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[54] **METHOD OF DELIVERY, TARGETING, AND MEASURING ADVERTISING OVER NETWORKS**

[75] Inventors: **Dwight Allen Merriman**; **Kevin Joseph O'Connor**, both of New York, N.Y.

[73] Assignee: **Double Click, Inc.**, New York, N.Y.

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[52] **U.S. Cl.** **709/219**; 705/14; 707/501
[58] **Field of Search** 395/200.36, 200.33, 395/200.47, 200.48, 200.49; 705/26, 10, 14, 27, 1; 707/10, 501, 513

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Primary Examiner—Dung C. Dinh
Attorney, Agent, or Firm—Allan Jacobson

[57] **ABSTRACT**

Methods and apparatuses for targeting the delivery of advertisements over a network such as the Internet are disclosed. Statistics are compiled on individual users and networks and the use of the advertisements is tracked to permit targeting of the advertisements of individual users. In response to requests from affiliated sites, an advertising server transmits to people accessing the page of a site an appropriate one of the advertisement based upon profiling of users and networks.

50 Claims, 2 Drawing Sheets
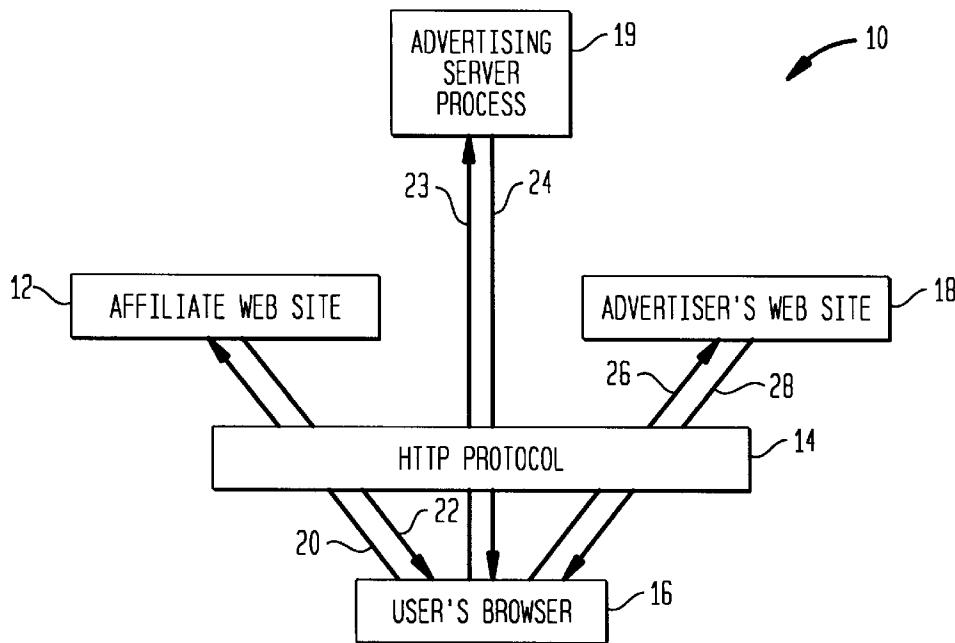
FIG. 1
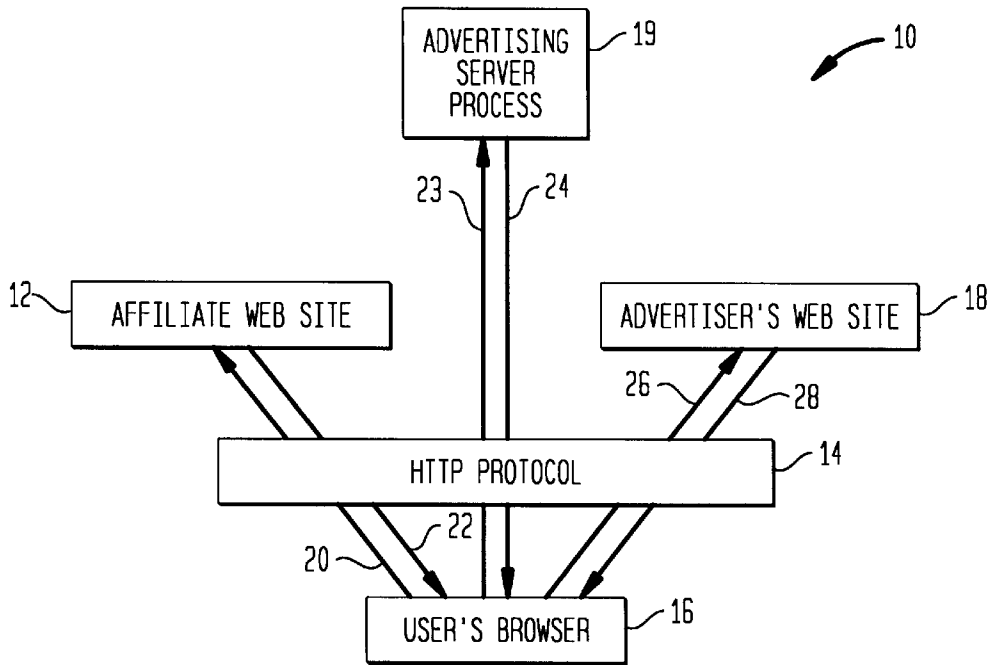
FIG. 2
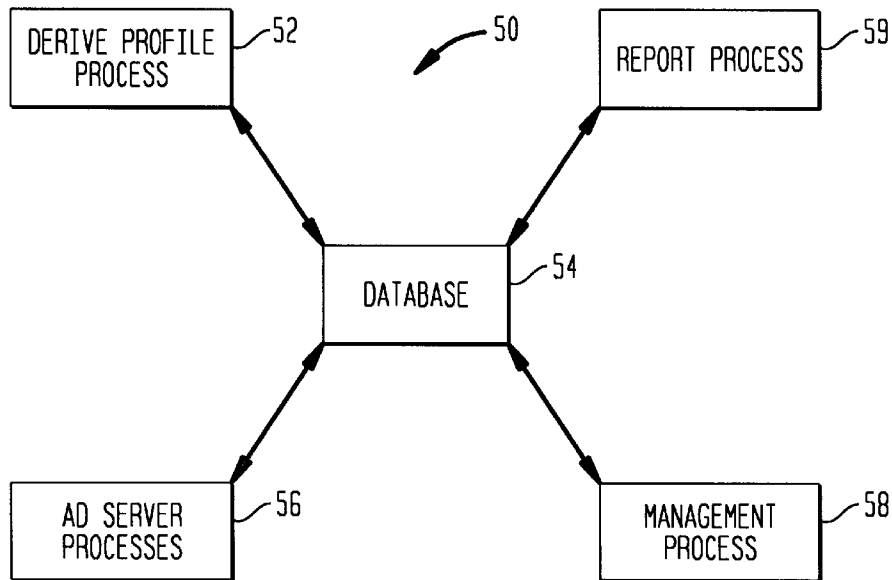
USER ID	IP ADDRESS	DOMAIN TYPE	TIME ZONE	LOCATION	SIC	ADS SEEN	ADS CLICKED ON	PAGES ADS SEEN ON

