(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization
International Bureau

(43) International Publication Date
3 October 2002 (03.10.2002)

PCT

(10) International Publication Number
WO 02/077746 A2

(51) International Patent Classification[7]: G06F

(21) International Application Number: PCT/US01/51317

(22) International Filing Date: 19 October 2001 (19.10.2001)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:

60/242,077	19 October 2000 (19.10.2000)	US
60/242,282	20 October 2000 (20.10.2000)	US

(71) Applicant *(for all designated States except US)*: **MINDARROW SYSTEMS, INC.** [US/US]; 101 Enterprise, Suite 340, Aliso Viejo, CA 92656 (US).

(72) Inventor; and

(75) Inventor/Applicant *(for US only)*: **SOHL, Barry** [US/US]; Mindarrow Systems, Inc., 101 Enterprise, Suite 340, Aliso Viejo, CA 92656 (US).

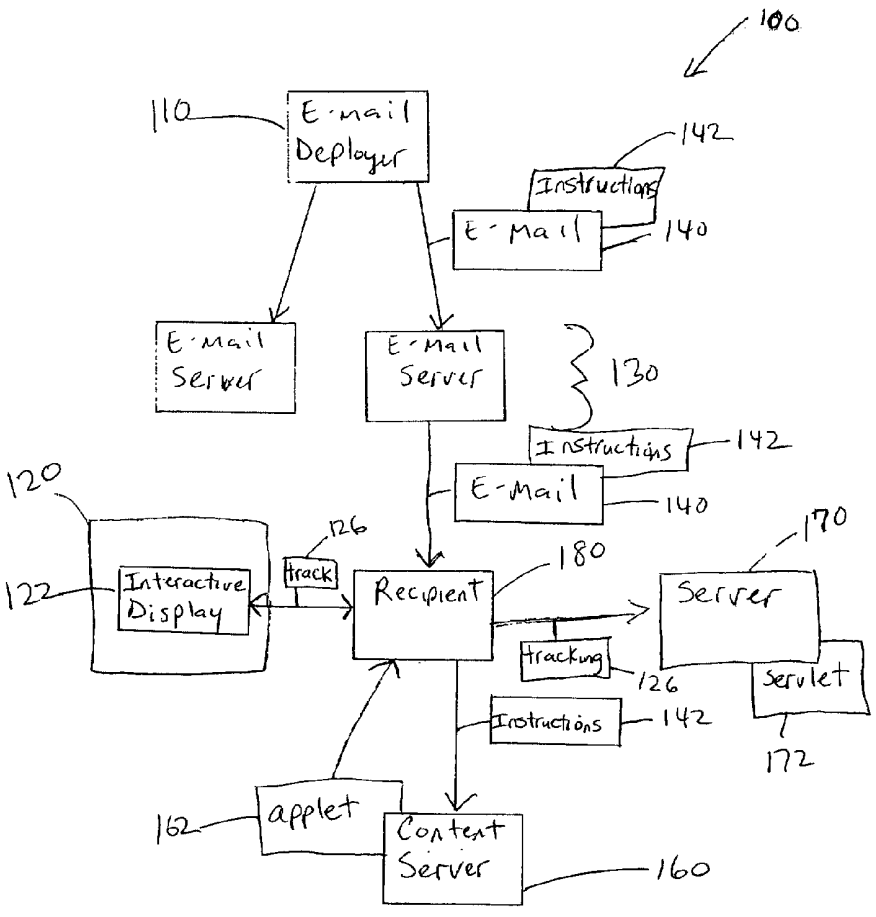
(74) Agent: **FISH, Robert**; Fish & Associates, LLP, Suite 706, 1440 N. Harbor Boulevard, Fullerton, CA 92835 (US).

(81) Designated States *(national)*: AE, AG, AL, AM, AT, AT (utility model), AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, CZ (utility model), DE, DE (utility model), DK, DK (utility model), DM, DZ, EC, EE, EE (utility model), ES, FI, FI (utility model), GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PH, PL, PT, RO, RU, SD, SE, SG, SI, SK, SK (utility model), SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW.

(84) Designated States *(regional)*: ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European

[Continued on next page]

(54) Title: METHOD AND APPARATUS FOR TRACKING INTERACTION



(57) Abstract: An e-mail contains embedded instructions for retrieving content from a content server. The content contains an applet that is invoked to create an interactive display that the recipient interacts with. Tracking information is collected and communicated to a server having a servlet.

