EXAMINER

Assistant Commissioner for Patents
Washington, DC 20231


Sir:

As requested by the Examiner Luu during a telephone conference with Applicant's Attorney, Scott B. Allison, on August 19, 1999, attached hereto are the following documents regarding the above-referenced patent application:

1. Communication to Examiner previously sent on August 13, 1999; and
2. A Substitute Declaration of the sole inventor, Michael J. Griffiths.

Dated this 19th day of August, 1999.


Respectfully submitted,



 Scott B. Allison, Reg. No. 38,370
 CHRISMAN, BYNUM & JOINSON, P.C.
 1900 Fifteenth Street
 Boulder, Colorado 80302
 Telephone: (303) 546-1300

CERTIFICATE OF FACSIMILE TRANSMISSION

I hereby certify that this correspondence is being transmitted via facsimile to Examiner Le H. Luu, (703) 305-7201 at the U.S. Patent and Trademark Office on this 19th day of August, 1999.



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicants: Michael J. Griffiths)
 Serial No.: 08/872,971) Art Unit: 2317 2756
 Filing Date: June 11, 1997)
 Title: METHOD FOR COUNTING DISPLAYS)
 OF BANNERS ON TERMINALS)
 CONNECTED TO A COMPUTER)
 NETWORK)
 Our File No.: 18022-002) Examiner: Le H. Luu

OFFICIAL

FAX RECEIVED

AUG 20 1999

Group 2700

COMMUNICATION TO EXAMINER

Assistant Commissioner for Patents
Washington, DC 20231

Sir:

As requested by the Examiner Luu during a telephone conference with Applicant's Attorney, Scott B. Allison, during the week of August 9, 1999, attached hereto are the following documents regarding the above-referenced patent application:

1. A Substitute Declaration of the sole inventor, Michael J. Griffiths;
2. A copy of the Supplemental Information Disclosure Statement which Applicant originally filed with the Patent and Trademark Office on March 17, 1999;
3. A copy of the Return Postcard that accompanied the Supplemental Information Disclosure Statement, and which bears a "Received" date of March 19, 1999;
4. Copies of the following two articles which were cited by applicant in the Supplemental Information Disclosure Statement and which were cited in Applicant's Co-pending U.S. Patent Application Serial No. 08/858,650:

(a) NetGravity Ad Server 2.0 Announcement; Available at <http://www.netgravity.com>, 10/96.

(b) Khoda et al., "Ubiquitous advertising on the WWW: Merging advertisement on the browser," *Computer Network and ISDN System*, 28 (1996) 1493-1499. 5/96.

Both of the latter two articles were cited in the corresponding pending U.S. patent application serial number 08/858,650.

Dated this 13th day of August, 1999.

Respectfully submitted,



Scott B. Allison, Reg. No. 38,370
CHRISMAN, BYNUM & JOHNSON, P.C.
1900 Fifteenth Street
Boulder, Colorado 80302
Telephone: (303) 546-1300

CERTIFICATE OF FACSIMILE TRANSMISSION

I hereby certify that this correspondence is being transmitted via facsimile to Examiner Le H. Luu, (703) 305-7201 at the U.S. Patent and Trademark Office on this 13th day of August, 1999.



AUG-19-99 THU 02:18 PM

FAX NO. 303/495428

P. 06
PTO/SB/O1 (11-93)

DECLARATION FOR PATENT APPLICATION

DOCKET NUMBER (Optional)
18022-002

As below named inventor, I hereby declare that:

My residence, post office address and citizenship is as stated below next to my name.

I believe I am the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventors (if plural names are listed below) of the subject matter which is claimed and for which a patent is sought on the invention entitled **A SYSTEM USING FIRST BANNER REQUEST THAT CAN NOT BE BLOCKED FROM REACHING A SERVER FOR ACCURATELY COUNTING DISPLAYS OF BANNERS ON NETWORK TERMINALS (AS AMENDED)**, the specification of which is attached hereto unless the following box is checked:

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RECEIVED

AUG 20 1999

Group 3700

[X] was filed on June 11, 1997 as United States Application Number or PCT International Application Number 08/872,971 and was amended on March 10, 1999 and on June 2, 1999.

I hereby state that I have reviewed and understand the contents of the above identified specification, including the claims, as amended by my attorney referred to above.

I acknowledge the duty to disclose information which is material to the examination of this application in accordance with Title 37, Code of Federal Regulations, §1.56(a).

I hereby claim foreign priority benefits under Title 35, United States Code, §119 of any foreign application(s) for patent or inventor's certificate listed below and have also identified below any foreign application for patent or inventor's certificate having a filing date before that of the application on which priority is claimed.

Prior Foreign Applications(s) (Number)	Priority Claimed (Country)	Priority Claimed (Day/Month/Year Filed)	<input type="checkbox"/> Yes <input type="checkbox"/> No
---	-------------------------------	--	--

I hereby claim the benefit under Title 35, United States Code, §120 of any United States application(s) listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States application in the manner provided by the first paragraph of Title 35, United States Code, §112, I acknowledge the duty to disclose material information as defined in Title 37, Code of Federal Regulations, §1.56(a) which occurs between the filing date of the prior application and the national or PCT International filing date of this application.

<u>08/858,650</u> (Application Number)	<u>5/19/97</u> (Filing Date)	<u>pending</u> (Status - patented, pending, abandoned)
---	---------------------------------	---

I hereby appoint the following attorney(s) and/or agent(s) to prosecute this application and to transact all business in the Patent and Trademark Office connected therewith:

JAMES R. YOUNG, Reg. No. 27,847; THOMAS C. FOLSON, Reg. No. 35,514; STEVEN C. PETERSEN, Reg. No. 36,238; SCOTT B. ALLISON, Reg. No. 38,370; KENT A. LEMKE, Reg. No. P-44,866; AND AGENT SARAH S. O'ROURKE, Reg. No. 41,226

Address all telephone calls to Scott B. Allison at telephone number (303) 546-1300
Address all correspondence to Scott B. Allison, Chrisman, Bynum & Johnson, 1900 Fifteenth Street, Boulder, Colorado 80302

I hereby declare that all statements made herein of our own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of this application or any patent issued thereon.

Full name of sole or first inventor (given name, family name) Michael John Griffiths

Inventor's signature [Signature] Date AUG 19 1999

Residence 11334 North Eaton Way, Broomfield, Colorado 80020 Citizenship Canada
Post Office Address 11334 North Eaton Way, Broomfield, Colorado 80020



UNITED STATES DEPARTMENT OF COMMERCE
Patent and Trademark Office

Address: COMMISSIONER OF PATENTS AND TRADEMARKS
Washington, D.C. 20231

APPLICATION NUMBER	FILING DATE	FIRST NAMED APPLICANT	ATTORNEY DOCKET NO.
08/872,971	06/11/97	GRIFFITHS	M 18022-002

SCOTT B ALLISON
CHRISMAN BYNUM & JOHNSON
1900 FIFTEENTH ST
BOULDER CO 80302

LM51/0902

EXAMINER

LUU, L

ART UNIT PAPER NUMBER

2756

14

DATE MAILED: 09/02/99

This is a communication from the examiner in charge of your application.
COMMISSIONER OF PATENTS AND TRADEMARKS

Supplemental NOTICE OF ALLOWABILITY

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance and Issue Fee Due or other appropriate communication will be mailed, in due course.

This communication is responsive to IDS filed on 03/19/99
 The allowed claim(s) is/are 1, 3-50

- The drawings filed on _____ are acceptable.
- Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).
 - All Some* None of the CERTIFIED copies of the priority documents have been
 - received.
 - received in Application No. (Series Code/Serial Number) _____
 - received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

*Certified copies not received: _____

- Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

A SHORTENED STATUTORY PERIOD FOR REPLY to comply with the requirements noted below is set to EXPIRE THREE MONTHS FROM THE "DATE MAILED" of this Office action. Failure to timely comply will result in ABANDONMENT of this application. Extensions of time may be obtained under the provisions of 37 CFR 1.136(a).

- Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL APPLICATION, PTO-152, which discloses that the oath or declaration is deficient. A SUBSTITUTE OATH OR DECLARATION IS REQUIRED.

- Applicant MUST submit NEW FORMAL DRAWINGS
 - because the originally filed drawings were declared by applicant to be informal.
 - including changes required by the Notice of Draftperson's Patent Drawing Review, PTO-948, attached hereto or to Paper No. 7
 - including changes required by the proposed drawing correction filed on _____, which has been approved by the examiner.
 - including changes required by the attached Examiner's Amendment/Comment.

Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the reverse side of the drawings. The drawings should be filed as a separate paper with a transmittal letter addressed to the Official Draftperson.

- Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Any reply to this notice should include, in the upper right hand corner, the APPLICATION NUMBER (SERIES CODE/SERIAL NUMBER). If applicant has received a Notice of Allowance and Issue Fee Due, the ISSUE BATCH NUMBER and DATE of the NOTICE OF ALLOWANCE should also be included.

Attachment(s)

- Notice of References Cited, PTO-892
- Information Disclosure Statement(s), PTO-1449, Paper No(s). 12
- Notice of Draftperson's Patent Drawing Review, PTO-948
- Notice of Informal Patent Application, PTO-152
- Interview Summary, PTO-413
- Examiner's Amendment/Comment
- Examiner's Comment Regarding Requirement for Deposit of Biological Material
- Examiner's Statement of Reasons for Allowance

Lu Hien Luu



CERTIFICATE OF MAILING UNDER 37 C.F.R. § 1.8

I hereby certify that this correspondence is being deposited with the United States Postal Service as first class mail in an envelope addressed to BOX ISSUE FEE, c/o Technological Center 2700, Washington, DC 20231 on September 17, 1999.

Scott B. Allison

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicants:	Michael J. Griffiths)	
)	
Serial No.:	08/872,971	)	Art Unit: 2756
)	
Filing Date:	June 11, 1997)	
		)	Examiner: Le H. Luu
Title:	A SYSTEM USING FIRST BANNER)	
	REQUEST THAT CAN NOT BE BLOCKED)	
	FROM REACHING A SERVER FOR)	
	ACCURATELY COUNTING DISPLAYS OF)	
	BANNERS ON NETWORK TERMINALS)	
)	
Our File No.:	18022-002)	

TRANSMITTAL OF FORMAL DRAWINGS

To: BOX ISSUE FEE
c/o TECHNOLOGY CENTER 2700
US Patent and Trademark Office
Washington, D.C. 20231

Dear Sir:

In response to the Notice of Allowability, Paper Number 11, dated July 21, 1999, please find enclosed, along with a separate letter to the Official Draftsman, five (4) sheets of formal drawings containing Figures 1, 2, 3 and 4, for the above-referenced patent application.

Respectfully submitted,

CHRISMAN, BYNUM & JOHNSON, P.C.

Scott B. Allison

Dated: September 17, 1999

Scott B. Allison, Reg. N° 38,370
1900 Fifteenth Street
Boulder, CO 80302
Telephone: (303) 546-1300

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicants: Michael J. Griffiths)
Serial No.: 08/872,971) Art Unit: 2756
Filing Date: June 11, 1997)
Title: A SYSTEM USING FIRST BANNER)
REQUEST THAT CAN NOT BE BLOCKED)
FROM REACHING A SERVER FOR)
ACCURATELY COUNTING DISPLAYS OF)
BANNERS ON NETWORK TERMINALS)
Our File No.: 18022-002)
Examiner: Le H. Luu



LETTER TO OFFICIAL DRAFTSPERSON TRANSMITTING FORMAL DRAWINGS

To: BOX ISSUE FEE
c/o TECHNOLOGY CENTER 2700
US Patent and Trademark Office
Washington, DC 20231

Dear Sir:

Enclosed herewith are four (4) sheets of formal drawings containing Figures 1, 2, 3, and 4 for the above-referenced patent application.

Respectfully submitted,

Dated: September 17, 1999

A handwritten signature in black ink, appearing to read "Scott B. Allison".

Scott B. Allison, Reg. N° 38,370
CHRISMAN, BYNUM & JOHNSON
1900 Fifteenth Street
Boulder, Colorado 80302
Telephone: (303) 546-1300

UB/S

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicants: Michael J. Griffiths)
)
 Serial No.: 08/872,971) Art Unit: 2756
)
 Filing Date: June 11, 1997)
) Examiner: Le H. Luu
 Title: A SYSTEM USING FIRST BANNER)
)
) REQUEST THAT CAN NOT BE BLOCKED)
) FROM REACHING A SERVER FOR)
) ACCURATELY COUNTING DISPLAYS OF)
) BANNERS ON NETWORK TERMINALS)
)
 Our File No.: 18022-002)

CERTIFICATE OF MAILING UNDER 37 C.F.R. §1.8

To: BOX ISSUE FEE
 c/o TECHNOLOGY CENTER 2700
 US Patent and Trademark Office
 Washington, DC 20231

The undersigned hereby certifies that the following documents:

1. Certificate of Mailing Under 37 C.F.R. §1.8
2. Form PTOL-85B (Rev.10-96) (in duplicate);
3. Our firm's check No. 75732 in the amount of \$635.00 (\$605.00 for Issue Fee and \$30.00 for ten advance copies);
4. Transmittal of Issue Fee;
5. Transmittal of Formal Drawings
6. Letter to Official Draftsperson Transmitting Formal Drawings;
7. Four (4) sheets of Drawings (Figures 1-4);
8. Copy of Notice of Draftsperson's Patent Drawing Review; and
9. Return Post Card;

are being deposited with the United States Postal Service as first-class mail, postage prepaid, in an envelope addressed to: BOX ISSUE FEE, c/o TECHNOLOGY CENTER 2700, US Patent and Trademark Office, Washington, DC 20231, on this 17 day of September, 1999.



Robert P. Allen

6014698

1/4

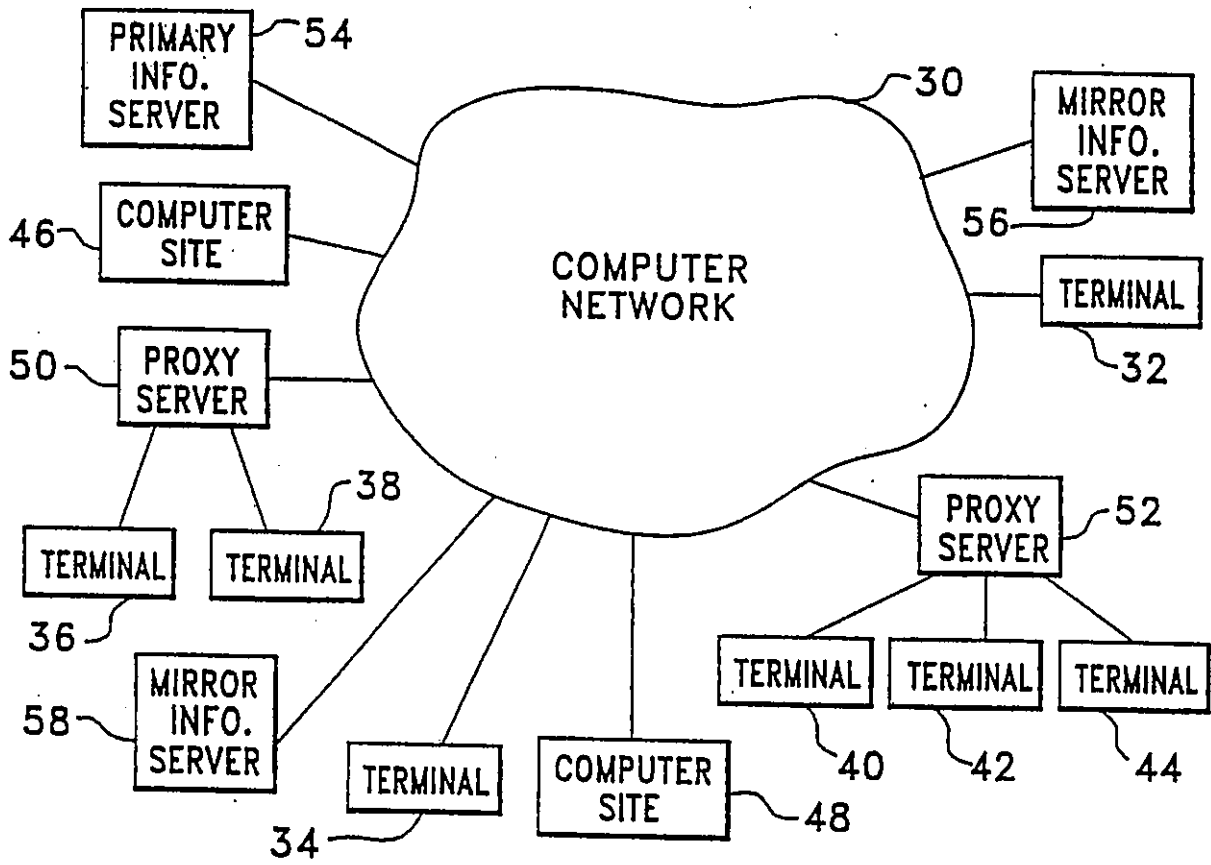
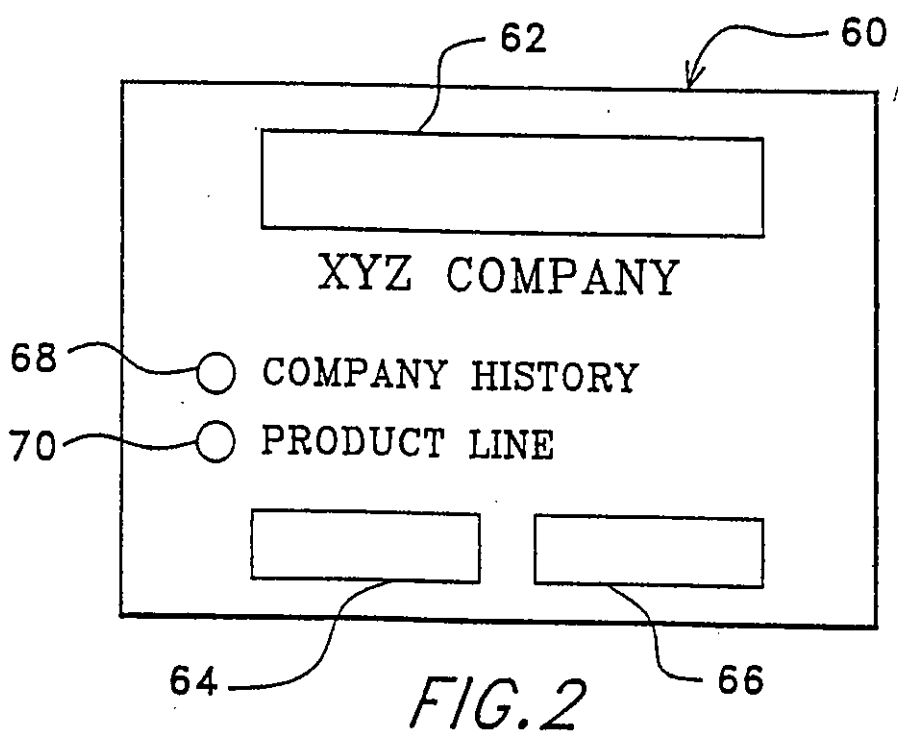