FIG. 3A

AD ID	START DATE	END DATE	TOTAL VIEWED	SIC's	TARGET NO.	PRIOR CLICKED ON's	PAGES ADS SEEN ON

FIG. 3B

DOMAIN NAME	NETWORK ADDRESS	SIC	GEOGRAPHIC LOCATION	TIME ZONE	NO. OF EMPLOYEES

FIG. 3C

METHOD OF DELIVERY, TARGETING, AND MEASURING ADVERTISING OVER NETWORKS

BACKGROUND OF THE INVENTION

1. Area of the Art

This invention relates to methods of delivery of advertisements and measuring responses to those delivered advertisements and in particular relates to the targeting of advertisements delivered over networks such as the Internet.

2. Description of the Prior Art

In advertising, it is considered highly desirable to target advertisements to the appropriate potential customer base, rather than to broadcast advertisements in general. It has long been known that, for example, advertisements for computers should generally not appear in magazines on gardening and, conversely, advertisements for gardening tools should not appear in magazines on computers. Similarly, advertisers have generally targeted their advertisements on television to programs appropriate for the desired customer base.

It has also long been known that an advertisement that is repeated too often will eventually become ignored by consumers. Therefore, an advertiser typically wishes to eliminate duplication and reach as many individuals in the advertiser's target group as possible.

The recent development of on-line networks, such as America On-Line, Compuserve, and the Internet, has led to "on-line" advertising. For example, on the Internet, often such on-line advertisements will appear on a web page, such as a banner on the top or the bottom of the page. When the user views a web page using a browser such as Internet Explorer 3 or Netscape 3, the banner appears at the appropriate location and the user may then try to find out more information regarding the advertisement by selecting the advertisement (clicking through on that banner) through the use of the mouse or other pointing device. This will cause a HTTP message to be generated by the browser using the information encapsulated in association with the banner to send a request for an object with a given URL address to a different appropriate web site to access, for example, the advertiser's home page.