WO 02/077746 A2

patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Published:

— *without international search report and to be republished upon receipt of that report*

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

METHOD AND APPARATUS FOR TRACKING INTERACTIONS

This application claims priority to U.S. Serial No. 60/242,282 filed on October 20, 2000 and U.S. Serial No. 60/242,077 filed October 19, 2000 which are incorporated herein by reference.

Field of The Invention

The field of the invention is interaction tracking.

Background of The Invention

The present invention relates to communication networks, and more particularly to communication networks providing electronic mail to a multiplicity of recipients.

A recent development in the field of communications systems is the widespread use of the Internet on which a wide variety of information is available in the form of Web pages. A great advantage of the Internet is that a large segment of the general population has access to the Internet from home. The ubiquitous nature of the Internet has allowed software applications based on Internet communications to replace or enhance many traditional forms of communication. One traditional form of communication which has been enhanced is mail. Electronic mail (email) transmitted via the Internet serves the same purposes of traditional mail while increasing the efficiency of sending and receiving text and graphical information. The efficiency of email has made email the most widely used application on the Internet.

The volume of email messages being sent across the Internet has grown at a dramatic rate. The message volume has grown not only in the number of messages sent but also in the size of each message. Typically, simple plain-text messages can vary in size from less than 1 kilobyte (KB) to 5KB. With the increasing popularity of email newsletters and marketing material, message sizes may be as large as 100-200KB. Because the entire content of such a message resides on the mail server, it may place a burden on the storage and performance capabilities of an Internet Service Provider's (ISP) or private business' network and mail infrastructure. In addition, the end-user may be forced to download the entire message content to their mail client's mass storage device before viewing the message contents. For users with slow network connectivity, this initial wait time may be unacceptable. These users may likely

choose to cancel the download or delete the email before having had the opportunity to view it.

Furthermore, the volume of email sent makes it difficult to track an individual advertising campaign's effectiveness when using email as the advertising medium.

Therefore, a need exists for deployment of email in a manner that does not unduly burden email systems and provides a way to track an email message once it is deployed.

Summary of the Invention

A method of tracking an interaction that takes place between an interactive display and a recipient of an e-mail. The e-mail contains embedded instructions for retrieving content from a content server. The content contains an applet that is invoked to create the interactive display that the recipient interacts with. In a further aspect, the tracking information is communicated to a server having a servlet.

A system for tracking interactions having an e-mail deployer that sends e-mails to an e-mail server, the e-mail having embedded instructions used to retrieve content from a content server. The content from the server comprises an applet that creates an interactive display and tracks interactions between the recipient and the interactive display.

Various objects, features, aspects and advantages of the present invention will become more apparent from the following detailed description of preferred embodiments of the invention, along with the accompanying drawings in which like numerals represent like components.

Brief Description of The Drawings

Fig. 1 is a network diagram of a system of tracking an interaction.

Fig. 2 is a block diagram depicting the steps in a method of tracking an interaction.

Detailed Description

Referring first to **Fig. 1**, a system 100 of tracking an interaction between an e-mail recipient 110 and an interactive display 122 is depicted.

An e-mail deployer 110 is operably coupled to the Internet (not shown). The email deployer is preferably a specialized email server adapted to send large numbers of email messages according to a set of email deployment rules. E-mail deployment rules may be established by an e-mail advertiser (not shown). The email deployer 110 sends e-mail messages to a plurality of email servers 130.

An exemplary e-mail message 140 generally comprises instructions 142 embedded in the e-mail message. "Embedded" as used herein, means included as part of. Thus, instructions may be included as an attachment to an e-mail or may be part of the text of a message. It is further contemplated that the instructions may include executable code including compiled Java language.

An e-mail recipient 180 may retrieve the e-mail using a common e-mail retrieval protocol (*e.g.* POP). The e-mail recipient 180 may be a person, a computer, or a person operating a computer to retrieve the e-mail message 140 along with the embedded instructions 142.

In preferred embodiments, the instructions 142 are used to retrieve an applet 162 from a content server 160. The applet 162 may be programmed in any appropriate language and may comprise Java source code, Java bytecode, and C++, for example. The applet 162 may be in an executable form or may need to be compiled before execution. In any case, the applet 162 is used to create an interactive display 122.

It is contemplated that the interactive display 122 may be an HTML form that is displayed in a window on a recipient's screen 120. The interactive display 122 will preferably comprise at least an advertisement 124, and may alternatively or additionally comprise fields that enable creation of an order for a product and/or service (not shown).

