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(54) METHOD, SYSTEM, AND COMPUTER PROGRAM PRODUCT FOR PROPAGATING REMOTELY CONFIGURABLE POSTERS OF HOST SITE CONTENT

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**Related U.S. Application Data**

(63) Continuation of application No. 09/551,746, filed on Apr. 18, 2000, now abandoned.

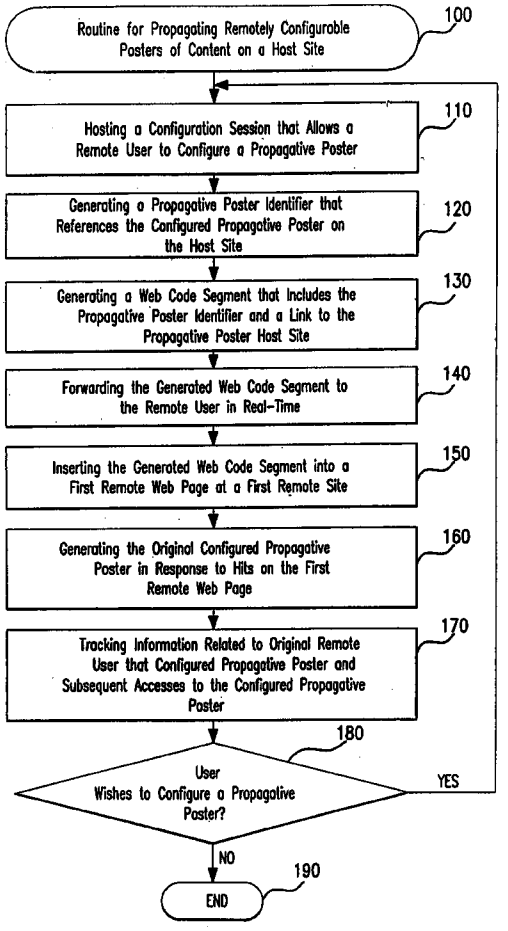
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(51) **Int. Cl.**
*G06F 17/00* (2006.01)
*G06F 15/16* (2006.01)

(52) **U.S. Cl.** ..... **715/513**; 715/501.1; 715/530; 709/217

(57) **ABSTRACT**

A method, system, and computer program product for propagating access to host site content to remote users over the World Wide Web are provided. Access to host site content is distributed more widely and easily through propagative posters. Remote users can access a host site and configure propagative posters in real-time. A Web code segment corresponding to a configured propagative poster is then generated and sent to the remote user in real-time. A remote user can easily cut and paste the generated Web code segment into the user's remote Web page. Alternatively, the generated Web code segment can be automatically inserted into the user's remote Web page if access rights to write on the Web page are available. In one embodiment, a propagation poster manager is provided for managing propagation posters of host site content to remote users over the World Wide Web.