FIG. 1



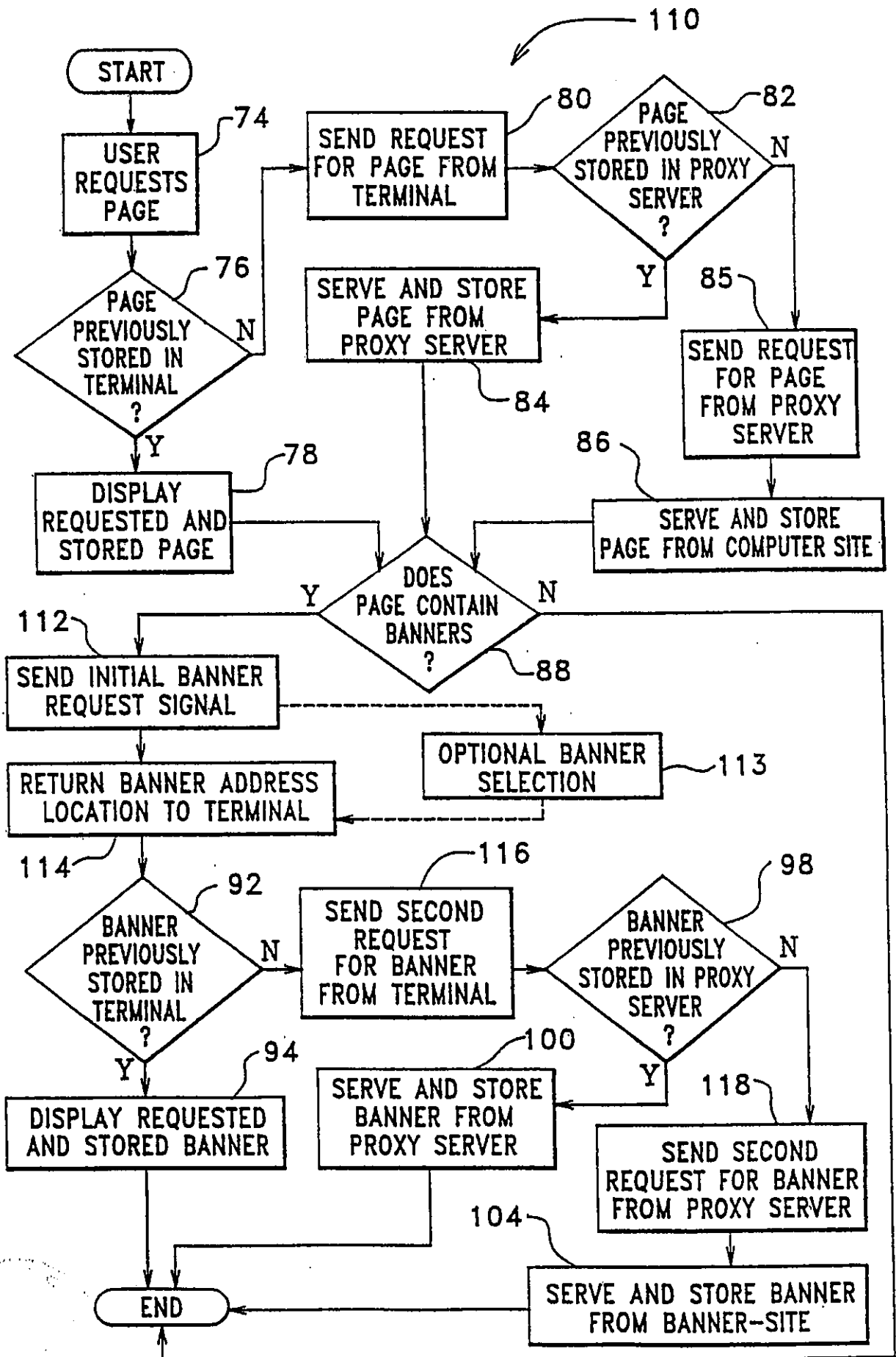


FIG. 4

NOTICE OF DRAFTERPERSON'S PATENT DRAWING REVIEW



The drawing filed (insert date) 6-11-97 are:

- A. not objected to by the Drafterperson under 37 CFR 1.84 or 1.152.
B. objected to by the Drafterperson under 37 CFR 1.84 or 1.152 as indicated below. The Examiner will require submission of new, corrected drawings when necessary. Corrected drawings must be submitted according to the instructions on the back of this notice.

1. DRAWINGS. 37 CFR 1.84(a): Acceptable categories of drawings: Black ink. Color. Color drawing are not acceptable until petition is granted. Fig(s) Pencil and non black ink is not permitted. Fig(s)
2. PHOTOGRAPHS. 37 CFR 1.84(b) Photographs are not acceptable until petition is granted, 3 full-tone sets are required. Fig(s) Photographs not properly mounted (must be on bristol board or photographic double-weight paper), Fig(s) Poor quality (half-tone). Fig(s)
3. TYPE OF PAPER. 37 CFR 1.84(e) Paper not flexible, strong, white and durable. Fig(s) Erasures, alterations, overwritings, interlineations, folds, copy machine marks not acceptable. (too thin) Mylar, vellum paper is not acceptable (too thin). Fig(s)
4. SIZE OF PAPER. 37 CFR 1.84(F): Acceptable sizes: 21.0 cm by 29.7 cm (DIN size A4) 21.6 cm by 27.9 cm (8 1/2 x 11 inches) All drawings sheets not the same size. Sheet(s)
5. MARGINS. 37 CFR 1.84(g): Acceptable margins: Top 2.5 cm Left 2.5 cm Right 1.5 cm Bottom 1.0 cm SIZE: A4 Size Top 2.5 cm Left 2.5 cm Right 1.5 cm Bottom 1.0 cm SIZE: 8 1/2 x 11 Margins not acceptable. Fig(s) 1,3,4 Top (T) Left (L) Right (R) Bottom (B)
6. VIEWS. CFR 1.84(h) REMINDER: Specification may require revision to correspond to drawing changes. Views connected by projection lines or lead lines. Fig(s) Partial views, 37 CFR 1.84(h)(2) Brackets needed to show figure as one entity. Fig(s) Views not labeled separately or properly. Fig(s) Enlarged view not labeled separately or properly. Fig(s)
7. SECTIONAL VIEWS. 37 CFR 1.84(h)(3) Hatching not indicated for sectional portions of an object. Fig(s) Sectional designation should be noted with Arabic or Roman numbers. Fig(s)
8. ARRANGEMENT OF VIEWS. 37 CFR 1.84(i) Words do not appear on a horizontal, left-to-right fashion when page is either upright or turned, so that the top becomes the right side, except for graphs. Fig(s) Views not on the same plane on drawing sheet. Fig(s)
9. SCALE. 37 CFR 1.84(k) Scale not large enough to show mechanism with crowding when drawing is reduced in size to two-thirds in reproduction. Fig(s)
10. CHARACTER OF LINES, NUMBERS, & LETTERS. 37 CFR 1.84(l) Lines, numbers & letters not uniformly thick and well defined, clean, durable and black (poor line quality). Fig(s)
11. SHADING. 37 CFR 1.84(m) Solid black areas pale. Fig(s) Solid black shading not permitted. Fig(s) Shade lines, pale, rough and blurred. Fig(s)
12. NUMBERS, LETTERS, & REFERENCE CHARACTERS. 37 CFR 1.48(p) Numbers and reference characters not plain and legible. Fig(s) Figure legends are poor. Fig(s) Numbers and reference characters not oriented in the same direction as the view. 37 CFR 1.84(p)(3) Fig(s) English alphabet not used. 37 CFR 1.84(p)(3) Fig(s) Numbers, letters and reference characters must be at least .32 cm (1/8 inch) in height. 37 CFR 1.84(p)(3) Fig(s)
13. LEAD LINES. 37 CFR 1.84(q) Lead lines cross each other. Fig(s) Lead lines missing. Fig(s)
14. NUMBERING OF SHEETS OF DRAWINGS. 37 CFR 1.48(i) Sheets not numbered consecutively, and in Arabic numerals beginning with number 1. Fig(s)
15. NUMBERING OF VIEWS. 37 CFR 1.84(j) Views not numbered consecutively, and in Arabic numerals, beginning with number 1. Fig(s)
16. CORRECTIONS. 37 CFR 1.84(w) Corrections not made from PTO-948 dated
17. DESIGN DRAWINGS. 37 CFR 1.152 Surface shading shown not appropriate. Fig(s) Solid black shading not used for color contrast. Fig(s)

COMMENTS

DATE 7-8-98 TELEPHONE NO.

INSTRUMENT TO PAPER NO. 5

DRAFTER'S COPY



CERTIFICATE OF MAILING UNDER 37 C.F.R. § 1.8
I hereby certify that this correspondence is being deposited with the United States Postal Service as first class mail in an envelope addressed to BOX ISSUE FEE, c/o Technological Center 2700, Washington, DC 20231 on September 17, 1999.

Scott B. Allison

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicants: Michael J. Griffiths)
Serial No.: 08/872,971) Art Unit: 2756
Filing Date: June 11, 1997)
Title: A SYSTEM USING FIRST BANNER)
REQUEST THAT CAN NOT BE BLOCKED)
FROM REACHING A SERVER FOR)
ACCURATELY COUNTING DISPLAYS OF)
BANNERS ON NETWORK TERMINALS)
Our File No.: 18022-002)

TRANSMITTAL OF ISSUE FEE

To: BOX ISSUE FEE
c/o TECHNOLOGY CENTER 2700
US Patent and Trademark Office
Washington, DC 20231

Dear Sir:

Enclosed is our firm's check number 75732 in the amount of \$635.00 (\$605.00 for Issue Fee plus \$30.00 for advance order of patent copies), along with the Issue Fee Transmittal form PTOL-85B (Rev. 10-96) for the above-referenced patent application.

Respectfully submitted,

Dated: September 17, 1999

Scott B. Allison

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Boulder, Colorado 80302
Telephone: (303) 546-1300

PART B - ISSUE FEE TRANSMITTAL

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Assistant Commissioner
Washington, D.C. 20231

TH

9-14-99

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Scott B. Allison (Depositor's name)

Scott B. Allison (Signature)

September 17, 1999 (Date)

CURRENT CORRESPONDENCE ADDRESS (Note: Legibly mark-up with any corrections or use Block 1)

LM51/0721

SCOTT B ALLISON
 CHRISMAN BYNUM & JOHNSON
 1900 FIFTEENTH ST
 BOULDER CO 80302

APPLICATION NO.	FILING DATE	TOTAL CLAIMS	EXAMINER AND GROUP/ART UNIT	DATE MAILED
08/872,971	06/11/97	049	L00, L	07/21/99
First Named Applicant	35 USC 154(b) term ext. = 0 Days.			
GRIFFITHS,				

TITLE OF INVENTION: A SYSTEM USING FIRST BANNER REQUEST THAT CAN NOT BE BLOCKED FROM REACHING A SERVER FOR ACCURATELY COUNTING DISPLAYS OF BANNERS ON NETWORK TERMINALS (AS AMENDED)

ATTYS DOCKET NO.	CLASS-SUBCLASS	BATCH NO.	APPLN TYPE	SMALL ENTITY	FEE DUE	DATE DUE
1 18022-002	709-224.000	W11	UTILITY	YES	\$605.00	10/21/99

- Change of correspondence address or indication of "Fee Address" (37 CFR 1.363). Use of PTO form(s) and Customer Number are recommended, but not required.
 - Change of correspondence address (or Change of Correspondence Address form PTO/SB/122) attached.
 - "Fee Address" Indication (or "Fee Address" Indication form PTO/SB/47) attached.

- For printing on the patent front page, list (1) the names of up to 3 registered patent attorneys or agents OR, alternatively, (2) the name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed, no name will be printed.
 - 1 Scott B. Allison
 - 2 Chrisman Bynum & Johnson
 - 3

- ASSIGNEE NAME AND RESIDENCE DATA TO BE PRINTED ON THE PATENT (print or type)

PLEASE NOTE: Unless an assignee is identified below, no assignee data will appear on the patent. Inclusion of assignee data is only appropriate when an assignment has been previously submitted to the PTO or is being submitted under separate cover. Completion of this form is NOT a substitute for filing an assignment.

(A) NAME OF ASSIGNEE: MatchLogic, Inc.

(B) RESIDENCE: (CITY & STATE OR COUNTRY) Westminister, Colorado

Please check the appropriate assignee category indicated below. (will not be printed on the patent)

Individual corporation or other private group entity government.

- The following fees are enclosed (make check payable to Commissioner of Patents and Trademarks):
 - Issue Fee
 - Advance Order - # of Copies 10
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The COMMISSIONER OF PATENTS AND TRADEMARKS IS requested to apply the Issue Fee to the application identified above.

(Authorized Signature) *Scott B. Allison* (Date) 9/17/99

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SEP 20 1999

O I P E J C B E
 PATENT & TRADEMARK OFFICE

09/21/1999 WAN22 00000656 08872971 605.00 DP 30.00 DP
 01 F1:242
 02 F1:561

attach to the front of the file jacket

APPLICATION BRANCH DATA BASE ROUTING SLIP

TO: APPLICATION BRANCH DATA INPUT
QUALITY CONTROL UNIT (PALM LOC 035)
CP2-7024

Printer
Waiting

Application Serial No.
081872971

FROM: Group, Office or Firm 2700	PALM LOC Code 555
Person to Contact Susan Ford	
Phone no. 308-9045	

Date Forwarded
Sept 10 1999

For an inquiry on this correction
(after 7 workdays) phone the
Receptionist for Data Input
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Correction Required: please note paper # 13
update file jacket with
continuing data in declaration

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Comments: _____

Temp. AB-1

Susan,

Please send this case to the application division to update the file jacket with the following data:

This application is a CIP of 08/858,650 05/19/97

Le

Thanks

P.S. Applicant will fax in
a new Declaration with
contribution data.