With respect to the tracking information 126, it is contemplated that information may include connection speed (kbps at time of open), timestamp at the moment the email is opened to a resolution of one second, time zone of the recipient, length of time the email is opened, duration of media stream play (audio/video), number of play button clicks, number of pause button clicks, number of stop button clicks, location in the media stream when stopped, number of times the media stream played to completion, initial buffering time of stream,

number of times stream re-buffered, number of forwards, result code for each forward, number of subscribe requests, number of unsubscribe requests, number of clicks on a clickable item (recorded for each clickable item), timestamp of forward, subscribe, unsubscribe, or click, origin of open (text, html, webmail, AOL™ email client type, email client version, operating system type, operating system version, hardware platform (PC/Mac), IP Address, screen width, screen height, email window width, email window height, display color depth setting, Java version, Java VM, whether Java enabled, JavaScript version, and language setting (not available for all opens).

Such tracking information 126 may be communicated to a server 170. The server will preferably have a servlet 172 that interacts with the applet 162 to receive the tracking information. It is contemplated that such tracking information may be used by advertisers (not shown) to judge the effectiveness of an advertising campaign.

In **fig. 2**, a method of tracking an interaction is depicted. The depicted method includes the steps of: an e-mail deployer sending an e-mail message to an e-mail server 210, a recipient using instructions embedded in the e-mail message to retrieve content from a content server 220, invoking an applet embedded in the content to create an interactive display and to collect tracking information related to the recipient's interaction with the interactive display 230, opening a communications link to a server having a servlet 240, and communicating the tracking information to the server 250.

The step of sending an e-mail message 210 may include any appropriate means of sending, but generally includes an e-mail formatted to conform with a mail protocol such as SMTP (simple mail transfer protocol).

The step of the recipient using instructions 220 includes retrieving content from a content server. The content, including an applet, may be transferred to the recipient by any appropriate method of file transfer including FTP and by e-mail protocols including POP and IMAP.

The step of invoking an applet 230 preferably creates an interactive display having an advertisement or an order form for conducting e-commerce. It is contemplated that creation of the interactive display may be in response to instructions comprised in the applet or to

instructions that are accessed by using the applet. In the second instance, instructions that create the interactive display may exist on a distal server that is accessed through use of the applet. "Invoking " as used herein means performing instructions, and invoking an applet may include compiling source code into executable code (*i.e.* bytecode, and ".class" files) and running the executable code.

The step of opening a communications link to a server 240 may be accomplished by the applet or by some other application program. Opening a communication link generally includes establishing a connection with a distal node. The communication link is generally a path, and as such the path may traverse the internet. It is contemplated that the path may be wired, or wireless (*i.e.* blue tooth technology).

The step of communicating the tracking information to the server 250 preferably includes transmitting information over the communication path established in step 240. The information may be formatted to conform with known internet protocols such as HTTP, and FTP. It is further contemplated that information may be communicated by allowing a remote computer to connect to the recipient's computer to retrieve the information.

In a preferred class of embodiements, an email deployer sends an email message to an email server. A recipient uses an email client to make a selection of the email message to be sent from the email server to the email client. The email client interprets the content retrieval instructs embedded in the email message and opens a connection to a content server. The email client, using the instructions embedded in the email content, invokes an applet. The applet creates an interactive display with which the recipient interacts. For example, the interactive display includes advertisements for a product and forms for the recipient to fill out in order to purchase the product. The applet collects information from the recipient and stores the information internally. Upon termination, the applet opens a connection to a servlet and posts the information to the servlet. Alternatively, the applet invokes a servlet to process information during the user interaction with the interactive display.

Thus, specific embodiments and applications of systems and methods for tracking interactions have been disclosed. It should be apparent, however, to those skilled in the art that many more modifications besides those already described are possible without departing from the inventive concepts herein. The inventive subject matter, therefore, is not to be

restricted except in the spirit of the appended claims. Moreover, in interpreting both the specification and the claims, all terms should be interpreted in the broadest possible manner consistent with the context. In particular, the terms "comprises" and "comprising" should be interpreted as referring to elements, components, or steps in a non-exclusive manner, indicating that the referenced elements, components, or steps may be present, or utilized, or combined with other elements, components, or steps that are not expressly referenced.

CLAIMS

What is claimed is:

1. A method of tracking an interaction comprising:
an e-mail deployer sending an e-mail message to an e-mail server;
a recipient using instructions embedded in the e-mail message to retrieve content from a content server; and
invoking an applet embedded in the content to create an interactive display and to collect tracking information related to the recipient's interaction with the interactive display.