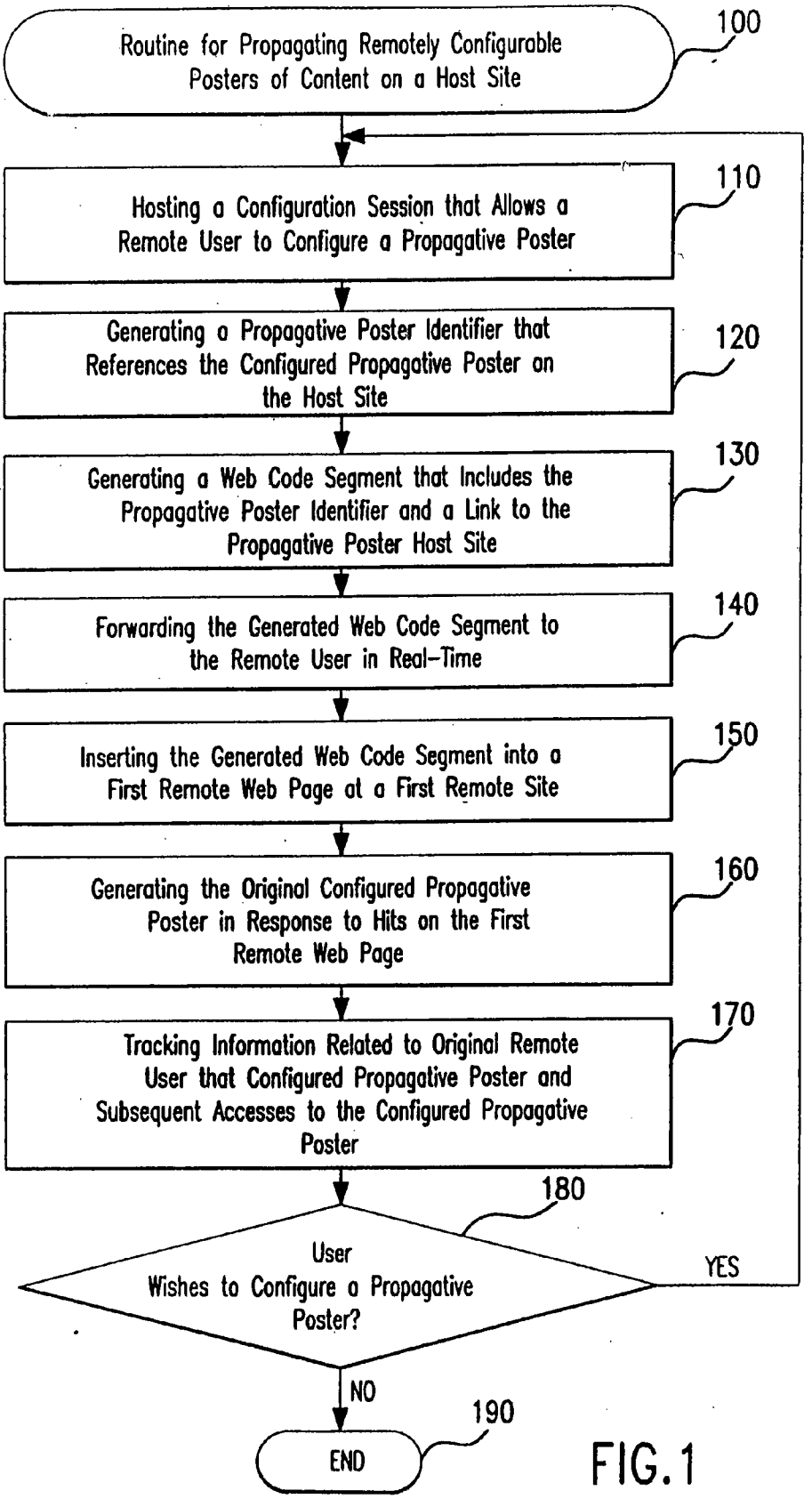

Routine for Propagating Remotely Configurable Posters of Content on a Host Site
100
Hosting a Configuration Session that Allows a Remote User to Configure a Propagative Poster
110
Generating a Propagative Poster Identifier that References the Configured Propagative Poster on the Host Site
120
Generating a Web Code Segment that Includes the Propagative Poster Identifier and a Link to the Propagative Poster Host Site
130
Forwarding the Generated Web Code Segment to the Remote User in Real-Time
140
Inserting the Generated Web Code Segment into a First Remote Web Page at a First Remote Site
150
Generating the Original Configured Propagative Poster in Response to Hits on the First Remote Web Page
160
Tracking Information Related to Original Remote User that Configured Propagative Poster and Subsequent Accesses to the Configured Propagative Poster
170
User Wishes to Configure a Propagative Poster?
180
YES
NO
END
190