**MULTIPLE DEPENDENT CLAIM
FEE CALCULATION SHEET
(FOR USE WITH FORM PTO-875)**

SERIAL NO.

APPLICANT(S)

FILING DATE

08/8/2011

CLAIMS

	AS FILED		AFTER 1st AMENDMENT		AFTER 2nd AMENDMENT	
	IND.	DEP.	IND.	DEP.	IND.	DEP.
1						
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TOTAL IND.	3					
TOTAL DEP.	26					
TOTAL CLAIMS	29					

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TOTAL IND.						
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TOTAL CLAIMS						

PTO-3360 (3-78)

*MAY BE USED FOR ADDITIONAL CLAIMS OR AMENDMENTS

U.S. DEPARTMENT OF COMMERCE
Patent and Trademark Office

PAGE DATA ENTRY CODING SHEET

U.S. DEPARTMENT OF COMMERCE
Patent and Trademark Office

1ST EXAMINER
2ND EXAMINER

DATE

DATE

U.S. PTO
08/872911
06/11/97

APPLICATION NUMBER

TYPE APPL
MONTH DAY YEAR

SPECIAL HANDLING

GROUP ART UNIT

CLASS

SHEETS OF DRAWING

TOTAL CLAIMS

INDEPENDENT CLAIMS

SMALL ENTITY?

FILING FEE

FOREIGN LICENSE

ATTORNEY DOCKET NUMBER

CONTINUITY DATA

CONT STATUS CODE	PARENT APPLICATION SERIAL NUMBER	PCT APPLICATION SERIAL NUMBER	PARENT PATENT NUMBER	PARENT FILING DATE MONTH DAY YEAR
P	C	T	/	/
P	C	T	/	/
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P	C	T	/	/
P	C	T	/	/
P	C	T	/	/
P	C	T	/	/
P	C	T	/	/
P	C	T	/	/

PCT/FOREIGN APPLICATION DATA

FOREIGN PRIORITY CLAIMED	COUNTRY CODE	PCT/FOREIGN APPLICATION SERIAL NUMBER	FOREIGN FILING DATE MONTH DAY YEAR

PATENT APPLICATION FEE DETERMINATION RECORD
Effective October 1, 1996

Application or Docket Number

872971

CLAIMS AS FILED - PART I

(Column 1) (Column 2)

FOR	NUMBER FILED	NUMBER EXTRA
BASIC FEE		
TOTAL CLAIMS	21 minus 20 =	* 9
INDEPENDENT CLAIMS	3 minus 3 =	*
MULTIPLE DEPENDENT CLAIM PRESENT		

SMALL ENTITY

OR

OTHER THAN SMALL ENTITY

RATE	FEE
	385.00
x\$11=	99
x40=	
+130=	
TOTAL	

OR

RATE	FEE
	770.00
x\$22=	198
x80=	
+260=	✓
TOTAL	968

* If the difference in column 1 is less than zero, enter "0" in column 2

CLAIMS AS AMENDED - PART II

(Column 1) (Column 2) (Column 3)

AMENDMENT A	CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR		PRESENT EXTRA
	*		Minus	**	=
Total	* 49	Minus	** 29	=	20
Independent	* 5	Minus	*** 3	=	2
FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM					

SMALL ENTITY

OR

OTHER THAN SMALL ENTITY

RATE	ADDITIONAL FEE
x\$11=	189
x40=	78
+130=	
TOTAL ADDIT. FEE	267

OR

RATE	ADDITIONAL FEE
x\$22=	
x80=	156
+260=	
TOTAL ADDIT. FEE	

AMENDMENT B	CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR		PRESENT EXTRA
	*		Minus	**	=
Total	*	Minus	**	=	
Independent	*	Minus	***	=	
FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM					

RATE	ADDITIONAL FEE
x\$11=	
x40=	
+130=	
TOTAL ADDIT. FEE	

OR

RATE	ADDITIONAL FEE
x\$22=	
x80=	
+260=	
TOTAL ADDIT. FEE	

AMENDMENT C	CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR		PRESENT EXTRA
	*		Minus	**	=
Total	*	Minus	**	=	
Independent	*	Minus	***	=	
FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM					

RATE	ADDITIONAL FEE
x\$11=	
x40=	
+130=	
TOTAL ADDIT. FEE	

OR

RATE	ADDITIONAL FEE
x\$22=	
x80=	
+260=	
TOTAL ADDIT. FEE	

If the entry in column 1 is less than the entry in column 2, write "0" in column 3.
If the Highest Number Previously Paid For IN THIS SPACE is less than 20, enter "20."
If the Highest Number Previously Paid For IN THIS SPACE is less than 3, enter "3."
The Highest Number Previously Paid For (Total or Independent) is the highest number found in the appropriate box in column 1.

Staple Issue Slip Here

POSITION	ID NO.	DATE
CLASSIFIER		7/11/77
EXAMINER		
TYPIST	A14	12-9-98
VERIFIER		
CORPS CORR.		
SPEC. HAND		
FILE MAINT.		
DRAFTING		

INDEX OF CLAIMS

Claim		Date
Final	Original	
1	1	12-7-98
2	3	07/20/99
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- SYMBOLS
- ✓ Rejected
 - = Allowed
 - (Through numeral) Canceled
 - + Restricted
 - N Non-elected
 - I Interference
 - A Appeal
 - O Objected



US006014698A

United States Patent [19] Griffiths

[11] Patent Number: 6,014,698 [45] Date of Patent: Jan. 11, 2000

- [54] SYSTEM USING FIRST BANNER REQUEST THAT CAN NOT BE BLOCKED FROM REACHING A SERVER FOR ACCURATELY COUNTING DISPLAYS OF BANNERS ON NETWORK TERMINALS

- [75] Inventor: Michael John Griffiths, Broomfield, Colo.
[73] Assignee: MatchLogic, Inc., Westminster, Colo.
[21] Appl. No.: 08/872,971
[22] Filed: Jun. 11, 1997

Related U.S. Application Data

- [63] Continuation-in-part of application No. 08/858,650, May 19, 1997.
[51] Int. Cl.7 G06F 13/00
[52] U.S. Cl. 709/224; 709/217; 709/219
[58] Field of Search 345/428; 709/224, 709/217, 219

References Cited

U.S. PATENT DOCUMENTS

Table with 4 columns: Patent No., Date, Inventor, and Patent No. (continued from previous page)

OTHER PUBLICATIONS

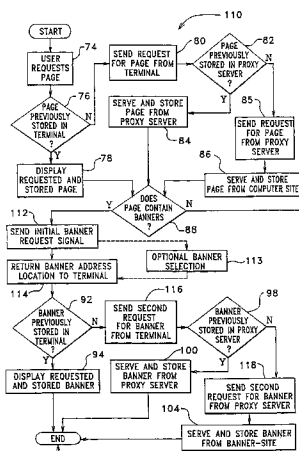
'Reload, Redraw, Repeat', Paul Boutin, download from electronic webcite address as of May 16, 1997 of: http://www.packet.com/packet/boutin/97/17/geek.html#1, pp. 1-4.
'Advertisers, Privacy Advocates Clash Over Giving Users More 'Cookie' Control,' Angela Drolte, Electronic Information Policy & Law Report, 2(21):530-531 (1997).

Primary Examiner—Le Hien Luu
Attorney, Agent, or Firm—Scott B. Allison; Chrisman Bynum & Johnson

[57] ABSTRACT

A system for delivering information on a computer network and allowing the information to be accessed by terminals connected to the computer network, either directly or through intermediary devices such as local or proxy servers, including computer or web sites storing pages which are requested by terminals for display. The pages may include references for the display of banners. The terminal initiates access or connection to a desired computer or web site to access a desired page. After the desired page is downloaded and served to the terminal from the computer or web site, the terminal initiates and sends an initial banner request signal to an information server. The information server returns a redirect signal to the terminal telling the terminal the location of the desired banner on the computer network, which may be the information server, the computer site, or some other information server, computer site, or location accessible via the computer network. The terminal then initiates a second banner request signal to the location of the desired banner and the banner is downloaded to the terminal for display on the terminal, unless the requested banner has previously been stored or cached in the terminal's memory or in the memory of a local or proxy server connected to the terminal, in which case the second banner request signal is not sent across the computer network and the banner is loaded directly from the terminal's memory or the proxy server.

49 Claims, 4 Drawing Sheets



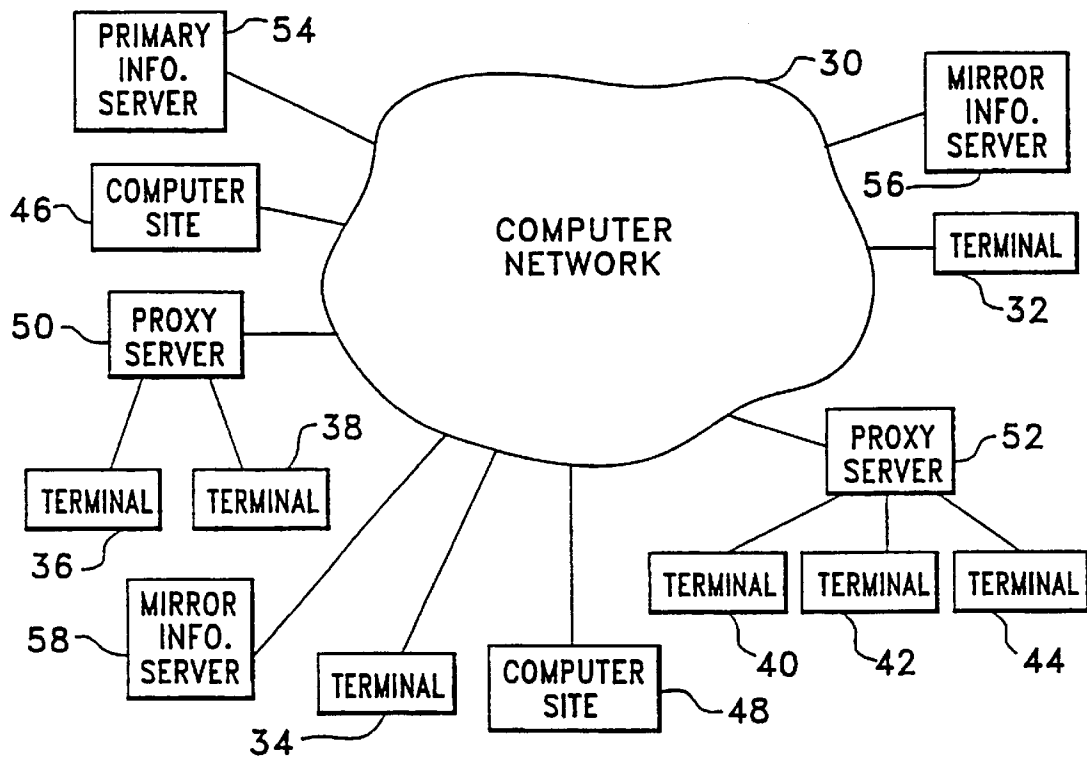


FIG. 1

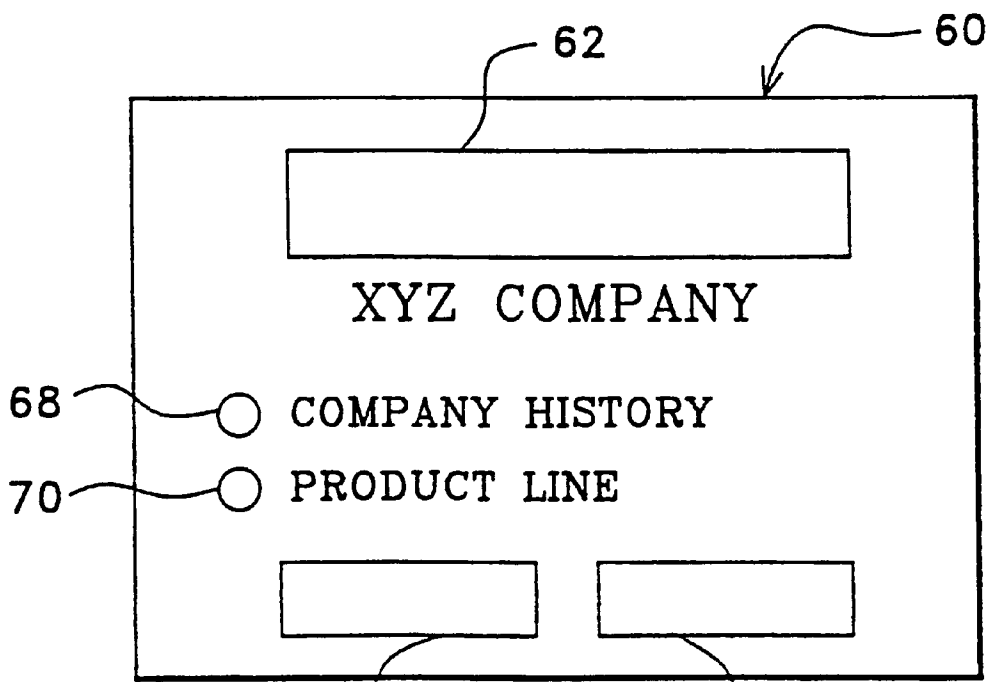


FIG. 2

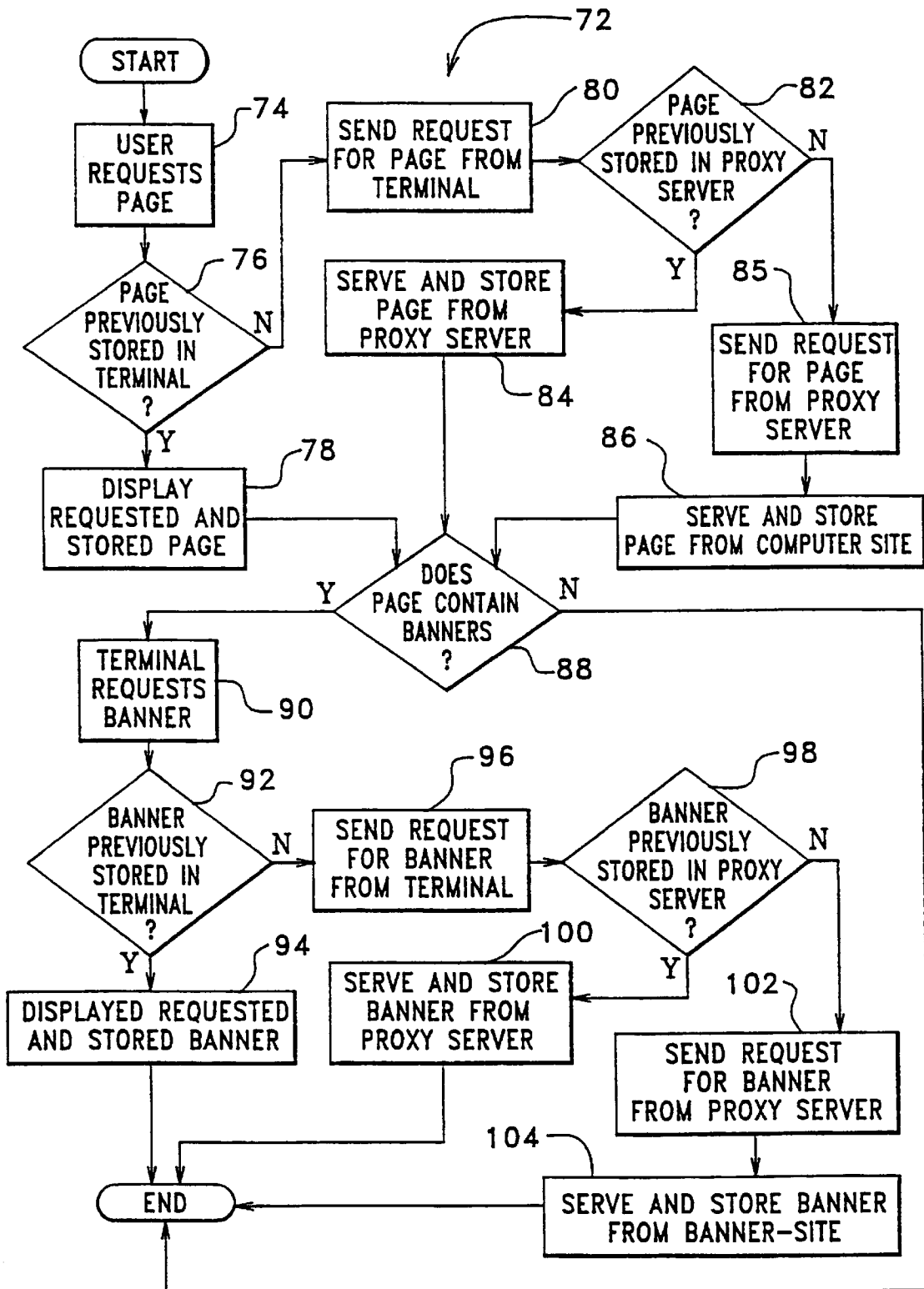


FIG. 3
(PRIOR ART)

