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Zuili

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(54) **METHOD AND SYSTEM TO DETECT INVALID AND FRAUDULENT IMPRESSIONS AND CLICKS IN WEB-BASED ADVERTISEMENT SYSTEMS**

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(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.

This patent is subject to a terminal disclaimer.

(21) Appl. No.: **13/117,929**

(22) Filed: **May 27, 2011**

(65) **Prior Publication Data**

US 2011/0231249 A1 Sep. 22, 2011

Related U.S. Application Data

(63) Continuation of application No. 11/781,716, filed on Jul. 23, 2007, now Pat. No. 7,953,667, which is a continuation-in-part of application No. 10/360,688, filed on Feb. 7, 2003, now Pat. No. 7,249,104.

(51) **Int. Cl.**
G06F 21/00 (2006.01)
(52) **U.S. Cl.** **705/52**
(58) **Field of Classification Search** 705/26–27, 705/52–54, 64–67, 75–78; 713/168–169; 707/705–788; 726/1–5, 26–30
See application file for complete search history.

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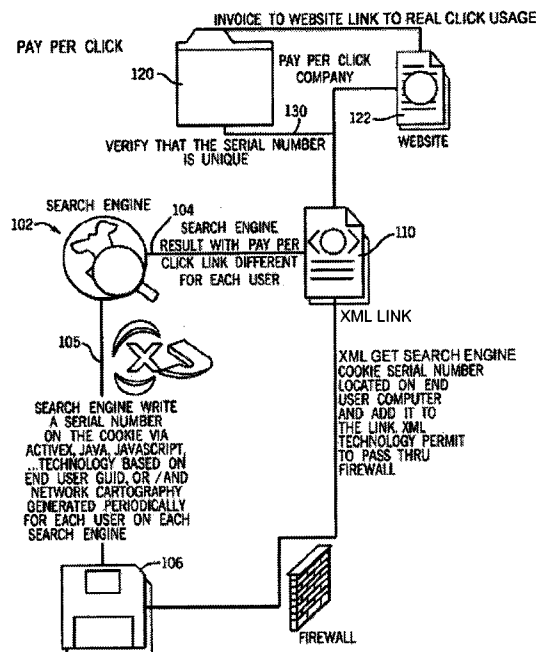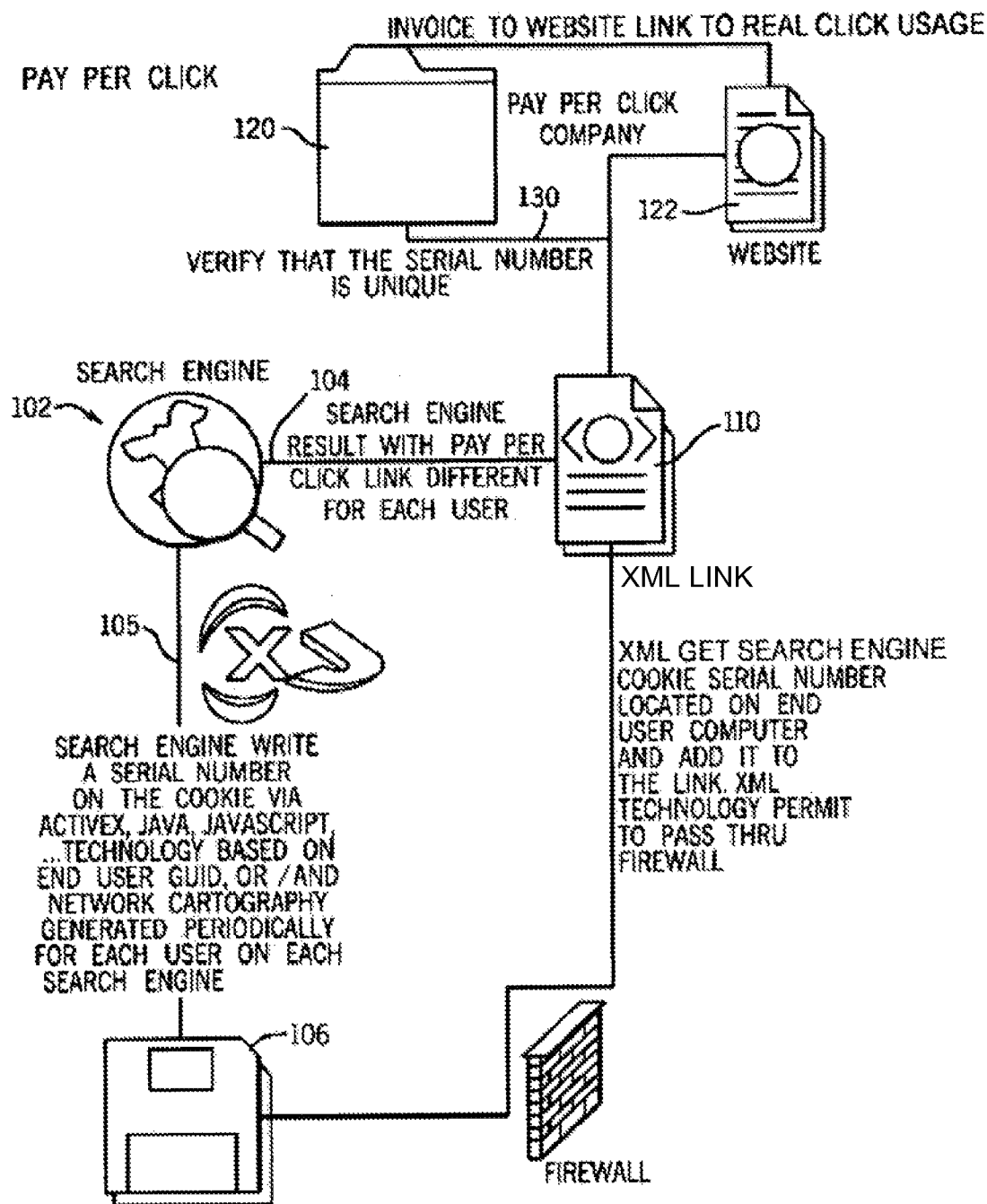
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(57) **ABSTRACT**