Nonetheless, such advertising has had, so far, a poor rate of response because it is untargeted advertising. Thus, someone who is totally uninterested in computers other than they happen to be on the Internet, may continually see advertisements for computers. On the other hand, someone who is interested in computers may continually see advertisements for gardening tools when browsing through a particular web site. Thus it would be highly desirable to have a method of targeting the advertising to the appropriate user.

In addition, if a user of such computer networks is continuously exposed to the same advertisement, the response rate to the advertisement will generally decline. Therefore, it is highly desirable to have a system that controls the frequency of exposure of advertisements to particular users. In addition, it is also important for the advertisers to track response to the advertisements and to acquire as much information about those people responding to the advertisements for targeting those same people at later dates.

Therefore, it is a first object of this invention to provide targeting of advertising over networks such as the Internet. It is a second object of this invention to provide control over frequency of exposure to users for advertisements appearing

on web pages over time. It is a third object of the invention to provide the capability to gather information about recipients of the advertisement.

SUMMARY OF THE INVENTION

These and other objects of the invention are achieved by the disclosed system and methods. Information about networks and subnetworks is routinely collected. In addition, information about individual users is also gathered when users select (click on) different advertisements. Also, data is tracked on how often a given advertisement has been displayed, how often a given user has seen a given advertisement, and other information regarding the user and the frequency of the display of the advertisement.

To effect such a capability, an advertising server process is provided as a node on the network. The various advertisements are stored on the network of the server and preferably on the server. When, for example, a user using a web browser accesses a web page that is affiliated with the advertising server process, the affiliated page's encoding includes an embedded reference to an object provided by the advertising server process. That causes the user's browser to contact the advertising server process to provide the advertising image or information that will appear on the accessed web page as displayed by the user's browser. Using the address information and/or other information passed by the browser for the user, including the page being accessed by the user, the advertising server process determines an appropriate advertisement to select for the particular user. In addition, the advertising server process will use information such as the number of times the user has seen various advertisements, how often the advertisement has been seen by any user and the start and stop date for the various advertisements to select which advertisement to transmit to the user's web page for display.

If the user decides to respond to the advertisement selected by the web server by clicking on the advertisement, the advertising server process logs that fact and to have more information about the given user. A derive profile process is used for compiling information on TCP/IP networks for use by the advertising server process. By compiling the information on networks and user selections, the advertising server process is able to compile information that can be used for targeting advertising.

DESCRIPTION OF THE FIGURES

FIG. **1** is diagram for explaining a first embodiment of the invention.

FIG. **2** is a diagram explaining the processes performed in the preferred embodiments.

FIGS. **3A**, **3**B and **3**C are diagrams showing the basic structure of some of the databases kept by the advertising server.

DETAILED DESCRIPTION OF THE INVENTION

The basic architecture of the network **10** comprises at least one affiliate web site **12**, an advertisement (ad) server web site **19** and one or more individual advertiser's web sites **18**. Affiliates are one or more entities that generally for a fee contract with the entity providing the advertisement server permit third party advertisements to be displayed on their web sites. When a user using a browser accesses or "visits" a web site of an affiliate, an advertisement provided by the advertisement server **19** will be superimposed on the display

of the affiliate's web page displayed by the user's browser. Examples of appropriate affiliates include locator services, service providers, and entities that have popular web sites such as museums, movie studios, etc.

The basic operation of the system is as follows in the preferred embodiment. When a user browsing on the Internet accesses an affiliate's web site **12**, the user's browser generates an HTTP message **20** to get the information for the desired web page. The affiliate's web site in response to the message **20** transmits one or more messages back **22** containing the information to be displayed by the user's browser. In addition, an advertising server process **19** will provide additional information comprising one or more objects such as banner advertisements to be displayed with the information provided from the affiliate web site. Normally, the computers supporting the browser, the affiliate web site and the advertising server process will be at entirely different nodes on the Internet. Upon clicking through or otherwise selecting the advertisement object, which may be an image such as an advertisement banner, an icon, or a video or an audio clip, the browser ends up being connected to the advertiser's server or web site **18** for that advertisement object.