2. The method of claim 1, further comprising the applet invoking a servlet and communicating the tracking information to the servlet.

3. The method of claim 1, further comprising the applet opening a communications link to a servlet and communicating the tracking information to the servlet.

4. The method of claim 1, wherein the instructions comprise a link to the content server.

5. The method of claim 1, wherein the instructions comprise a uniform resource locator.

6. The method of claim 1, wherein the applet is programmed substantially in Java language.

7. The method of claim 1, wherein the applet is programmed substantially in Javascript.

8. The method of claim 1, wherein the interactive display comprises an advertisement.

9. The method of claim 8, wherein the interactive display further comprises an input form for ordering a product/service.

10. The method of claim 1, wherein the tracking information comprises at least one of mouse click information, IP address information, length of time open information, and location when interaction stopped information.

11. The method of claim 1, further comprising the e-mail deployer operating according to a set of e-mail deployment rules.

12. A system for tracking interactions comprising:
an e-mail deployer that sends e-mails having embedded instructions to an e-mail server;
a recipient that uses the embedded instructions to retrieve content from a content server; and
an applet, embedded in the content, programmed to create an interactive display and to collect tracking information related to the recipient's interaction with the interactive display.

13. The system for tracking interactions of claim 12, wherein the applet is programmed to open a communications link to a server running a servlet.

14. The system of tracking interactions of claim 13, wherein the tracking information is communicated to the server running the servlet.

15. The system of claim 12, wherein the embedded instructions open a link to the content server.

16. The system of claim 12, wherein the applet is programmed substantially in Java language.

17. The system of claim 12, wherein the interactive display comprises an advertisement having a hypertext link to an input form for ordering a product/service.

18. The system of claim 12, wherein the e-mail deployer is programmed to operate at least partially according e-mail deployment rules established by an advertiser.