This invention improves upon existing pay-per-click arrangements periodically generating a code associated with the search-engine users. This code, preferably in the form of a serial number, is compared to the user of the website, such that by observing a metric like the number of clicks for a given period of time, be it a short time or a longer period, such as a day or a week, the system can automatically determine if certain clicks are illegitimate. This allows the pay-per-click company to more fairly invoice the merchants, thereby preventing fraudulent over use.

20 Claims, 1 Drawing Sheet

INVOICE TO WEBSITE LINK TO REAL CLICK USAGE

PAY PER CLICK

120

PAY PER CLICK COMPANY

130

122

WEBSITE

VERIFY THAT THE SERIAL NUMBER IS UNIQUE

SEARCH ENGINE 104

102

SEARCH ENGINE RESULT WITH PAY PER CLICK LINK DIFFERENT FOR EACH USER

110

XML LINK

105

SEARCH ENGINE WRITE A SERIAL NUMBER ON THE COOKIE VIA ACTIVEX, JAVA, JAVASCRIPT, ...TECHNOLOGY BASED ON END USER GUID, OR /AND NETWORK CARTOGRAPHY GENERATED PERIODICALLY FOR EACH USER ON EACH SEARCH ENGINE

XML GET SEARCH ENGINE COOKIE SERIAL NUMBER LOCATED ON END USER COMPUTER AND ADD IT TO THE LINK, XML TECHNOLOGY PERMIT TO PASS THRU FIREWALL

106

FIREWALL

INVOICE TO WEBSITE LINK TO REAL CLICK USAGE

PAY PER CLICK

120

PAY PER CLICK
COMPANY

130

122

WEBSITE

VERIFY THAT THE SERIAL NUMBER
IS UNIQUE

SEARCH ENGINE

102

104

SEARCH ENGINE
RESULT WITH PAY PER
CLICK LINK DIFFERENT
FOR EACH USER

110

XML LINK

105

XML GET SEARCH ENGINE
COOKIE SERIAL NUMBER
LOCATED ON END
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FIREWALL

SEARCH ENGINE WRITE
A SERIAL NUMBER
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NETWORK CARTOGRAPHY
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106

FIREWALL

METHOD AND SYSTEM TO DETECT INVALID AND FRAUDULENT IMPRESSIONS AND CLICKS IN WEB-BASED ADVERTISEMENT SYSTEMS

CROSS REFERENCE TO RELATED APPLICATION

This application is a continuation application of U.S. patent application Ser. No. 11/781,716, filed Jul. 23, 2007, now U.S. Pat. No. 7,953,667, which is a continuation-in-part application of U.S. patent application Ser. No. 10/360,688, filed Feb. 7, 2003, now U.S. Pat. No. 7,249,104. All of the above mentioned applications are incorporated by reference herein in their entireties.

FIELD OF THE INVENTION

This invention relates generally to network computing of the type which occurs over the Internet, for example, and, more particularly, to a method of protecting the providers of pay-per click services from multiple illegitimate usages.