In FIG. **1**, a user operates a web browser, such as Netscape or Microsoft Internet Explorer, on a computer or PDA or other Internet capable device **16** to generate through the hypertext transfer protocol (HTTP) **14** a request **20** to any one of preferably a plurality of affiliate web sites **12**. The affiliate web site sends one or more messages back **22** using the same protocol. Those messages **22** preferably contain all of the information available at the particular web site **12** for the requested page to be displayed by the user's browser **16** except for one or more advertising objects such as banner advertisements. These objects preferably do not reside on the affiliate's web server. Instead, the affiliate's web server sends back a link including an IP address for a node running an advertiser server process **19** as well as information about the page on which the advertisement will be displayed. The link by way of example may be a hypertext markup language (HTML) <img> tag, referring to, for example, an inline image such as a banner. The user's browser **16** then transmits a message **23** using the received IP address to access such an object indicated by the HTML tag from the advertisement server **19**. Included in each message **23** typically to the advertising server **19** are: (i) the user's IP address, (ii) a cookie if the browser **16** is cookie enabled and stores cookie information, (iii) a substring key indicating the page in which the advertisement to be provided from the server is to be embedded, and (iv) MIME header information indicating the browser type and version, the operating system of the computer on which the browser is operating and the proxy server type. Upon receiving the request in the message **23**, the advertising server process **19** determines which advertisement or other object to provide to user's browser and transmits the messages **24** containing the object such as a banner advertisement to the user's browser **16** using the HTTP protocol. Preferably contained within the HTTP message is a unique identifier for the advertiser's web page appropriate for the advertisement. That advertisement object is then displayed on the image created by the web user's browser as a composite of the received affiliate's web page plus the object transmitted back by the advertising web server.

As part of the "click through" process, when the user clicks on the banner or other advertising object displayed by the user's browser **16**, the user's browser again transmits a message to the ad server. The ad server notes the address of the computer of the browser (or any other identifier such as a cookie or a digital signature) that generated the message **23** and transmits back the URL of the advertiser's web page so that the user's web browser **16** generates a message **26** to contact the advertiser's web site. **18**. The ad server process **19** also notes that a "click through" for an advertisement has occurred and updates the various databases in the manner described below. In the above scenario for the click through process, the ad server process must remember which advertisement was sent to the user's browser in order to know where to redirect the user's browser.

While in the above embodiments, the user is a computer on an IP network using a browser, the affiliate web sites are web pages of affiliates located somewhere on the Internet and the ad server is a particular node on the Internet, other setups are also possible. The affiliates may be ISP's or may be actual dedicated web servers and the users may be an entire network instead of an individual browsing on a single computer with a browser.

FIG. **2** shows the ad server architecture. The ad server, which may comprise one or more servers uses a database **54** that will be described below and performs reporting processes **59**, management processes **58**, derivation of profile processes **52** and advertisement processes **19**. The derive profile process **52** is how the advertisement server gathers information about individual users or TCP/IP networks for individual users. Advertisements, which may be advertisement banners are stored within the ad server process **19** as part of the advertising server process **19** and are periodically updated and refreshed. The advertisement server process **19** is used for responding to requests from advertisements provided by the user's as described above. The management process **58** is used for updating the various advertisements and overall control of the advertising server process **19** and also permits the advertisers to interface with the database to obtain up to the date reports on the placement of the advertisements. The report process **59** is used for generating online reports about the success rate of the advertisement and statistics on the users that are viewing and clicking through on various advertisements and also updating the counters in the database that store how often an advertisement has been displayed.

The basic database structure is shown in FIG. **3**. For each user identified by the system as shown in FIG. **3A**, a user identification, IP address, domain type, time zone, location of the user, standard industrial code for the user's network, the particular advertisements seen and the number of times each such advertisement is seen, the advertisements that were selected or "clicked on" and the pages on which the various users' advertisements were seen is collected. By using the information such as which advertisements a user has expressed interest in and which pages the user was viewing when the user clicked through along with other information, targeted Internet advertising is possible.

FIG. **3B** shows a database structure for the advertisements. Included in the information for an advertisement are an identifier for the advertisement, the start date for the advertisement being carried, the last date the advertisement is to be carried, the total number of people who have viewed the advertisements, the target or the minimum number of times the advertisement is to be viewed, acceptable viewers by their web site's SICS (Standard Industry Codes), clicked through and pages that the advertisements are seen on.

Also, as noted above, to enhance the process of identifying information about various users, information on domains or networks is also tracked. This information includes the

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