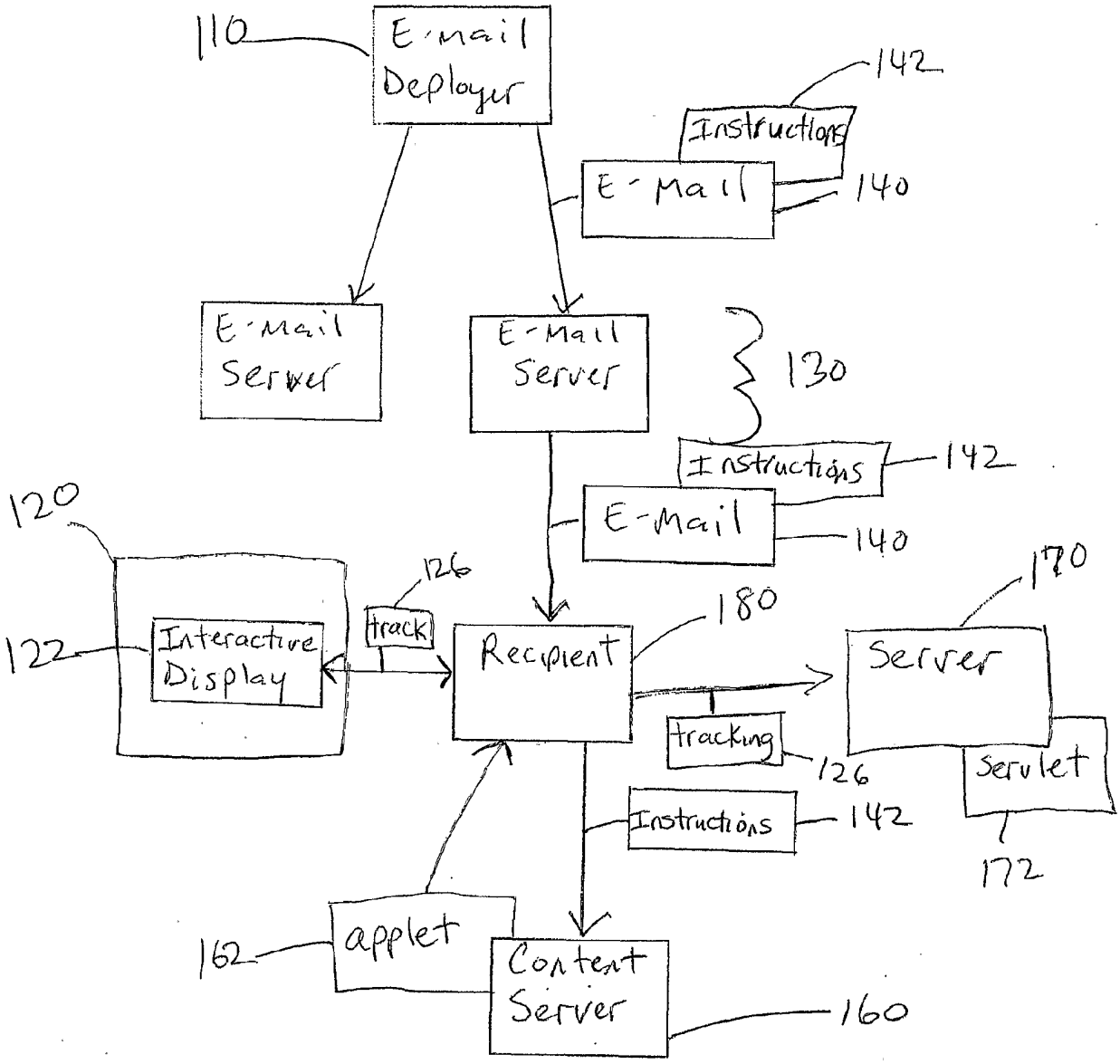

110
E-mail Deployer
142
Instructions
E-Mail
140
E-Mail Server
E-Mail Server
130
Instructions
142
E-Mail
140
120
126
Track
122
Interactive Display
180
Recipient
170
Server
Tracking
126
Servlet
Instructions
142
172
applet
162
Content Server
160

Fig. 1

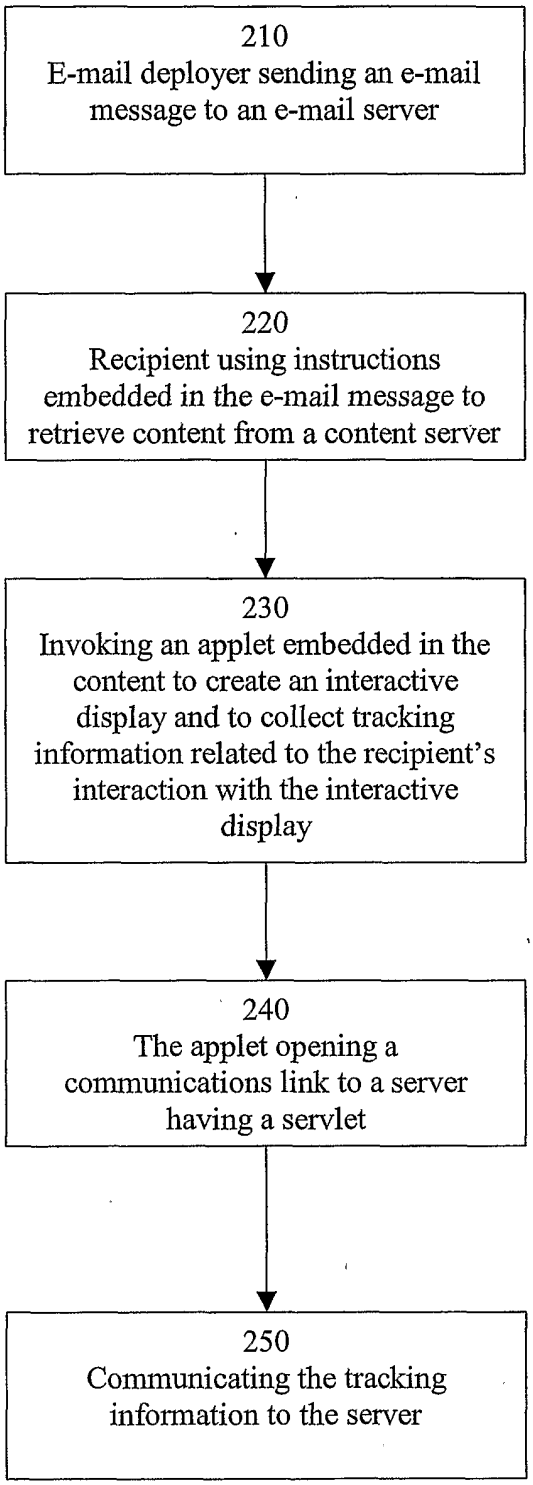

210
E-mail deployer sending an e-mail message to an e-mail server
220
Recipient using instructions embedded in the e-mail message to retrieve content from a content server
230
Invoking an applet embedded in the content to create an interactive display and to collect tracking information related to the recipient's interaction with the interactive display
240
The applet opening a communications link to a server having a servlet
250
Communicating the tracking information to the server

Fig. 2