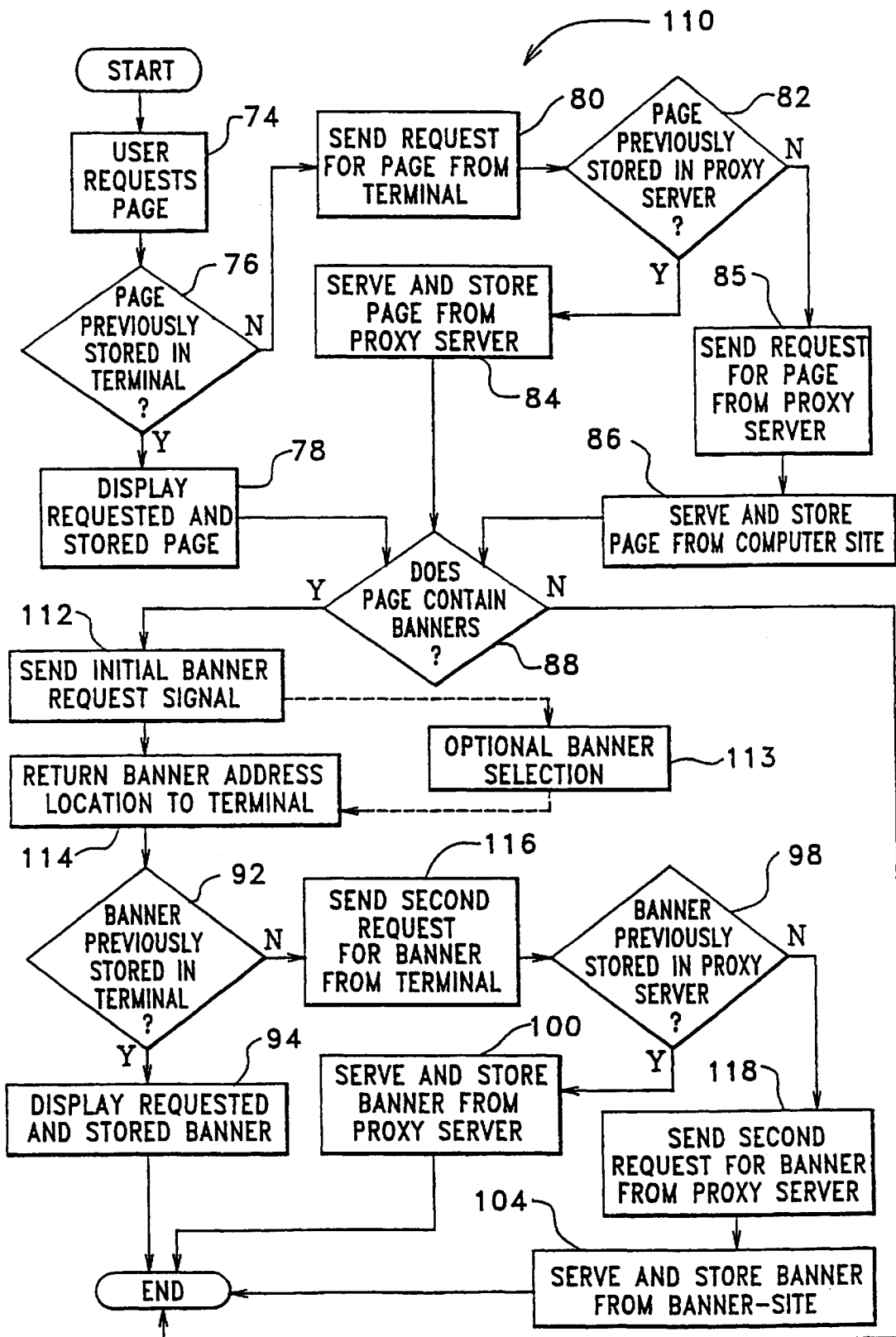


FIG. 4

**SYSTEM USING FIRST BANNER REQUEST
THAT CAN NOT BE BLOCKED FROM
REACHING A SERVER FOR ACCURATELY
COUNTING DISPLAYS OF BANNERS ON
NETWORK TERMINALS**

CROSS-REFERENCE TO RELATED
INVENTION

This application is a continuation-in-part of application Ser. No. 08/858,650, filed May 19, 1997, now pending, and entitled Information Storage and Delivery Over A computer Network Using Centralized Intelligence to Monitor and Control the Information Being Delivered.

BACKGROUND OF THE INVENTION

1. Field of the Invention

This invention relates to the system for the storage, management, and delivery of information on a computer network and, more specifically, to the efficient and accurate counting of advertising information displayed on terminals connected to the computer network.

2. Description of the Prior Art

During recent years there have been rapid advancements in computers and computer networking. In particular, the world-wide network of computers commonly referred to as the Internet has seen explosive growth. The Internet comprises a vast network of smaller wide area and local area computer networks connected together so as to allow the sharing of resources and to facilitate data communication between computers and users. The rapid growth of the Internet is due, in large part, to the introduction and widespread use of graphical user interfaces called browsers which allow users easy access to network servers and computers connected to the Internet and, more particularly, the World Wide Web.

The World Wide Web forms a subset of the Internet and includes a collection of servers, computers, and other devices. Each server may contain documents formatted as web pages or hypertext documents that are accessible and viewable with a web compliant browser, such as the Netscape Navigator™ browser or the Mosaic™ browser. Each hypertext document or web page may contain references to graphic files or banners that are to be displayed in conjunction with the hypertext document or web page. The files and banners may or may not be stored at the same location as the hypertext document or web page.

A hypertext document often contains hypertext links to other hypertext documents such that the other hypertext documents can be accessed from the first hypertext document by activating the hypertext links. The servers connected to the World Wide Web utilize the Hypertext Transfer Protocol (HTTP) which is widely known protocol which allows users to use browsers to access web pages and the banners or files associated with web pages. The files, banners, hypertext documents, or web pages may contain text, graphics, images, sound, video, etc. and are generally written in a standard page or hypertext document description language known as the Hypertext Markup Language (HTML). The HTML format allows a web page developer to specify the location and presentation of the graphic, textual, sound, etc. on the screen displayed to the user accessing the web page. In addition, the HTML format allows a web page to contain links, such as the hypertext links described above, to other web pages or servers on the Internet. Simply by selecting a link, a user can be transferred to the new web

page, which may be located very different geographically or topologically from the original web page.

When using a conventional browser, a user can select which web page or hypertext document the user wishes to have displayed on the user's computer or terminal by specifying the web page's Universal or Uniform Resource Locator (URL) address. Each server has a unique URL address and, in fact, so does each web page and each file needed to display the web page. For example, the URL address for the U.S. Patent and Trademark Office is currently <http://www.uspto.gov>. When a user types in this URL address into a browser, the user's terminal establishes a connection with the U.S. Patent and Trademark Office and the initial web page for the U.S. Patent and Trademark Office is transmitted from the server storing this web page (which may or may not be actually located at the U.S. Patent and Trademark Office) to the user's terminal and displayed on the user's terminal. The web page may include a number of graphic images or elements, often referred to as banners, which are to be displayed on the user's terminal in conjunction with the web page. Each of the graphic images is typically stored as a separate file on the server and has its own URL address. When the web page is initially transmitted from the server to the user's terminal, the browser receives the URL addresses for the graphic images and then requests that they be transmitted from the server on which they are stored to the user's terminal for display on the user's terminal in conjunction with the web page. The server(s) on which the graphic images are stored may or may not be the same server on which the original web page is stored. More specifically, since the URL's addresses for the included graphic images are all processed separately using the HTML protocols, it is possible and, in fact, common, for these graphic images to be stored on separate and even widely distributed computers or hosts, all of which are accessible to the user's terminal via a computer network. For purposes of the present invention, the term "banner" is meant to be construed very broadly and includes any information displayed in conjunction with a web page wherein the information is not part of the same file as the web page. That is, a banner includes anything that is displayed or used in conjunction with a web page, but which can exist separately from the web page or which can be used in conjunction with many web pages. Banners can include graphics, textual information, video, audio, animation, and links to other computer sites, web sites, web pages, or banners.

The growth of easy access to the World Wide Web and the ability to create visually pleasing web pages have helped increase the amount of advertising and other promotional materials created for use and display with web pages. For example, a car manufacturer may have a web page describing the company and the cars and car parts that the company manufactures and sells. Part of the web page may include advertising information or banners such as, for example, images of current car models sold by the manufacturer or the types and numbers of cars the manufacturer has in stock. The car manufacturer may also contract with the owners or operators of other web pages to have the car manufacturer's advertisement banners displayed when users access these other web pages. Similarly, an advertising agency may contract with various web sites to have the advertisement banners of the agency's clients displayed when users access the web pages stored on the web sites. For example, an advertising agency or ad-network firm may contract with a web site containing general information about cars to have advertising information or banners included on the web pages displayed to a user accessing the web site. The

advertising banners may contain graphics, text, etc. about car models or car parts manufactured by one of the advertising agency's clients. Furthermore, the advertisement banners may not be stored on the same server or computer or web site on which the web page is stored. Rather, all or a significant portion of the advertisement banners created by an advertising agency may reside on one or more information or ad servers. Typically, an advertising agency will pay a fixed amount of money for a fixed number of displays of its advertisement banners on a single web page or group of web pages. Therefore, advertising agencies are understandably very interested in knowing which advertisement banners have been displayed with which web pages and how often each advertisement banner has been displayed on terminals or otherwise served to terminals.

Unfortunately, the current state of the art is such that accurate counts are not made of how many times an banner, even a banner containing an advertisement, is displayed to users or served to terminals. Furthermore, nature and extent of the problem of miscounting displays of banners is not well-known or even understood in the industry or by people of ordinary skill in the art. Therefore, despite the well-developed state of the art in the displaying of information, banners, and advertisements in conjunction with web pages, documents, or other information, there is still a need for a system for storing and delivering information and banners on a computer network where accurate counts of the number of times each piece of information and banner is displayed can be made and the information and banners are displayed quickly and efficiently to users or terminals. In addition, there is a need for a highly reliable, even fault-tolerant, system for storing and delivering the information and banners that will not significantly reduce the efficiency of the Internet or the servers on which the information and banners are stored, while providing for accurate monitoring and counting of the information and banners displayed to a user or served to a terminal.

SUMMARY OF THE INVENTION

Accordingly, it is a general object of the present invention to provide a system for storing and delivering information on a computer network.

It is a specific object of the present invention to provide a system for the storage, delivery monitoring, and tailoring of advertising information on a computer network.

It is another general object of the present invention to provide a system for storing and delivering information on a computer network wherein accurate counts of the number of times the information is displayed or served to users or terminals can be made.

It is a specific object of the present invention to provide a system for storing and delivering information on a computer network wherein the operation of the computer network is not significantly affected.

It is another general object of the present invention to provide a system for storing and delivering information on a computer network wherein the system maintains a high degree of reliability and fault tolerance.

Additional objects, advantages, and novel features of the invention shall be set forth in part in the description that follows, and in part will become apparent to those skilled in the art upon examination of the following or may be learned by the practice of the invention. The objects and the advantages may be realized and attained by means of the instrumentalities and in combinations particularly pointed out in the appended claims.

To achieve the foregoing and other objects and in accordance with the purposes of the present invention, as embodied and broadly described herein, the system includes terminals connected to a computer network, either directly, or indirectly through an intermediary device such as a local or proxy server, that access computer or web sites also connected to the computer network to download or transmit pages, documents, or other information from the computer or web sites for storage or display on the terminals, wherein the pages, documents, or other information served to the terminals contain references to banners to be displayed in conjunction with the pages, documents, and information. The terminal initiates access or connection to a desired computer or web site to access a desired page. After the desired page is transmitted and served to the terminal from the computer or web site, the terminal initiates and sends an initial banner request signal to an information server either requesting that unspecified banner be served to the terminal or that a specified banner be served to the terminal. The information server returns a redirect signal to the terminal telling the terminal the location on the computer network of the banner requested or specified by the terminal or selected by the information server, which location may be the information server, the computer site, or some other information server, computer site, or location accessible to the terminal via the computer network. The terminal then initiates a second specific banner request signal to the location of the banner requested or specified by the terminal or selected by the information server and the banner is transmitted to the terminal for display on the terminal, unless the requested or selected banner has previously been stored or cached in the terminal's memory or in the memory of a local or proxy server connected to the terminal, in which case the second banner request signal is not sent across the computer network and the banner is loaded and/or displayed directly from the terminal's memory or served to the terminal from the proxy server. Each display of a banner on a terminal is counted, preferably by an information server, so that accurate counts of banner displays can be made.

In a second embodiment, a primary information server and at least one mirror information server are connected to the computer site, but may be separated either geographically or network topologically. The banner information stored in the primary information server is also stored in each of the mirror information servers. All of the initial banner request signals are sent to the primary information server which determines which information server is best suited for delivering the banner to the terminal sending the initial banner request signal. As in the first embodiment, the banner may be specifically requested by the terminal or may be selected by the primary information server. The primary information server then sends a signal to the terminal indicating to the terminal which information server the terminal should request the requested or selected banner from. The terminal then generates the second banner request signal to serve or transmit the banner from the information server selected by the primary information server. Should the primary information server go offline, one or more of the mirror information servers can become a new primary information server.

BRIEF DESCRIPTION OF THE DRAWINGS

The accompanying drawings, which are incorporated in and form a part of the specification, illustrate the preferred embodiments of the present invention, and together with the descriptions serve to explain the principles of the invention.

In the Drawings:

FIG. 1 illustrates a computer network over which the present invention can be implemented;

FIG. 2 shows a representative web page accessible from a computer site connected to the computer network of FIG. 1;

FIG. 3 shows a flowchart diagram of a prior method for storing and delivering information across the computer network of FIG. 1; and

FIG. 4 shows a flowchart diagram of the preferred method of the present invention for storing and delivering information across the computer network of FIG. 1.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

A representative computer network 30 is illustrated in FIG. 1 and includes computers or terminals 32, 34, 36, 38, 40, 42, 44 with which users can access or connect to the computer network 30 and the resources connected to the computer network 30 such as the computer or web sites or servers 46, 48. The computer network 30 can include satellite links, microwave links, fiber optic transmission lines, local area networks, wide area networks, etc. Terminals, such as the terminals 36, 38, 40, 42, 44, may be connected to the computer network 30 via local or caching proxy servers 50, 52 or other intermediary devices (not shown). Proxy servers allow multiple terminals to access the computer network 30, while reducing the number of physical connections to the computer network 30, as will be discussed in more detail below. A primary information server 54 and mirror information servers 56, 58 may also be connected to the computer network 30 to facilitate the serving and displaying of information or banners to the terminals 32, 34, 36, 38, 40, 42, 44, as will also be discussed in more detail below. The computer network 30 illustrated in FIG. 1 is only meant to be generally representative of computer networks for purposes of elaboration and explanation of the present invention and other devices, networks, etc. may be connected to the computer network 30 without departing from the scope of the present invention. The computer network 30 is also intended to be representative of, and include, the Internet, the World Wide Web, privately or publicly owned or operated networks such as, for example, Tymnet, Telenet, America On-Line, Prodigy, Compuserve, Information America, and the Microsoft Network, and other local or wide area computer networks. The computer network 30 can also include or be representative of corporate or other private intranets, which are privately owned networks using Internet protocols. It should also be noted that the distinction between information servers, web site, computer sites, and generic servers is made only for the purposes of elaboration and explanation of the present invention and that a device can function simultaneously or alternatively as a computer site, web site, information server, generic server, or other device, or combinations thereof without falling outside the scope of the present invention.