BACKGROUND OF THE INVENTION

Over the last few years in particular, the capabilities of the Internet have grown dramatically, with the introduction of new protocols (i.e., XML), advanced browsers, electronic commerce capabilities, and other features.

Numerous commercial enterprises are now attempting to somehow profit through this new infrastructure, in many cases by providing services that attach a smaller incremental monetary value to a particular transaction.

One such type of capability is the pay-per-click search engine popularized by Google and other companies. In accordance with such a capability, a user goes to a website, and inputs the name of goods or services that they would like the pay-per-click company to find. Various providers of goods and services register their websites with the company, and these are provided to the user in a list which is prioritized by the level of compensation which the merchant will give the pay-per-click company if the user is routed to their site. For example, using such a system, if a user types in "binoculars," the pay-per-click system might return five potential links, with the most prominent one being associated with that supplier of binoculars which will compensate for a penny or a few cents more than the links presented below.

One problem with existing systems, is that a user may cause an undesirable level of expenditure on the part of the merchant by overclicking on a particular link. In some cases, it has been known that some users have done this simply for the purpose of undermining a particular provider or competitor. Since the existing systems have no way of knowing whether a link through is legitimate or bogus, the provider of the goods/services winds up having to pay the pay-per-click provider excess sums, with the fraudulent perpetrator remaining unreprimanded.

SUMMARY OF THE INVENTION

This invention improves upon existing pay-per-click arrangements periodically generating a code associated with the search-engine users. This code, preferably in the form of a serial number, is compared to the user of the website, such that by observing a metric like the number of clicks for a given period of time, be it a short time or a longer period, such as a day or a week, the system can automatically determine if certain clicks are illegitimate. This allows the pay-per-click company to more fairly invoice the merchants, thereby preventing fraudulent over use.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a diagram which illustrates a per-per-click system incorporating a preferred embodiment of the present invention.

DETAILED DESCRIPTION OF THE INVENTION

Reference is made to FIG. 1 which illustrates a typical configuration associated with a pay-per-click implementation. It is noted that although the diagram includes certain interconnected graphical blocks, these are not taken to mean "hardware" or "software," but may include any combination of hardware/software necessary to implement a particular function. In addition, although lines are drawn between the various components, this is not meant to imply that they are necessarily implemented in close proximity to one another, since in many cases these capabilities will be remote.

The search engine 102 provides a result along path 104 which is indicative of a link associated with different users. Engine 102 may be any existing or yet-to-be-developed system, including findwhat.com, Google Adwords, overture, looksmart.com, kanoodle.com, and so forth.

In addition to the result generated along path 104, according to this invention, the search engine generates a code, preferably in the form of a serial number utilizing a cookie via active X, Java, Javascript, or any other type of technology based upon the end-user's Global Unique Identifier (GUID). In addition, or as an alternative, network cartography may be generated periodically for each user based upon their use of the search engine 102.

Although the encoded serial number is shown being written to a floppy disk 106, again, it will be appreciated by those of skill in the art that any type of storage capability, such as a flash memory, and so forth may alternatively be utilized. The code (e.g., a serial number) generated by the search engine along path 105 is concatenated with the result along path 104 through XML link 110. Given the serial number provided through the cookie, this allows the concatenation to occur through firewalls and other devices which may otherwise block the transmission as unauthorized.

As the pay-per-click company 120, information is received regarding a click to website 122, but at the same time, the serial number is transmitted to the company 120 along path 130. This allows the pay-per-click company 120 to invoice the website 122 only when the serial numbers received. According to the invention, a legitimate serial number may be generated in different ways, including the first use of a different user having a unique IP address, or, if multiple requests are made by the same user, they may be considered legitimate if they are sufficiently spaced apart in time to be indicative of a legitimate as opposed to fraudulent access to the website 122.

What is claimed is:

1. A method for detecting fraudulent activity in a pay-per-click system, comprising: (a) providing a pay-per-click engine on a server side; b) receiving, at said server side, a request from a client; c) generating a unique code on the server side, for identifying said client; d) transmitting said code to said client from the server side; e) transmitting to said client from the server side, in response to said request, one or more links associated with one or more websites associated with one or more merchants; f) generating website informa-

tion regarding a website selected by the client when said client clicks one of said links; g) transmitting said code and said website information together from said client to said server side; h) receiving said code and said website information at the server side, and detecting fraudulent activity by measuring the duration between clicks by said client to said selected website by examining said code and website information.

2. A method for detecting fraudulent activity in a pay-per-click system as in claim **1** further comprising the step of: storing said code at said client.

3. A method for detecting fraudulent activity in a pay-per-click system as in claim **1** further comprising the step of: storing said code in a cookie.