FIG. 1

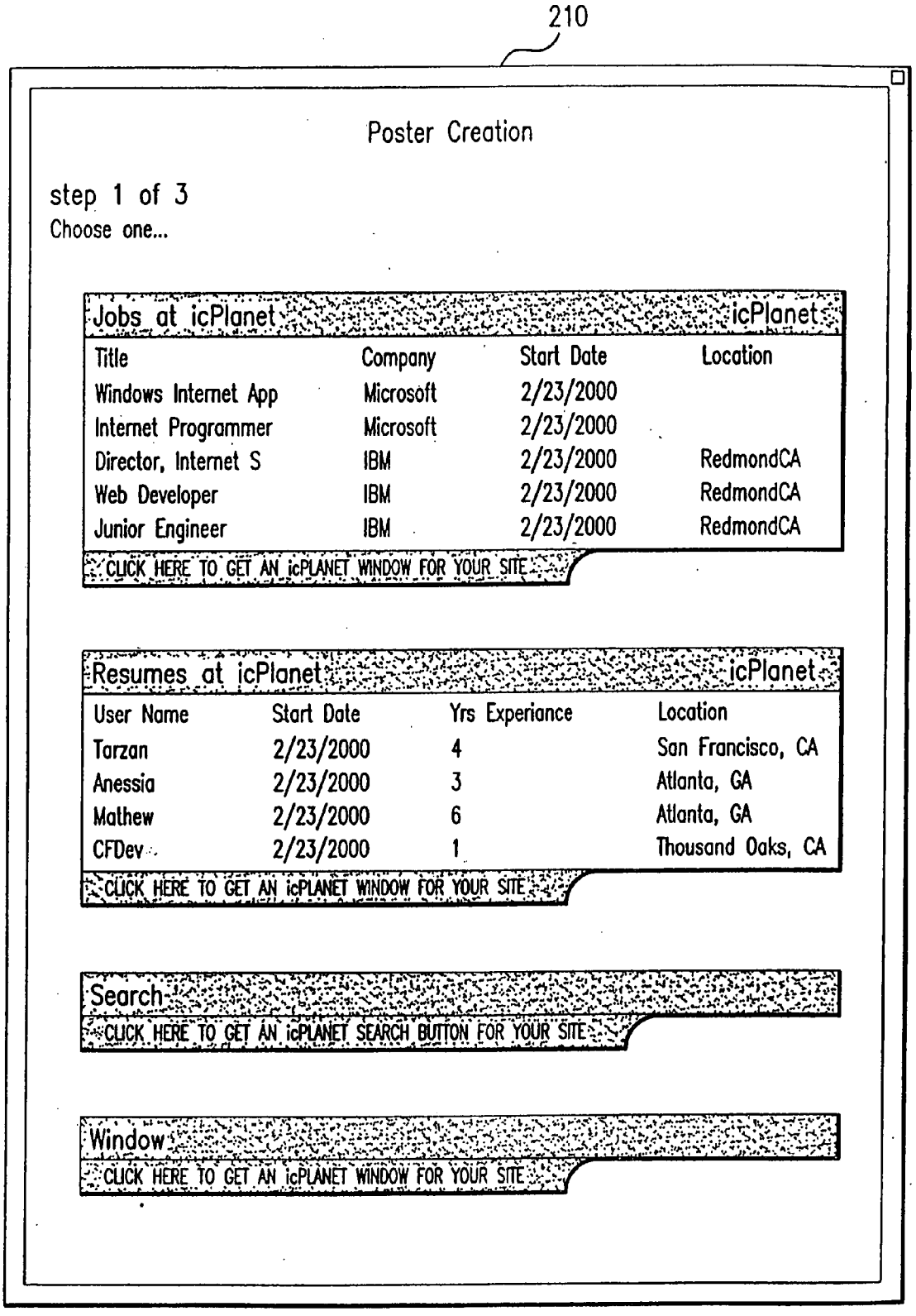

210
Poster Creation
step 1 of 3
Choose one...
Jobs at icPlanet
icPlanet
Title
Company
Start Date
Location
Windows Internet App
Microsoft
2/23/2000
Internet Programmer
Microsoft
2/23/2000
Director, Internet S
IBM
2/23/2000
RedmondCA
Web Developer
IBM
2/23/2000
RedmondCA
Junior Engineer
IBM
2/23/2000
RedmondCA
CLICK HERE TO GET AN icPLANET WINDOW FOR YOUR SITE
Resumes at icPlanet
icPlanet
User Name
Start Date
Yrs Experiance
Location
Tarzan
2/23/2000
4