By way of general introduction, in a typical computer network, a user located at a terminal can access the resources connected to the computer network. For example, a user at the terminal 34 or terminal 36 can access the web site or computer site 46 and the information stored thereon. The computer site or server 46 may contain web pages, such as the web page 60 illustrated in FIG. 2, that the user can download for display on the terminal 34. For purposes of this invention, the term "web page" shall be defined broadly and will include any hypertext document, information, screen displays, etc. that a user can download or otherwise

retrieve from a computer or web site for display and/or storage on the user's terminal, and shall not be limited to only the information, pages, or documents retrievable by a user connected to the World Wide Web. Therefore, the term "web page" will be used generically to refer to information transmitted or served to a terminal from a computer site, web site, server, or other device, wherein the web page may contain banners or references to banners that can be served to the terminal and displayed in conjunction with the web page. The web page 60 may contain textual information, such as "XYZ COMPANY" and "Company History," and information configured in banners, such as the banners 62, 64, 66. The banners 62, 64, 66 may contain graphics, text, video, etc. As will be discussed in more detail below, the banners associated with a web page may not be stored at the same place as the web page and may be downloaded or served to a user's terminal separately from the web page. A significant feature and advantage of the present invention is in the way the banner information is selected and downloaded or served to a user's terminal from computer sites or information servers connected over a same computer network, as will be discussed in more detail below. The current state of the art is such that the counts of banner displays are largely inaccurate, banners are not targetable to large segments of the population using caching proxy servers, and suffers when the performance gains provided by proxy servers are not taken into account in prior art methods of counting banner displays, as will also be discussed in more detail below.

In a conventional web page, such as the web page 60, if a user clicks on, or otherwise activates, the button associated with the textual information, a new web page might be displayed on the user's terminal. For example, if the user clicks on the button 68 associated with the textual information "Company History," a new web page devoted to the history of the XYZ company might be served from the computer site 46 to the user's terminal 34 and displayed on the user's terminal 34. Similarly, if the user clicks on the button 70 associated with the textual information "Product Line," a new web page devoted to the product line of the XYZ company might be served from the computer site 46 to the user's terminal 34 and displayed on the user's terminal 34. Each web page may contain similar "links" to other web pages, hypertext documents, web sites, etc. Activating a link available on a web page or hypertext document, therefore, provides the user with an ability to navigate or move to and display or download different documents, pages, banners, sites, or other information via the computer network 30.

When a user has a web page displayed on the user's terminal, the web page and its associated banners are often stored or cached in the terminal's memory for a period of time. In this fashion, if the user desires or requests that a web page previously displayed to the user on the terminal be reaccessed and displayed on the user's terminal, the web page and the banners associated with the requested web page can be loaded directly from the terminal's memory without reconnecting to the computer or web site on which the web page is stored and from which the web page was originally served and without reconnecting to the computer site or information server on which the banners are stored and from the banners were originally served, thereby reducing the time needed to display the web page. Similarly, if the user's terminal is connected to a local or proxy server, the web page and the banners associated with the web page may be stored in the memory of the proxy server. Should the user at a terminal request a redisplay of a web page previously displayed on the user's terminal or previously displayed on

any other terminal connected to the same proxy server, the web page and the banners associated from the web page can be served from the proxy server to the terminal for display on the terminal without connecting to the computer or web site on which the web page is stored and from which the web page was originally downloaded or served and without connecting to computer site or information servers on which the banners are stored and from which the banners were originally transmitted or served. Note that, in the case that the information is retrieved from a copy of the information previously stored held within a proxy server connected to the terminal, the serving of the information to the terminal will typically be completed by sending the information from the proxy server to the terminal, i.e., without the participation of the computer site or server. Therefore, it is difficult for the computer site or server **46** to maintain an accurate count of the terminals **36**, **38**, etc. on which the information is displayed if the terminals are connected to caching proxy servers, if the performance benefits offered by the caching proxy server are desired.

As previously discussed above, a significant feature and advantage of the present invention is in the way the banner information is selected and transmitted and served to the user's terminal from computer sites or information servers connected over a same computer network. More specifically, the method of the present invention allows banner information to be served over a computer network to a terminal, computer, etc. in a way which takes advantage of the performance enhancements offered by caching proxy servers and such that the operation of the computer network is not significantly affected while providing the ability to accurately track or count the number of times the banner information has been displayed on terminals connected to the computer network, as will be discussed in more detail below. It is not uncommon for banners to contain up to fifty kilobytes (KB) of information, thereby making the limiting of banner transmissions across a computer network very significant to the efficiency and operation of the computer network and to banner serving computer systems.

For purposes of elaboration and explanation of the present invention, the conventions and protocols of the World Wide Web, and browsers therefore, will be used as examples, in particular, the concept of a Uniform Resource Locator (URL), the Hypertext Transfer Protocol (HTTP), the Hypertext Markup Language (HTML), and the Transmission Control Protocol/Internet Protocol (TCP/IP). It should be noted, however, that the concepts underlying the present invention can be used for computer networks using other or different types of conventions and protocols. For more details on these protocols, the reader is directed to: Kevin Washburn and Jim Evans, *TCP/IP running a successful network*, 2nd Ed. (1996), published by Addison-Wesley, Douglas E. Comer, *Internetworking with TCP/IP*, 3rd Ed. (1995), published by Prentice Hall, John December and Mark Ginsberg, *HTML 3.2 and CGI Unleashed Professional Reference Edition* (1996), published by Sams.net Publishing, and Jerry Honeycutt et al., *Using HTML 3.2*, 3rd Ed (1997), published by Que Corporation, all of these references of which are incorporated herein by reference. Other information about the HTTP, HTML, TCP/IP and other network protocols can also be found in U.S. Pat. No. 5,617,540 issued to Civanlar et al., U.S. Pat. No. 5,572,643 issued to Judson, and U.S. Pat. No. 5,442,771 issued to Filepp et al., all of which are also incorporated herein by reference. The linking of one web page or hypertext document to another is commonly done using a hypertext markup comment tag. When the user clicks on or otherwise activates the hypertext markup com-

ment tag, a link to the new web page or hypertext document is generally initiated by the user's browser software which causes the user's terminal to request that the new web page or hypertext document be displayed on the user's terminal or computer. Similarly, if a web page served to a user's terminal contains banners, the URL addresses for the banners will be served with the web page so that the terminal can request that the banners be served to the terminal for display on the terminal along with the previously served web page.

It should also be noted that the disclosed system and method also work for all types of operating systems running on the computers, terminals, computer sites, information servers, and other devices connected to the computer network **30**. Such operating systems can include, for example, Microsoft's DOS™, WINDOWS 3.x™, WINDOWS NT™, or WINDOWS 95™ software, IBM's OS/2™ software, Apple's System 7™ software, or the AIX or UNIX operating system software platforms.

Now referring back to FIG. 1, computers or terminals can be connected to the computer network **30** in a variety of ways. For example, the terminals **32**, **34** can be connected directly to the computer network **30** or may be attached via a dial-up line or network access service provider. Other terminals may be connected to the computer via network proxy or local servers, such as the proxy servers **50**, **52**. Proxy servers allow multiple computers, terminals, or computer networks to be connected to another computer network at a single point. In addition, since the connection from the terminals **32**, **34** and the proxy server **50** to the computer network **30** is in most instances slower than the connections from the terminals **36**, **38** to the proxy server **50**, the proxy server **50** can provide significant speed improvements. For example, a large corporation may have all its terminals connected via a local area computer network. The local area computer network can be connected to a caching proxy server which is, in turn, connected to the computer network **30**. In the computer network **30** illustrated in FIG. 1, the terminals **36**, **38** access the computer network **30** through the proxy server **50**. Similarly, the terminals **40**, **42**, **44** access the computer network **30** through the proxy server **52**. Using proxy servers allows multiple computers or terminals to access a computer network while limiting the number of physical connections to the computer network. Unfortunately, the use of proxy or network servers also creates some serious problems when the counting of banner information files displayed to users on terminals is desired, as will be discussed in more detail below.

As previously discussed above, the connection of computer sites, web sites, information servers, terminals, and other devices to a computer network allows the resources and information stored in the computer sites, information servers, and other devices to be accessible to users at the different terminals connected to the computer network. The users can also communicate with each other or the computer sites by sending messages or e-mail. When a user accesses the information stored at a computer site, information, web pages, or screen displays are generally served from the computer site for display on the user's terminal or computer. The information transmitted to the user's terminal may contain a banner which is also served from the computer site, or which may be instead automatically served from other computer sites or information servers connected to the computer network. As a general example, referring once again to FIG. 1, suppose a user at the terminal **36** accesses the web site or computer site **46** via the proxy server **50** and the computer network **30** in order to obtain information

about the hypothetical XYZ Company. A web page about the XYZ Company, such as the web page 60 illustrated in FIG. 2, may be served from the computer site 46 to the terminal 36 and displayed on the user's terminal 36. The web page 60 may contain places for banner information, such as the banners 62, 64, 66 illustrated in FIG. 2. When the web page 60 is received by the user's terminal 36, the banners 62, 64, 66 may be received at the same time. Alternatively, instructions may be sent to the user's terminal 36 from the computer site 46 telling the terminal 36 where to find and request the banners 62, 64, 66 on the computer network 30, which may be the computer site 46, another computer site, or an information server such as the information servers 54, 56, 58. When such instructions are received by the user's terminal 36, the terminal 36 accesses the appropriate location of banners 62, 64, 66 via the computer network 30 and requests that the banners 62, 64, 66 be served for display on the user's terminal 36.

The process described above in relation to the example has many inherent problems, particularly when it is desired to count the number of times banner information is displayed on the user's terminal. More particularly, with reference to the previous example, the banners 62, 64, 66 displayed on the user's terminal may or may not be related to the XYZ Company. Regardless of the relationship between the banners 62, 64, 66 and the XYZ Company, the XYZ Company, an advertising agency, or some other entity may wish to know how many times the banners 62, 64, 66 have been displayed on users' terminals. As a more specific example, suppose the banners 62, 64, 66 constitute advertisements. The advertiser and the company or client for whom the advertisements are created will be very interested in knowing how many times the advertisements are displayed on users' terminals. Therefore, accurate count information for the banners 62, 64, 66 is highly desirable. Unfortunately, such accurate count information is very difficult to acquire, as will now be discussed in more detail.

Now referring to FIG. 3, a conventional method 72 used to download or serve web pages and banner information to a user's terminal is illustrated. Using the examples discussed above, a user at the terminal 36 can access the computer site 46 via the computer network 30 and request a web page to be served from the computer site 46 to the terminal 36 during the request page step 74. When the user requests a page during the request page step 74, a signal is sent from the user's terminal 36 to the computer site 46 via the proxy server 50 and the computer network 30 telling the computer site 46 which page stored on the computer site 46 the user desires to have displayed on the user's terminal 36. However, the request signal sent by the user's terminal 36 during the request page step 74 may not reach the computer site 46. If the user at the terminal 36 had previously requested the same page from the computer site 46, the page may already be stored in the user's terminal 36. Similarly, if any users at the terminals 36, 38 had requested the same page from the computer site 46, the page may be stored in the proxy server 50. After the user requests a page during the request page step 74, the terminal 36 may determine if the desired page is already stored in the terminal 36 during storage determination step 76. If the desired page is already stored in the terminal 36, the terminal 36 will display the page during display step 78 without sending the signal to the computer site 46. If the desired page is not already stored in the terminal 36, the terminal 36 will send the page request signal during send page request step 80. Since the terminal 36 is connected to the proxy server 50, the page request signal sent during step 80 must pass through the proxy server

before reaching the computer network 30. As a result, the proxy server 50 may determine if the desired page is already stored in the proxy server 50 during storage determination step 82 before it sends any signal to the computer site 46 over the computer network 30. If the desired page is already stored in the proxy server 50, the proxy server 50 can stop or otherwise terminate the page request signal, thereby stopping the page request signal from being received by the computer site 46, and the proxy server will serve the desired page directly to the terminal 36 for display on the terminal 36 during serve requested page step 84. The terminal 36 may also store the desired page in its own memory during the serve requested page step 84. If the proxy server 50 does not have the desired page already stored in its own memory, the proxy server 50 will send the page request signal to the computer site 46 over the computer network 30 during send page request step 85. The computer site 46 will then serve the desired page to the proxy server 50 and the terminal 36 for display on the terminal 36 during the serve requested page step 86. Either or both the terminal 36 and the proxy server 50 may store the desired page during the serve requested page step 86.

Since terminals may be connected to the computer network 30 without also being connected to proxy servers, the steps 82, 84, and 85 may not always be necessary in the method 72. For example, now referring to FIG. 1, the terminal 34 is not connected to a proxy server but is connected to the computer network 30. Therefore, the steps 82, 84 in the method 72 are not needed and the terminal 34 will send the page request signal via the computer network 30 directly to the computer site 46 during the send page request signal step 80.

The web page requested by the user from the computer site 46 may contain banner information, such as the banners 62, 64, 66 in the web page 60 illustrated in FIG. 2. The banner information may be served with the web page or, more commonly, the banner information may reside in separate files which will need to be requested by the user's terminal 36 before the banner information can be displayed on the user's terminal 36 along with the requested web page. Typically, the web page information served to the terminal 36 for display on the terminal 36 will contain the electronic address information containing the location of the banner information on the computer network 30. The banner information may be located on the computer site 46 or at other locations connected to the computer network 30, as will be discussed in more detail below.

The terminal 36 will determine during banner determination step 88 if the page served to the terminal during steps 78, 84, or 86 contains banner information not already included in the web page displayed on the terminal 36. If the answer is no, i.e., the web page served to the terminal 36 is complete, the process is ended. If the answer is yes, i.e., the page served to the terminal 36 is not complete and contains banner information that needs to be served to the terminal 36, the terminal 36 requests the banner during request banner step 90.

Similar to the process described above for service of the desired page to the terminal 36, the terminal 36 first determines if the requested banner is already stored in the memory of the terminal 36 during banner storage determination step 92. The banner storage determination step 92 can occur in conjunction with the banner request step 90 such that no signal is generated by the terminal 36 if the requested banner is already stored in the terminal 36. If the requested banner is, in fact, already stored in the memory of the terminal 36, the terminal 36 will display the requested

banner during display banner step 94 and the process is over. If the requested banner is not already stored in the memory of the terminal 36, the terminal 36 will generate and send a banner request signal during send banner request signal step 96. The request banner signal sent during the step 96 contains the address of the location of the desired banner so the computer network 30 can properly locate the desired banner.

Since the terminal 36 is connected to the proxy server 50, in a similar manner as described above in relation to steps 82, 84, 85, 86, once the proxy server 50 receives the banner request signal from the terminal 36, the proxy server 50 will determine whether or not the desired banner is already stored in the memory of the proxy server 50 during banner storage determination step 98. If the desired banner is already stored in the memory of the proxy server 50, the proxy server 50 will transmit and serve the banner directly to the terminal 36 for display by the terminal 36 during serve banner step 100. The terminal 36 may also store the banner in its own memory during the serve banner step 100. If the requested banner is not already stored in the proxy server 50, the proxy server will send the banner request signal to the device on which the requested banner is stored via the computer network 30 during the send banner request signal step 102. The device on which the requested banner is stored will then download or serve the requested banner to the proxy server 50 and the terminal 36 during the serve banner step 104 for display by the terminal 36. Either or both the terminal 36 and the proxy server 50 may store the banner served by the device on which the requested banner is stored during the serve banner step 104.

The steps 98, 100, and 102 will not be necessary if a terminal requesting the banner information is not connected to a proxy server. For example discussed above, since the terminal 34 is not connected to a proxy server, the steps 98, 100, and 102 are not needed for the terminal 34 and the terminal 34 will send the page request signal via the computer network 30 directly to the server on which the requested banner is stored during send banner request signal step 102.

When the computer site 46 in the example described above in relation to FIG. 3 is a web site using the HTTP and HTML protocols, the user selects and accesses the web site 46 by entering the Uniform Resource Locator (URL) address of the web site 46 into the terminal 36. The page request signal generated by the terminal 36 during step 74 tells the computer network 30 and the equipment associated with the computer network 30 which computer site the user wishes to access. Each computer and device attached to the computer network 30 will have its own unique URL address and each page and file stored in each computer will usually also have its own URL address so that each page and file can be made accessible to users via the computer network 30. For example, if the user desires to access the web page 60 for the XYZ company, the user may enter the URL address for the web page 60, <http://www.xyzcompany.com>, into the browser software operating on the user's terminal. The URL address contains an alphanumeric portion or domain name, "www.xyzcompany.com" that identifies the web site in an easy to understand and remember format. Each computer or web site and other host devices, end systems, networks, or network router devices connected to the computer network 30, however, has a unique Internet Protocol (IP) address that is thirty-two bits in length and is generally written as four decimal numbers in the range zero (0) through 255, separated by periods. For example, an IP address could be 128.10.2.30 which in its full thirty-two bit format is

10000000.00001010.00000010.00011110. Providing every host computer on a computer network with a unique IP address allows any host computer to communicate with any other host computer.