4. A method for detecting fraudulent activity in a pay-per-click system as in claim **3** wherein said storing step is performed using at least one of the following: active, Java, and Javascript.

5. A method for detecting fraudulent activity in a pay-per-click system as in claim **1** further comprising the step of: concatenating said code with at least one of said links to said websites.

6. A method for detecting fraudulent activity in a pay-per-click system as in claim **1** wherein said code is based on a global unique identifier of said client.

7. A method for detecting fraudulent activity in a pay-per-click system as in claim **1** wherein said code is based on a network cartography of said client.

8. A method for detecting fraudulent activity in a pay-per-click system as in claim **1** wherein said code is encoded.

9. A method for detecting fraudulent activity in a pay-per-click system as in claim **1** further comprising the step of: preventing a click-through to at least one of said websites associated with said merchants if fraudulent activity is detected.

10. In an advertising system including a pay-per-click engine on a server side, the pay-per-click engine providing one or more links associated with one or more web pages to a user at a device on a client side, the method for identifying fraud comprising the steps of: generating a code on the server side, the code identifying said device on the client side; sending said code to said device; receiving data from said device, said data including said code and information about one or more selections by the user of at least one of said one or more web pages; determining from said data whether said at least one of said selections of said at least one web page is fraudulent; and examining a duration between a time of one of said selections of said at least one web site and a time of another of said selections of said at least one web site.

11. In an advertising system including a pay-per-click engine on a server side, the pay-per-click engine providing one or more links associated with one or more web pages to a user at a device on a client side, the method for identifying fraud as in claim **10** wherein said code is based on a global unique identifier of said device.

12. In an advertising system including a pay-per-click engine on a server side, the pay-per-click engine providing one or more links associated with one or more web pages to a user at a device on a client side, the method for identifying fraud as in claim **10** wherein said code is based on a network cartography of said client.

13. In an advertising system including a pay-per-click engine on a server side, the pay-per-click engine providing one or more links associated with one or more web pages to a user at a device on a client side, the method for identifying fraud as in claim **10** wherein said code is encoded.

14. A method for detecting fraudulent activity in a pay-per-click system, comprising: (a) providing a pay-per-click engine on a server side; b) receiving, at said server side, a request from a client; c) generating a unique code on the server side, for identifying said client; d) transmitting said code to said client from the server side; e) transmitting to said client from the server side, in response to said request, one or more links associated with one or more websites associated with one or more merchants; f) receiving, on said server side, website information regarding a website selected by the client together with said code, when said client clicks one of said links; g) detecting fraudulent activity by measuring the duration between clicks by said client to said selected website by examining said code and website information.

15. A method for detecting fraudulent activity in a pay-per-click system as in claim **14** further comprising the step of: storing said code at said client.

16. A method for detecting fraudulent activity in a pay-per-click system as in claim **15** wherein said storing step is performed using at least one of the following: active, Java, and Javascript.

17. A method for detecting fraudulent activity in a pay-per-click system as in claim **14** further comprising the step of: storing said code in a cookie.

18. A method for detecting fraudulent activity in a pay-per-click system as in claim **14** further comprising the step of: concatenating said code with at least one of said links to said websites.

19. A method for detecting fraudulent activity in a pay-per-click system as in claim **14** wherein said code is based on a global unique identifier of said client.

20. A method for detecting fraudulent activity in a pay-per-click system as in claim **14** wherein said code is encoded.

* * * * *

CERTIFICATE OF CORRECTION

PATENT NO.   : 8,326,763 B2
APPLICATION NO.   : 13/117929
DATED   : December 4, 2012
INVENTOR(S)   : Patrick Zuili

It is certified that error appears in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

Column 2, line 31, "active X" should be changed to --ActiveX--.

Column 3, line 18, "active" should be changed to --ActiveX--.

Column 4, line 36, "active" should be changed to --ActiveX--.

Signed and Sealed this
Nineteenth Day of February, 2013

Teresa Stanek Rea
Acting Director of the United States Patent and Trademark Office

CERTIFICATE OF CORRECTION

PATENT NO.   : 8,326,763 B2   Page 1 of 1
APPLICATION NO.   : 13/117929
DATED   : December 4, 2012
INVENTOR(S)   : Patrick Zuili

It is certified that error appears in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

In the Claims:

Column 3, line 49, replace "web site" by --web page--.

Column 3, line 50, replace "web site" by --web page--.

Signed and Sealed this
Nineteenth Day of August, 2014

Michelle K. Lee

Michelle K. Lee
Deputy Director of the United States Patent and Trademark Office