By a process known as domain name resolution or by the use of Domain Name System (DNS), the IP address of the computer or web site on which XYZ Company's web page 60 and the web page 60 are stored can be determined from the domain name provided in the URL address. In fact, the IP address for computer or web site must first be determined when an URL address is entered by the user at a terminal that does not contain the IP address. For example, if a user at a terminal or computer enters the alphanumeric domain name address, i.e., <http://www.xyzcompany.com>, the alphanumeric domain name must be resolved by the Domain Name System to a specific IP address, i.e., <http://019.247.56.38>, before the designated and desired computer containing the web page 60 for the XYZ Company can be accessed. If the user enters the specific IP address directly, then use and access of the Domain Name System is not required. If resolution or determination of an IP address is required, the name server will return the appropriate IP address to the terminal which generated the signal in which the IP address was not included. The use and operation of domain name resolution and the Domain Name System for determining IP addresses are well known to people of ordinary skill in this art and need not be explained in any further detail for purposes of the present invention.

When the web page requested by the user during page request step 74 is served to the terminal 36 during steps 78, 84, or 86, the web page will often contain the URL addresses of banners or banner information to be displayed along with the web page on the user's terminal 36 instead of the banner information itself. The terminal 36 will then use the URL addresses of the desired banner information to access the computer network 30 and request that the desired banner information be served to the terminal 36 for display on the terminal 36. For example, when the web page 60 for the XYZ company is served to a terminal, the web page may contain URL addresses for the banners 62, 64, 66. The URL address for the banner 62 may be of the form <http://www.bannersite1.com/banner1.gif>. The "bannersite1.com" portion of the URL address for the banner 62 indicates which device, for example the information server 54, connected to the computer network contains the requested banner 62 where the "banner1.gif" portion of the URL address for the banner 62 indicates which file stored on the indicated device constitutes the banner 62. Similarly, the URL address for the banner 64 may be of the form <http://www.bannersite2.com/banner54.gif>. The "bannersite2.com" portion of the URL address for the banner 64 indicates which device, for example the information server 56, connected to the computer network contains the requested banner 64 where the "banner54.gif" portion of the URL address for the banner 64 indicates which file stored on the indicated device constitutes the banner 64. As shown by these examples, the banner 62 may not be stored on the same device as the banner 64. In addition, as previously discussed above, the banners 62, 64 may be located on the same web site as the requested page or may be located on other web or computer sites, such as the computer or web site 48 shown in FIG. 1, or on information servers, such as the information servers 54, 56, 58 shown in FIG. 1. When the terminal 36 requests the banner information during step 96, the banner request signal will contain the URL addresses for each banner to be displayed with the web page so that the banners can be located at, and served from, the appropriate devices on the computer network 30.

The prior art method **72** discussed above and illustrated in FIG. **3** has many inherent problems, however, which make it unsuitable for counting the number of times a banner is displayed on the terminals connected to the computer network **30**, as will now be discussed in more detail. Since the web page, and the banners to be displayed with the web page, selected by the user can be stored in either the user's terminal or the proxy server connected to the user's terminal, not all requests for the banner information are forwarded by the user's terminal or respective proxy server and transmitted over the computer network **30**. While this result may appear to be beneficial in that the amount of data traffic on the computer network **30** is reduced, in fact, this result prevents the accurate count of banner displays. More specifically, entities such as advertising agencies, advertising repping firms, and the entities hiring them want to count and know each time a banner is displayed on a user's terminal so that the success or failure of various advertising banners can be determined and so that the correct payment for the display of the advertising banners can be computed. There are two conventional ways in which the number of times a banner is displayed is counted. The first way is to count the number of times an information server or computer site serves a page during the step **86**. The second way is to count the number of times that the information server actually serves a banner during the step **104**. Unfortunately, a page requested by a terminal during the step **74** is already stored on either the terminal or a proxy server connected to the terminal, the display of the banner on the user's terminal is not counted under the first method. Similarly, if a banner requested by a terminal during the step **90** is already stored on either the terminal or a proxy server connected to the terminal, the display of the banner on the user's terminal is not counted under the second method. The discrepancy between the number of times a banner is actually displayed on a user's terminal and the number of times the display of the banner on the user's terminal is counted can become significant, even reaching error rates of eighty percent or higher.

One solution to the problem is to prevent banner information from being stored or cached on either the user's terminal or the proxy server to which the user's terminal is attached. Therefore, each time a banner is requested by the user's terminal, the banner will have to be downloaded or served from the computer site or information server on which the banner is stored to the user's terminal for display on the user's terminal. For example, the HTTP and HTML protocols allow banners to be tagged or indicated as being uncacheable or unstorable at the user's terminal or the proxy server connected to the user's terminal, as will be discussed in more detail below. Therefore, such a solution can be implemented where after each request for banner information, the requested banner information is served from the location storing the banner information, thereby allowing the display of the banner information to be counted accurately at the location at which the requested banner information is stored.

The solution described in the preceding paragraph creates a significant problem, however, that creates even more significant consequences, thereby making its use for accurately counting advertisement and banner displays highly impractical and undesirable. More specifically, the storage of web pages and banner information at the user's terminal or in the proxy server connected to the user's terminal provides several important benefits that will be eliminated by this simple solution. First, the speed at which the information is displayed on the user's terminal will be reduced

since the information will always have to be transmitted or served to the user's terminal for display on the user's terminal each time the user requests the information. If the information had previously been requested by the user such that the information was already stored in the user's terminal or the proxy server connected to the user's terminal, or if the information had previously been requested by a second user at a terminal connected to the same proxy server as the first user's terminal such that information was already stored in the proxy server connected to the first user's terminal, re-requesting the information to be downloaded or served from another device connected to the computer network and the actual serving of the information to the user's terminal will take substantially longer than loading the information already stored in the user's terminal or serving the information to the user's terminal only from the proxy server to which the user's terminal is connected. If the banners contain advertisements, the length of time the banner is displayed to the user may also be critically important to the advertiser. The user may not wait for the banner information to be served and displayed before the user selects another web page, thereby minimizing the success of the banner.

A second and more serious problem created by having to serve the information displayed on the user's terminal each time the information is requested is that the amount of data traffic on the computer network will significantly increase, and can even bring the flow of information to a virtual stop, particularly if all requests for banner information from any terminal connected to the computer network require the information to be transmitted across the computer network to the terminal.

A third problem created with the prior art method **72** is that the step **100** eliminates any possibility of targeting specific information to be displayed with specific web pages. That is, if any demographic or other information about the user or terminal **36** is known by the server on which the banners are stored, the prior art method **72** prevents the server from using the demographic or other information to target the user with a specific banner or to tailor a banner to the specific user. Such targeting or tailoring of banners can be very important when the banners contain advertising information and the advertisers want to send specific advertisement banners to users about whom specific demographic or other information is known.

The method **110** of the present invention solves the initial problem of how to create accurate counts of banner information displays on user terminals while avoiding the problems created by requiring the banner information to be retransmitted across the computer network each time the banner information is requested by a user or a user's terminal, as will now be discussed in more detail in reference to FIG. **4**. In addition, the method **110** allows for the use of content general and content specific signals, which allow banner displays to be targeted to specific users while taking advantage of the performance gains possible with caching proxy servers, as will also now be discussed in more detail in reference to FIG. **4**.

In the method **110**, the steps **74**, **80**, **82**, **84**, **85**, **86**, and **88** are essentially the same as described above in relation to the prior art method **72** illustrated in FIG. **3**. Therefore, no further discussion of these steps is required for purposes of explanation of the method **110** of the present invention. After a requested page containing a banner has been displayed on a user's terminal during the steps **78**, **84**, or **86**, and, as determined during banner determination step **88**, if the page contains banners to be displayed on the user's terminal **36** along with the page, an initial request banner signal is

generated by the user's terminal 36 during initial banner request step 112. Unlike the previous situation with the method 72, however, the terminal 36 and the proxy server 50 preferably do not check to see if the banner information has already been stored and the terminal 36 and the proxy server 50 preferably cannot stop the initial banner request signal sent by the terminal 36 during the step 112 from being transmitted across the computer network 30. That is, the initial banner request signal sent by the terminal 36 during the step 112 is preferably a mandatory signal to be transmitted across the computer network 30 and that cannot be blocked or terminated by either the terminal 36 or the proxy server 50, even if the banner to be served to the terminal 36 is already stored in either the terminal 36 or the proxy server 50.

The initial banner request signal generated by the terminal 36 during the step 112 preferably does not contain the location information of the desired banner as does the banner request signal generated by the terminal 36 during the request banner step 90 of the prior art method 72. In other words, the initial banner request signal generated by terminal 36 during the step 112 can be a content general signal and may contain only the minimum amount of information needed to tell a designated computer site, information server, or other device which receives the initial banner request signal and on which a banner may or may not be stored or located, only that the terminal 36 desires that an unspecified banner be served to the terminal. The designated computer site, information server, or other device can then select which banner is to be served to the terminal 36. The process of selecting which banner is to be served to the terminal 36 can be made during the optional banner selection step 113, which would occur after the step 112 and before the step 114 in the method 110 illustrated in FIG. 4. If the optional selection step 113 is not used with the method 110, the terminal 36 will request during the step 112 that a specific banner to be served to the terminal 36. If the optional selection step 113 is used with the method 110, the terminal 36 will only request during step 112 that a banner be served to the terminal 36, but the terminal 36 will not specify which banner is to be served to the terminal 36.

Since the designated computer site, information server, or other device should, barring any problems with the computer network 30, always receive the initial request banner signal from the terminal 36 sent during the step 112, the display of the banner on the user's terminal 36 can always be counted and monitored. Instead of returning or serving a banner to the terminal 36, however, the designated computer site, information server, or other device will usually return or send a banner location signal to the terminal 36 during return banner location address step 114 specifying the location address of the banner requested by the terminal 36 (if the optional step 113 is not used) or the banner selected by the designated computer site, information server, or other device (if the optional step 113 is used), to be served to the terminal 36. The signals transmitted during the steps 112 and 114 are very short or small since the signals contain only a small amount of information, particularly when compared to a banner which may contain a large amount of information.

Similar to the process described above for service of the desired page to the terminal 36 during step 76, the terminal 36 first determines if the requested (if the optional step 113 is not used) or the selected (if the optional step 113 is used) banner is already stored in the memory of the terminal 36 during banner storage determination step 92. If the requested or selected banner is, in fact, already stored in the memory of the terminal 36, the terminal 36 will display the banner

during display banner step 94 and the process is over. If the requested or selected banner is not already stored in the memory of the terminal 36, the terminal 36 will generate and send a second banner request signal during send second banner request signal step 116. The second banner request signal sent during the step 116 is essentially the same as the signal sent during the step 96 of the method 72 and, therefore, contains the address of the location of the requested or selected banner so the computer network 30 can properly locate the requested or selected banner.

Since the terminal 36 is connected to the proxy server 50, in a similar manner as described above in relation to steps 82, 84, 86, once the proxy server 50 receives the second banner request signal from the terminal 36, the proxy server 50 will determine whether or not the selected banner is already stored in the memory of the proxy server 50 during banner storage determination step 98. If the selected banner is already stored in the memory of the proxy server 50, the proxy server 50 will transmit the banner directly to the terminal 36 for display by the terminal 36 during serve banner step 100. The terminal 36 may also store the banner in its own memory during the serve banner step 100. If the requested or selected banner is not already stored in the proxy server 50, the proxy server will send the second banner request signal to the location of the banner on the computer network 30 during the send second banner request signal step 118 in a similar manner to the send banner request signal step 102 in the method 72. The device on which the requested or selected banner is stored will then download and serve the banner to the proxy server 50 and the terminal 36 during the serve banner step 104 for display by the terminal 36. Either or both the terminal 36 and the proxy server 50 may store the banner served by the computer site 50 during the serve banner step 104.

When the computer site 46 in the example described above in relation to FIG. 4 is a web site using the HTTP and the HTML protocols, as previously described above, the user selects and accesses the web site 46 by entering the Uniform Resource Locator (URL) address of the desired web site 46 into the terminal 36. The page request signal generated by the terminal 36 during page request step 74 tells the computer network 30 which computer or web site the user wishes to access. As previously discussed above, when the requested page is served to the terminal 36 from the web site 46, it may contain the URL addresses of specific banners to be displayed along with the requested web page, or it may contain the URL addresses in a content general format, i.e., the URL address does not specify exactly which banner is to be served to the terminal 36, only that a banner is to be served to the terminal 36. It should be noted that steps 80, 85, 112, 116, and 118 may also include name resolution of the IP address needed to transmit the signals across the computer network to the designated and desired computer web site or information server and these steps should be construed to include such IP address resolution and the use of the Domain Name System (DNS).

Again using the example of the XYZ Company and the web page 60, the web page 60 served to the terminal 36 or loaded by the terminal 36 during steps 78, 84, or 86 may include general content URL addresses for banners or specific content URL addresses for the specific banners 62, 64, 66. A general content URL address for a banner does not provide the necessary information to determine which banner is to be displayed. Rather a general content URL address for a banner only indicates that a banner is to be displayed and the receiver of the signal generated by the terminal 36 during the step 112 can decide which banner is to be

displayed during the selection step 113. A general content URL address for a banner could be of the form `http://www.bannersite1.com/image;spacedesc=contentsitename`. A server at `www.bannersite1.com` looks to see if the first word after the name of the site is "image" or any other previously designated word which can be distinguished from an existing file name. If the first word after the name of the site is "image," then the URL address is recognized as a generic request or content general request for a banner, which, as a result, does not specify any particular banner. The server then looks for a space descriptor immediately following the text "spacedesc=" which provides a reference to a section of the server in which banners are stored or located and from where a specific banner can be selected to be served to the terminal 36. The space descriptor field in the general content URL address can reference different groups of banners such as, for example, a collection of car advertisements, a collection of detergent advertisements, etc., depending on the web page providing the general content URL address.

A specific content URL address for a banner does contain the necessary information to determine which banner is to be displayed and the location for the banner. As illustrated in the examples above, the specific content URL address for the banner 62 may be of the form `http://www.bannersite1.com/banner1.gif`. The "bannersite1.com" portion of the specific content URL address for the banner 62 indicates which device, for example the information server 54, connected to the computer network contains the banner 62 and the "banner1.gif" portion of the specific content URL address for the banner 62 indicates which file stored on the indicated device constitutes the banner 62 and the physical location of the file.

Preferably, the initial banner request signal generated by the terminal 36 during the step 112 is a general content URL address that merely requests a banner to be displayed on the terminal 36, but does not specify which banner is to be displayed. The recipient of the initial banner request signal can then select which banner is to be displayed on the terminal 36 during the selection step 113, thereby allowing targeting and variation in the banners displayed, and return a specific content URL address to the terminal 36 during the step 114 in the form of a Status HTTP 302 Redirect (temporary) signal to the terminal 36 to tell the terminal 36 where the selected banner to be displayed on the user's terminal 36 is located on the computer network 30, i.e., to provide the terminal 36 with the content specific URL address of the selected banner to be displayed on the user's terminal 36. An HTTP 302 temporary redirect signal does not create an association between the general content URL address signal generated by the terminal 36 during the step 112 and the banner to be displayed on the terminal 36 or the response signal sent to the terminal 36 during the step 114. Therefore, even though the banner displayed on the user's terminal 36 may be cached or stored on the user's terminal 36 or on the proxy server 50, the response sent during the step 114 to the general content URL address signal generated by the terminal 36 during the step 112 is not cached. Therefore, the signal sent by the terminal 36 during the step 112 will not be blocked or otherwise prevented from being transmitted over the computer network 30 by either the terminal 36 or the proxy server 50.

An alternative to using only the HTTP 302 Redirect signal is to use, in addition, standard HTML response header tags. More specifically, every time a server responds to a request for a document or page from a client's browser software, the response from the server can contain one or more response

header lines. Each line of the response header describes a different aspect of the response, including its size, the type of content it is (image, text, etc.), a status code, and one or more tags which affect the changing nature of the document and how proxy servers or terminals should deal with the document.

The method 110 of the present invention can use HTML tags to tell proxy servers and terminals that the response sent during the step 114 is not cachable, even if the actual banner eventually served to the terminal is itself cachable. There are many types of tags that can be used for this purpose. For example, the Expiry tag which specifies the date and time beyond which a cached copy of the response is no longer valid. By setting the Expiry tag to a date in the past, the response sent to the terminal 36 during the step 114 will not be considered valid for any further signals sent by the terminal during later steps 112. Therefore, the response sent to the terminal 36 during a previous step 114 is no longer valid and the signal sent by the terminal 36 during the current step 112 cannot be blocked by the terminal 36 or the proxy server 50. Another tag that could be used is the Last-Modified Tag which specifies the last time the response was modified. By setting the Last-Modified Tag for a response as a date far in the past, the terminal or proxy server may consider the response to be too "stale" to be considered valid. A third tag that could be used is the Cache-Control Tags or the obsolete pragma:no-cache tag which informs a receiver of the response that the response is not be cached or stored in the receiver.

Another option for implementing the method 110 of the present invention using standard HTML and HTTP protocols is to incorporate variable components into the links on a web page or hypertext document such that the variable components are incorporated into the general content URL addresses sent by the terminal during the step 112. For example, referring to the web page 60 in FIG. 2, the hypertext links or URL addresses returned for the banners 62, 64, 66 when the web page 60 is displayed on the user's terminal 36 during steps 78, 84, or 86 can contain a variable component such as, for example, a random number, a time/date stamp, cgi-bin string, or a random page identifier. In this manner, each time the web page 60 is displayed on the terminal 36, the URL addresses for the needed banners 62, 64, 66 will be different. When the terminal 36 sends the initial banner request signal during step 112, the initial banner request signal can incorporate the variable component URL addresses generated when the web page 60 is served or displayed on the terminal 36. Since the variable component URL addresses are, by definition, different every time, the initial banner request signal generated during the step 112 will be different every time, thereby preventing the terminal 36 or the proxy server 50 from blocking the transmission to the computer network 30 of the initial banner request signal generated during the step 112.

Another alternative for implementing the method 110 of the present invention is to use for the general content URL address, an URL address which, though constant, is interpreted by caching proxy servers and/or caching web browsers or terminals to resemble a constantly changing URL address and, as a result, is not cached. More specifically, caching proxy servers exist which will specifically avoid caching content related to any URL address containing the strings "cgi-bin" and "?" which are strings conventionally used in the construction of URL addresses for which responses are dynamically generated and, therefore, are unsuitable for caching. It should be noted that a general content URL address using this techniques such as, for

example, `http://www.bannersite1.com/cgi-bin/image; spacedisc=contensitename?variable`, need not use the `cgi-bin` directory and need not use the variable after the `"?"`. Since these markers exist in the URL address, some caching proxy servers will be led to conclude that the URL address should not be cached.

In order to speed up the process of downloading, transmitting, or serving a specific banner from an information server to the terminal **56**, the content specific URL address of the requested or selected banner sent to the terminal during step **114** can contain the exact Internet Protocol (IP) address of the requested or selected banner. For example, instead of providing the specific content URL address for the banner **62** as `http://www.bannersite1.com/banner1.gif`, the specific content URL address for the banner **62** could be provided as, for example, `http://236.45.78.190/banner1.gif`, thereby removing any need to use the Domain Name System (DNS) to convert the alphanumeric address "www.bannersite1.com" of the information server to its exact IP address. The use of content general and content specific URL addresses and IP addressing is well known to people of ordinary skill in the art and need not be explained in any further detail for purposes of the present invention.

When the method **110** is to be used specifically to count the number of times a banner is displayed on a terminal, it has been determined that the best mode for practicing the method **110** is achieved by including or incorporating a HTTP 302 redirect signal in the signal sent to the terminal **36** during the step **114** and including or incorporating "cgi-bin" and "?" strings in the signal sent from the terminal **36** during the step **112**. Some software browsers used on a terminal, particularly the browsers currently developed and marketed by the Microsoft Corporation, can block or terminate the signal generated by a terminal during the step **112** if the banner desired by the terminal is already stored on the terminal, even if an HTTP 302 redirect signal was used during a previous step **114** prior to the banner being stored on the terminal, such that the terminal does not transmit or send the signal during the step **112**. In such cases, the banner is displayed directly on the terminal **36** in much the same way as during the step **78** in the prior art method **72** previously discussed above.

As a result of the blocking of the signal created by the terminal during the step **112** by the terminal **112**, the display of the banner on the terminal is not, and cannot, be counted by other devices, such as an information server or ad server, connected to the computer network which would normally receive the signal sent by the terminal during the step **112** and could count the display of the banner on the terminal. As a result of standard HTML and HTTP protocols, the use of "cgi-bin" and "?" strings in the signal sent by the terminal during the step **112** prevents the terminal from blocking the signal sent during the step **112**. Therefore, by using a combination of the HTTP 302 redirect signal during the step **114** and the "cgi-bin" and "?" strings during the step **112**, an accurate count of the displays of a banner on a terminal will be made.

The method **110** of the present invention has particular application to the advertising industry, as will now be discussed in more detail. While the previous discussions in regard to the prior art method **72** and the method **110** of the present invention have indicated that the banner information can be located on either the computer or web sites connected to a computer network or information servers connected to the computer network, the conventional practice in the advertising business is to have all of the banners located on one or more information or ad servers, such as the infor-

mation servers **54**, **56**, **58**. As previously discussed above, advertising agencies create the banners and then arrange or contract to have the banners be associated with web pages or web sites such that when users access the web sites and the web pages are displayed on the user's terminal, the banners are also displayed on the user's terminal. While the advertisements can be stored on the computer or web sites connected to the computer network, it is typically more convenient for the advertisements to be centrally stored on an information or ad server, particularly if the advertisements change or the advertisers want to target specific advertising banners to specific users. Therefore, when a web page requested by the user is served to the user's terminal and the web page contains advertising banners, the web page will often include the address information for the advertising banner to be displayed in conjunction with the requested web page so that the terminal can request the serving of the advertising banners. By keeping the advertising banners centrally located in an information server, the advertiser can keep each advertising banner's address information included in the web page constant while changing the actual advertising banner associated with the banner address information. In addition, the generation of content general URL addresses during the step **112**, the selection of banners to be displayed by a central or primary information server during optional step **113**, and the return of content specific URL addresses during the step **114** allow the advertiser to rotate and change the advertising banners displayed to users. Furthermore, if the device receiving the initial banner request signal generated by a user's terminal during step **112** has any demographic or other information about the user, the use of content general URL addresses and content specific URL addresses in the method **110** allows the device sending the banner location signal during step **114** to select an advertising banner targeted to the particular user during the step **113**, thereby increasing the appeal and success of the advertising banner. In contrast, the prior art method **72** previously discussed above does not utilize content specific and content general URL addressing. Nor does the prior art method allow for the selection or targeting of banners to be made by an information server.

The prior art method **72** also does not allow each display of the banners associated with a page to be counted, while the method **110** of the present invention specifically allows for each such display of a banner to be counted and monitored. More specifically, allowing the user's terminal or proxy server connected to the user's terminal to terminate or block a banner request from the user's terminal (created during step **90**) when the banner is already stored in either the user's terminal or the proxy server connected to the user's terminal in the prior art method **72** prevents accurate banner display counts to be made. In contrast, the method **110** of the present invention specifically allows each banner display to be counted by preventing the user's terminal or the proxy server connected to the user's terminal from terminating or blocking the initial banner request signal (created during step **112**) from reaching the information or ad server in which the desired banner is stored or which is controlling the selection of the banner to be served to the terminal.

In addition to the advantage of the method **110** described above, a significant feature of the method **110** of the present invention is that it does not significantly impact the operation or efficiency of the computer network **30**. While the initial banner request signal created by the terminal during the step **112** and the banner location signal generated during the step **114** are additional signals created in the method **110**

that are not created in the prior art method 72, thereby creating additional data traffic and overhead on the computer network 30, the initial banner request signal and the banner location signal are both extremely small, often comprising no more than a single packet or one-hundred to two-hundred bytes. Therefore, the overhead created by the additional banner signal during the step 112 and the banner location signal during step 114 is negligible. More importantly, since the method 110 still allows the web pages and the banner information to be cached or stored in the terminals and proxy servers, there is no unnecessary retransmission of the web pages or banners from the computer or web sites or the information or ad servers to the terminals which would significantly increase the data traffic and overhead on the computer network 30.

In a second embodiment of the method 110 of the present invention, multiple information servers storing the banner information used in conjunction with the displays of web pages on user terminals are connected to the computer network. Using mirror information servers allows for banners to be distributed faster to user terminals and increases the reliability of the method 110. For example, the computer network 30 illustrated in FIG. 1 includes a primary information server 54 and mirror information servers 56, 58 which preferably contain a duplicate of the banners stored on the primary information server 54. When the terminal 36 creates and sends the initial banner request signal during the step 112, the initial banner request signal is preferably configured so that it sent to and received by the primary ad or information server 54 which in turn creates and sends the address location information of a selected banner to the terminal 36 during the step 114. The selected banner is preferably stored at the primary information server 54 and at also the mirror servers 56, 58. The address location information for the banner sent by the primary information server 54 to the terminal during the step 114 is preferably includes the address location for the banner at the information server best suited to handle a transmittal of the banner to the terminal 36 or includes other information with which the terminal 36 can determine the best suited information server to serve the banner. Typically, the information server best suited to handle the serving or transmittal of a banner to the terminal 36 will be the information server that can download or serve the banner to the terminal 36 in the shortest period of time. Other selection criteria can be used, however, in determining which information server is best suited to download or serve a banner to a terminal, including the network topological distance between the terminal 36 and the information servers, the geographical distance between the terminal 36 and the information servers, the bandwidth of the information servers, or the round trip times for a message between the terminal 36 and the information servers. The use of a primary information server and mirror information servers allows all of the intelligence, databases, banner display counting processes, etc. for operating the method 110 of the present invention to be stored and operated in a single location, i.e., the primary information server, while allowing mirror information servers to be little more than network accessible memory devices or servers on which the banners are stored. Many Internet Service Providers (ISPs) and other network service providers connected to computer networks will provide memory space and will store documents and other files for access and retrieval from the computer network for relatively low cost and such storage capabilities are easy to implement and maintain.

As a further example, suppose that the user at the terminal 36 sends an initial banner request signal to the primary

information server 54 during the step 112 and the primary information server selects a banner to be served to the during step 113. If desired, the primary information server 54 can update the count information for the particular banner selected to be displayed on the user's terminal 36. The primary information server 54 may determine that the mirror information server 56 is best suited for serving the selected banner to the terminal 36 since the mirror information server 56 can serve the selected banner to the terminal 36 in the shortest period of time. Alternatively, the primary information server 54 may determine that either it, the mirror information server 58, or some other information server (not shown) connected to the computer network 30 can serve the selected banner to the terminal 36 in the shortest period of time. The information servers 54, 56, 58 may themselves be separated geographically or topologically such that every terminal connected to the computer network 30 has an optimal information server from which banners can be served, even if the terminals are scattered across a wide geographical or topological area. Therefore, for example, the terminal 36 may be optimally served by the mirror information server 56 while the terminal 32 may be optimally served by the primary information server 54 and the terminal 44 is optimally served by the mirror information server 58. When the primary information server 54 has determined which information server is best suited to handle the serving of the selected banner to the terminal 36, the primary information server 54 will return the banner location address for the selected banner at the selected information server to the terminal 36 during the return banner location address step 114. The terminal 36 can then request that the selected banner be served from the selected information server during the steps 98, 100, 104, 116, and 118 for display at the terminal 36.

As previously discussed above, the selection of which mirror information server is the best suited for serving a particular banner to a particular terminal can be made a variety of ways. The criteria to be considered can include precision, i.e., the accuracy of the determination of which information server is best suited to serve a particular banner to a particular terminal, the ease of implementation, and the time required for the primary information server to make the determination of which information server is best suited to serve a particular banner to a particular terminal. The decision can be made by either the primary information server or by some other method.

As one example implementation of the decision criteria implemented in a primary information server, a table or matrix can be stored and maintained at the primary information server 54 which showing the relationship between each information server 54, 56, 58 and the particular terminal. The matrix preferably contains the round trip times for messages sent back and forth between each information server and the terminal. The information in the matrix can be updated continuously or periodically as desired. This information server determination method has several advantages. First, with such a matrix stored at the primary information server, the primary information server can quickly and accurately determine which information server is best suited to serve a particular banner to a particular terminal. Also, the time for the primary information server to make a decision is very fast and does not require additional searches of the computer network 30. Furthermore, the primary information server will know exactly which information server served each and every banner to every terminal on the computer network, which can be very valuable for evaluating the efficiency of the method 110.

This information server determination method described above does, however, also have several disadvantages. First, a significant effort is needed to generate the matrix and the information stored in the matrix, particularly if the computer network is quite large. More specifically, this method requires that monitoring software and/or hardware be operating at each information server to measure the round trip times between the information servers and the terminals. In addition, the matrix at the primary information server will need to be updated with the information created by the monitoring software and hardware at the mirror information servers so that accuracy of the matrix is maintained. Since the computer network may be continuously changing or evolving as new devices and networks are connected or disconnected from the computer network, and portions of the computer network may become temporarily disabled or offline, the overhead of monitoring the round trip times can be significant. The ability to create a matrix with the round trip times between all of the information servers and all of the terminals may take too long to develop, particularly if there is a significant number of terminals that do not ever request a banner stored on the information servers. This problem can be reduced by assuming that the round trip time between an information server and a particular terminal is the same, or at least approximately the same as, for example, other terminals connected to the same proxy server, the same as other terminals connected to the same sub-network, or the same as other terminals in a /24 network (a set of 256 contiguous IP addresses).

Another method in which the information server is best suited for serving a particular banner to a particular server uses and takes advantage of the Domain Name System (DNS) already being implemented on the Internet. As previously discussed above, DNS is a system for resolving or determining the thirty-two bit Internet Protocol (IP) addresses for each host computer or network device on the computer network. Every time a signal is generated by terminal or other device connected to the computer network requesting access to, or communication with, another device on the computer network, the IP address for the desired device must be determined if the signal does not already contain the IP address.

The DNS process is very complex and so a complete description of it is beyond the purview necessary for a complete understanding of the present invention. In addition, the DNS process is well known to people of ordinary skill in this art. For purposes of a general explanation of how the DNS process can be used for selection of the information server to serve a banner to a particular terminal, the DNS process uses name servers or resolvers located in the computer network to determine the IP addresses. The name servers maintain listings of each computer or device in the computer network and their IP addresses. If a particular name server does not know a specific IP address when it is queried for the IP address, the name server can forward the query to another name server. Once the correct IP address is determined, it is passed along the reverse path to the terminal and is stored on all name servers who received the query and forwarded the query along.

With the present invention, each information server **54**, **56**, **58** operates a name server. Furthermore, each name server is configured to respond to a DNS request with the IP address of the information server containing the name server. When the banner location signal is returned to the terminal **36** during the step **114** from the primary information server **54**, the banner location signal contains a refer-

ence or general URL address of the banner to be served to the terminal, but not the specific IP address. The terminal **36** then initiates a DNS name resolving process prior to step **116** to determine the information server from which to serve the desired banner. Upon receiving the name resolving request from the terminal **36** or its nearby DNS name server, over the course of several transactions, each of the name server in each information servers returns an IP address to the terminal containing the IP address of the information server in which the name server is located. That is, name server in the information server **56** returns the IP address of the information server **56**, while the name server in the information server **58** returns the IP address of the information server **58**, etc. All of the IP addresses becomes stored in the DNS name server closest topologically to the terminal **36** since that DNS name server would have been the first name server to receive the name resolution request from the terminal **36**. The DNS name server keeps a list of all of the IP addresses for all of the information servers and the round trip times for communications between the DNS name server and the name servers located at the information servers. The round trip times are initially set to zero. When the DNS name server gets a request from the terminal **36**, it selects the information server having the shortest round trip time and provides the terminal **36** with the IP address of the selected information server. Since initially all of the round trip times are set to zero (0), the DNS server will randomly select one IP address and return it to the terminal **36**. The DNS name server will then monitor the round trip time between DNS server and the information server and update DNS name server's round trip time list for the particular information server's IP address returned to the terminal **36**. The next time the terminal **36** requests name resolution from the DNS server, the DNS name server will return the IP address of a different information server since the round trip time of the first information server will no longer be zero (0). After this process is implemented at least as many times for each terminal or each specified group or domain of terminals as there are information servers, the best information server for serving banners to the terminals or groups or domains of terminals will be determined and the appropriate IP addresses will be returned to the terminal requesting the DNS process. The standard DNS process includes ways for insuring that the route trip times are updated so that particular terminals are not locked into always receiving banners from particular information servers if other information servers become better suited for serving banners to the particular terminals.

This second information server determination method described above has several advantages. Unlike the first method described above, this method takes advantage of the already existing DNS process and requires no special monitoring or sniffing software or hardware to be installed at the information servers. Also the second method does not require a matrix to be generated and stored in the primary information server or updates to a matrix to be made. In comparison, the operation of a name server at each mirror site is simple to implement and operate. Therefore, in contrast to the first method, the second method is easy and relatively inexpensive to implement. Unfortunately, in contrast to the first method, the second system may be less precise and take longer to implement since a DNS search or rotation process will have to be implemented each time a banner is to be served to a terminal. In addition, until the round trip times for each information server are determined, the second method may produce less than optimal results. Furthermore, updating of the round trip time information

may require using an information server other than the optimal information server to serve a particular banner to a particular terminal. Finally, the shortest round trip time between the DNS name server and the name servers at the information servers may not be an accurate reflection of the round trip times between the terminal and the information servers, particularly if a given user's DNS name server is topologically distant from the terminal. As a result, the information server selected by the DNS name server may not always have the shortest round trip time to the terminal.

Other methods for determining which information server is best suited to serve a particular banner to a particular terminal include looking at the information, if any, about the terminal received in the initial banner request signal generated during step 112. The information might include things such as the country code or the network code in which or on which the terminal resides. In addition, the information might include information about how the initial banner request signal was routed from the terminal to the primary information server, thereby giving an indication of the topological location of the terminal in the computer network. The primary information server can then use this information dynamically or in conjunction with a matrix look-up process to determine which information server to select to serve the selected banner to the terminal requesting a banner.

Another important benefit of mirroring is that it allows for redundancy and back-up if one or more of the information servers connected to the computer network 30 goes offline or becomes otherwise inaccessible or incapable of serving banners to terminals. For example, in the preferred method, the initial banner request signal is preferably sent by a terminal to the primary information server 54 during the send initial banner request signal step 112, thereby allowing the primary information server 54 to be the centralized source of intelligence and the centralized source of banner display monitoring and counting. If however, the primary information server 54 becomes disabled or goes offline for any reason, one of the mirror information servers 56, 58 can temporarily or permanently become the primary information server for the computer network 30, thereby allowing the delivery of banners to terminals to continue. Preferably, the switch from the disabled primary information server 54 to the back-up information server 56 or 58 can take place very quickly such that little impact on the delivery of banner information is noticed or even created. It should be noted, however, that the backup primary information server will need to contain all of the centralized intelligence, databases, banner counting and monitoring software, etc. operating on the original primary information server 54 such that the backup primary information server can operate appropriately if the original primary information server 54 becomes disabled or goes offline.

The switch over to the backup primary server can be handled in a variety of ways. For example, once again taking advantage of the Domain Name System (DNS) process and Internet Protocol (IP) addresses, both the primary information server and the backup information server will operate a name resolver or name server such that when the initial banner request signal is generated during the step 112 that does not contain the needed IP address, the IP address for the primary information server is returned to the terminal 36 and stored in all name servers receiving and processing the query for the IP address of the primary server. The backup information server will monitor the primary information server and, in the event that the primary information server goes offline or becomes otherwise disabled, the backup informa-

tion server will shut down or disable the name server at the primary information server. Furthermore, the backup information server will begin returning its IP address instead of the IP address of the primary information server when queries are received. All IP address information stored in name servers has a time-to-live (TTL) value that is set by the name server returning the IP address. When the TTL value expires, the IP address information is no longer stored in the name server and the name server will have to forward any requests it receives for the IP address. Therefore, when either of the name servers in the primary information server or the backup information server returns an IP address for the primary information server, the IP address is set to have a finite TTL value of, for example ten to thirty minutes. In the event of the primary information server going offline, eventually the IP addresses for the primary information server stored in the name servers will expire and queries for the IP address will reach the name server in the backup information server which will then return its IP address instead of the IP address of the primary information server. Thus, within a finite time and selected TTL, all name servers in the computer network that have stored or cached the IP address of the primary information server will have their caches or memory cleared. They will then ask for new addresses and receive the IP addresses of the backup information server in response.

The use of a centralized primary information server along with at least one mirror information server on a computer network provides significant advantages for the delivery of banners containing advertising information to a terminal for display on the terminal. First, advertising banners are in most cases going to be delivered to the terminal requesting the advertising banner in quick and efficient manner since the information server best suited for delivering and serving a banner to a terminal will in most cases be the information server selected by the primary information server to deliver the banner to the terminal. The faster the advertising banner is delivered to a terminal, the more likely the user at the terminal is to look at the advertising banner, particularly if the advertising banner is displayed on the user's terminal for a longer period of time before the user exits the web page or selects a new page. In addition, mirroring of information servers allows for the relatively fault tolerant delivery of advertising banners to users at the terminals, thereby reducing or even eliminating lost opportunities to display advertising banners on terminals when the primary information server becomes disabled or otherwise goes offline. Furthermore, centralizing the intelligence at a primary information or ad server allows the displays of advertising banners to be continuously and accurately monitored, thereby increasing the ability to judge the success or failure of specific advertising banners.

The foregoing description is considered as illustrative only of the principles of the invention. Furthermore, since numerous modifications and changes will readily occur to those skilled in the art, it is not desired to limit the invention to the exact construction and process shown and described above. Accordingly, all suitable modifications and equivalents may be resorted to falling within the scope of the invention as defined by the claims which follow. For example, while the method 110 of the present invention is directed primarily to the accurate counting of banner information displayed with web pages, the method 110 can also be used to provide an accurate count of the number of times specific web pages are displayed on a user's terminal by creating a send initial page request signal step in a similar manner to the send initial banner request step 112 and a

return page address location step in a similar manner to the return banner location step 114 prior to the storage determination step 76. In addition, while the method 110 of the present invention has been described with connections to the computer network 30 being made primarily by terminals, computers, and proxy servers, it should be appreciated that the method 110 will also be suitable for use with other devices connected between the user's terminal and the computer network may exist which can cache or store the web pages or the banner information.

As yet another example of how the method 110 can be modified, if a primary information server receiving the initial banner request signal generated by a terminal during step 112 determines that the primary information server itself is the information server best suited for downloading or serving a selected banner to the terminal, the primary information server may, instead of sending a banner location signal to the terminal during the step 114, simply transmit the selected banner to the terminal directly, thereby eliminating some of the steps in the method 110.

As yet another example of how the method 110 of the present invention can be modified, it is possible to move the steps 112 and 114 to between the steps 92 and 116 in FIG. 4 so that the steps 112 and 114 are no longer performed after step 88 and before step 92. The steps 112 and 114 are instead implemented after the step 92 and before the step 116 if the answer in step 92 is "no". In this embodiment, web pages and banners that are stored in a user's terminal are automatically reloaded and displayed on the user's terminal without generating additional signals on the computer network. Therefore, if a user "backs" through a page, i.e., the user moves through a series of pages, each of which are displayed on the user's terminal and stored in the terminal's memory along with the page's associated banners, and then decides to review or redisplay some of the pages (such as by using the "back" function of the browser software operating on the user's terminal), no initial banner request signal is generated during the step 112 since the steps 88, 92, 94 will be followed in sequence. While this embodiment of the method 110 of the present invention does not allow the redisplay of the banners on the same terminal (and presumably to the same user) to be counted or monitored, it still allows the redisplay of banners stored in the proxy server, but which are requested to be displayed on different terminals (and presumably to different users), to be counted and monitored.

While the method 110 of the present invention has been discussed in detail primarily with the counting, monitoring, and targeting of advertising or other content over computer networks, the method 110 can also be used for the counting, monitoring, or targeting of content or banners over local area networks, e-mail networks, and non-computer networks such as switched-network cable television. In addition, the method 110 can easily be implemented to monitor levels of content sophistication, content language, content type, content levels of summarization, etc. when different content options are selectable by a user or terminal.

It should also be noted that, while the terms information server, computer site, web site, server, media property have been used to describe the method 110 of the present invention, the terms have been used only to help clarify different portions of the method 110. Thus, an information server could also function as a computer site, a computer site could also function as an information server, and both could be labeled generically as servers. The method 110 of the present invention, therefore, should not be limited by the terminology used to describe different aspects of the present invention.

The embodiments of the invention in which an exclusive property or privilege is claimed are defined as follows:

1. A method for delivering information to a terminal connected to a computer network, wherein information delivered over the computer network from a primary server to the terminal contains references to other information to be delivered to the terminal from the primary server or from one or more other servers connected to the computer network, comprising:

5 serving a first portion of information to the terminal, wherein said first portion of information contains a reference to a second portion of information;

10 sending a first request signal from the terminal to the primary server requesting a location address for said second portion of information from which said second portion of information can be served to the terminal, wherein said first request signal cannot be blocked from reaching said primary server by either the terminal or any intermediary device located topologically between the terminal and the primary server as a result of previous caching or storing of said first portion of information or said second portion of information by the terminal or said intermediary device;

15 sending a location signal from the primary server to the terminal providing said location address of said second portion of information; and

20 determining if said second portion of information is already stored on the terminal and, if said second portion of information is not already stored on the terminal, sending a second request signal from the terminal containing said location address of said second portion of information and requesting that said second portion of information be served to the terminal for display on the terminal, and, if said second portion of information is already stored on the terminal, displaying said second portion of information on the terminal.

2. The method of claim 1, including counting each time said second portion of information is displayed on the terminal.

3. The method of claim 2, wherein said counting each time said second portion of information is displayed on the terminal is performed by the primary server after said primary server receives said first request signal from the terminal.

4. The method of claim 2, wherein said content general request signal includes the string's "cgi-bin" and "?".

5. The method of claim 1, including serving said second portion of information to the terminal if said second portion of information is not already stored on the terminal and updating a counter of displays of said second portion of information on the terminal.

6. The method of claim 1, wherein said first request signal is a content general request signal.

7. The method of claim 6, wherein said second request signal is a content specific request signal.

8. The method of claim 1, wherein said first request signal includes the strings "cgi-bin" and "?".

9. The method of claim 1, wherein said banner location signal includes an HTTP 302 redirect signal.

10. The method of claim 9, wherein said first request signal includes the strings "cgi-bin" and "?".

11. The method of claim 1, wherein said second portion of information includes an advertisement.

12. The method of claim 1, wherein browser software is operating on said terminal and said browser software generates said first request signal and said second request signal.

13. The method of claim 1, wherein said reference to said second portion of information includes at least a portion of a URL.

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14. The method of claim 1, wherein said location signal includes at least a portion of a URL.

15. The method of claim 1, wherein said intermediary device is a proxy server.

16. The method of claim 1, wherein said first portion of information is a world wide web page.

17. A method for distributing a banner over a computer network to a client device, wherein the banner is stored in one or more servers connected to the computer network and referenced in a hypertext document served to the client device, and for counting the number of times a banner is displayed on the client device, comprising:

5 sending a first banner request signal from the device to a server requesting that a banner be served to the client device, wherein said first banner request signal cannot be blocked from reaching said server by either the client device or any intermediary device located topologically between the client device and the server as a result of previous caching or storing of said banner by the client device or said intermediary device;

10 sending a banner location signal from said server to the client device, wherein said banner location signal includes location information for a specified banner to be displayed on the client device;

15 determining if said specified banner is stored on the client device and, if said specified banner is stored on the client device, displaying said specified banner on the client device, and if said specified banner is not stored on the client device, sending a second banner request signal from the client device requesting that said specified banner be served to the client device for display on the client device; and

20 counting each display of said specified banner on the client device.

18. The method of claim 17, including storing said specified banner in the client device after said specified banner is served to the client device.

19. The method of claim 17, wherein said first banner request signal is a content general request signal.

20. The method of claim 19, wherein said second banner request signal is a content specific request signal.

21. The method of claim 17, wherein said first banner request signal includes the strings "cgi-bin" and "?".

22. The method of claim 17, wherein said banner location signal includes an HTTP 302 redirect signal.

23. The method of claim 13, wherein said banner includes an advertisement.

24. The method of claim 17, wherein said counting each display of said specified banner on the client device is done by said server.

25. The method of claim 24, wherein said counting each display of said specified banner on the client device is done by said server after said server receives said first banner request signal.

26. The method of claim 17, wherein browser software is operating on said client device and said browser software generates said first banner request signal and said second banner request signal.

27. The method of claim 17, wherein said banner location signal includes at least a portion of a URL.

28. The method of claim 17, wherein said first banner request signal includes at least a portion of a URL.

29. The method of claim 17, wherein said intermediary device is a proxy server.

30. A method for counting the number of times a banner is displayed on a device, wherein the banner is referenced in a document served to the device, the banner is stored in one

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or more servers connected to the computer network, and the device is connected to the computer network via an intermediary server, comprising:

5 sending a first banner request signal from the device to a first server requesting that a banner be served to the device, wherein said first banner request signal cannot be blocked from reaching said first server by either the device or the intermediary server as a result of previous caching or storing of said banner by the device or the intermediary server;

10 sending a banner location signal from said first server to the device, wherein said banner location signal includes location information for a specified banner stored on a second server;

15 determining if said specified banner is stored on the device and, if said specified banner is not stored on the device, then sending a second banner request signal from the device to the intermediary server and determining if said specified banner is stored on the intermediary server, wherein if said specified banner is not stored on the intermediary server, sending said second banner request signal from said intermediary server to said second server requesting that said second server serve said specified banner to the device;

20 displaying said specified banner on the device; and counting the number of times said specified banner is displayed on the device.

31. The method of claim 30, wherein said second server is said first server.

32. The method of claim 25, wherein said first banner request signal includes the strings "cgi-bin" and "?".

33. The method of claim 32, wherein said banner location signal includes an HTTP 302 redirect signal.

34. The method of claim 30, wherein said banner location signal includes an HTTP 302 redirect signal.

35. The method of claim 30, wherein said banner includes advertising information.

36. The method of claim 30, wherein said counting the number of times said specified banner is displayed on the device is performed by said first server.

37. The method of claim 36, wherein said counting the number of times said specified banner is displayed on the device is performed by said first server after said first server receives said first banner request signal sent by the device.

38. The method of claim 30, wherein the intermediary server is a proxy server.

39. A method for serving a banner to a client device, wherein a primary server serves a HTML document to the client device and the HTML document contains an initial URL associated or pointing to a banner to be served to the client device in order to complete rendering of the HTML document on the client device, comprising:

50 causing a first TCP/IP compliant request for the banner containing at least a portion of the initial URL, to be sent from the client device to the primary server without allowing said first TCP/IP compliant request to be blocked from being received by the primary server; serving a signal from the primary server to the client device that includes a second URL associated with the banner's location;

60 determining if the banner is stored on the client device and, if the banner is stored on the client device, rendering the banner on the client device, and if the banner is not stored on the client device, causing a second TCP/IP compliant request to be sent from the client device requesting that the banner be served to the client device; and

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counting at least one rendering of the banner on the client device.

40. The method of claim 39, wherein said first TCP/IP compliant request includes the strings "cgi-bin" and "?".

41. The method of claim 39, wherein said signal sent from said primary server to said client device includes an HTTP 302 redirect command.

42. The method of claim 39, wherein said first TCP/IP compliant request cannot be blocked from being received by the primary server as a result of previous caching or storing of the banner by the client device or an intermediary device connected to the computer network.

43. The method of claim 42, wherein said intermediary device is located topologically on said computer network between the client device and the primary server.

44. A method for enabling accurate counting of the number of times a banner is displayed on a client device, wherein the banner is referenced in a document served to the client device, the banner is stored in one or more servers connected to the computer network, and the client device is connected to the computer network via an intermediary server, comprising:

causing a first banner request signal to be sent from the client device to a first server requesting that a banner be served to the client device, wherein said first banner request signal cannot be blocked from reaching said first server by either the client device or the intermediary server as a result of previous caching or storing of said banner by the client device or the intermediary server;

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sending a banner location signal from said first server to the client device, wherein said banner location signal includes location information for a specified banner stored on a second server; and

determining if said specified banner is stored on the client device and, if said specified banner is not stored on the client device, causing a second banner request signal to be sent from the client device to the intermediary server and determining if said specified banner is stored on the intermediary server, wherein if said specified banner is not stored on said intermediary server, causing a third banner request signal to be sent from the intermediary server to said second server requesting that said second server serve said specified banner to the client device.

45. The method of claim 44, wherein the intermediary server is a proxy server.

46. The method of claim 44, wherein said third banner request signal is identical to said second banner request signal.

47. The method of claim 44, including counting the number of times said specified banner is displayed on the client device.

48. The method of claim 44, wherein said first banner request signal includes the strings "cgi-bin" and "?".

49. The method of claim 44, wherein said first server and said second server are the same server.

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