San Francisco, CA
Anessia
2/23/2000
3
Atlanta, GA
Mathew
2/23/2000
6
Atlanta, GA
CFDev
2/23/2000
1
Thousand Oaks, CA
CLICK HERE TO GET AN icPLANET WINDOW FOR YOUR SITE
Search
CLICK HERE TO GET AN icPLANET SEARCH BUTTON FOR YOUR SITE
Window
CLICK HERE TO GET AN icPLANET WINDOW FOR YOUR SITE

FIG.2A

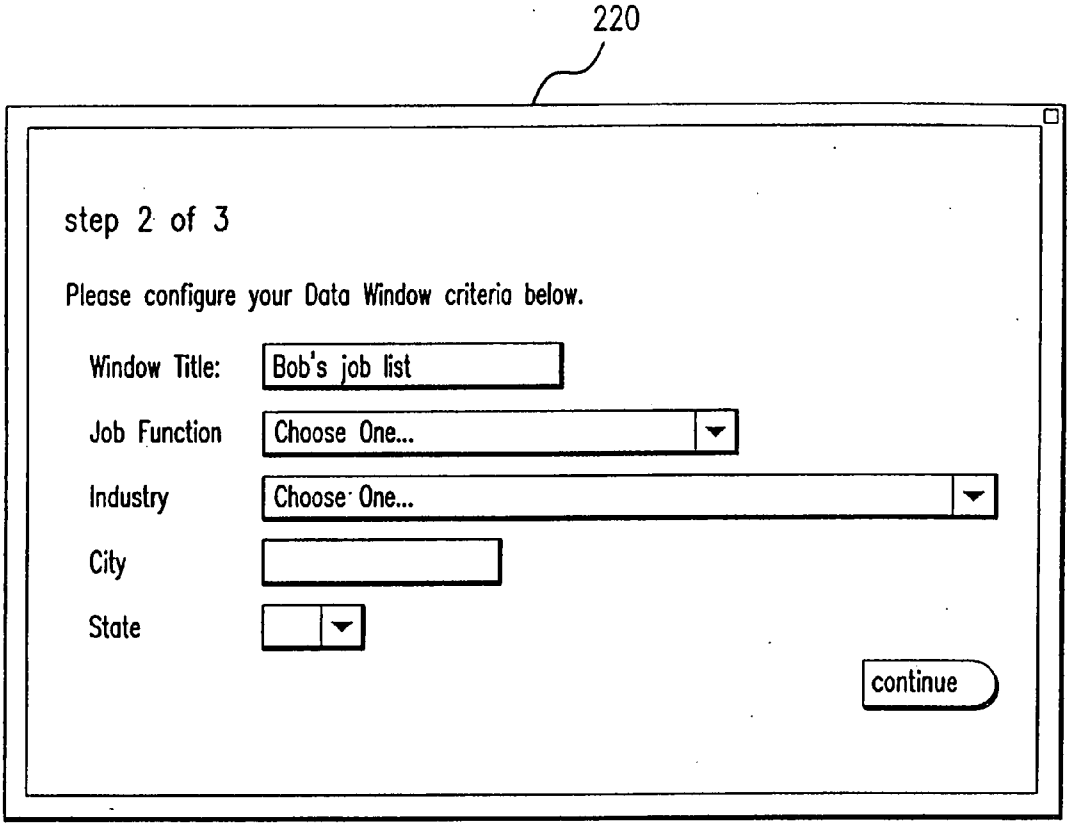

220
step 2 of 3
Please configure your Data Window criteria below.
Window Title:
Bob's job list
Job Function
Choose One...
Industry
Choose One...
City
State
continue

FIG.2B

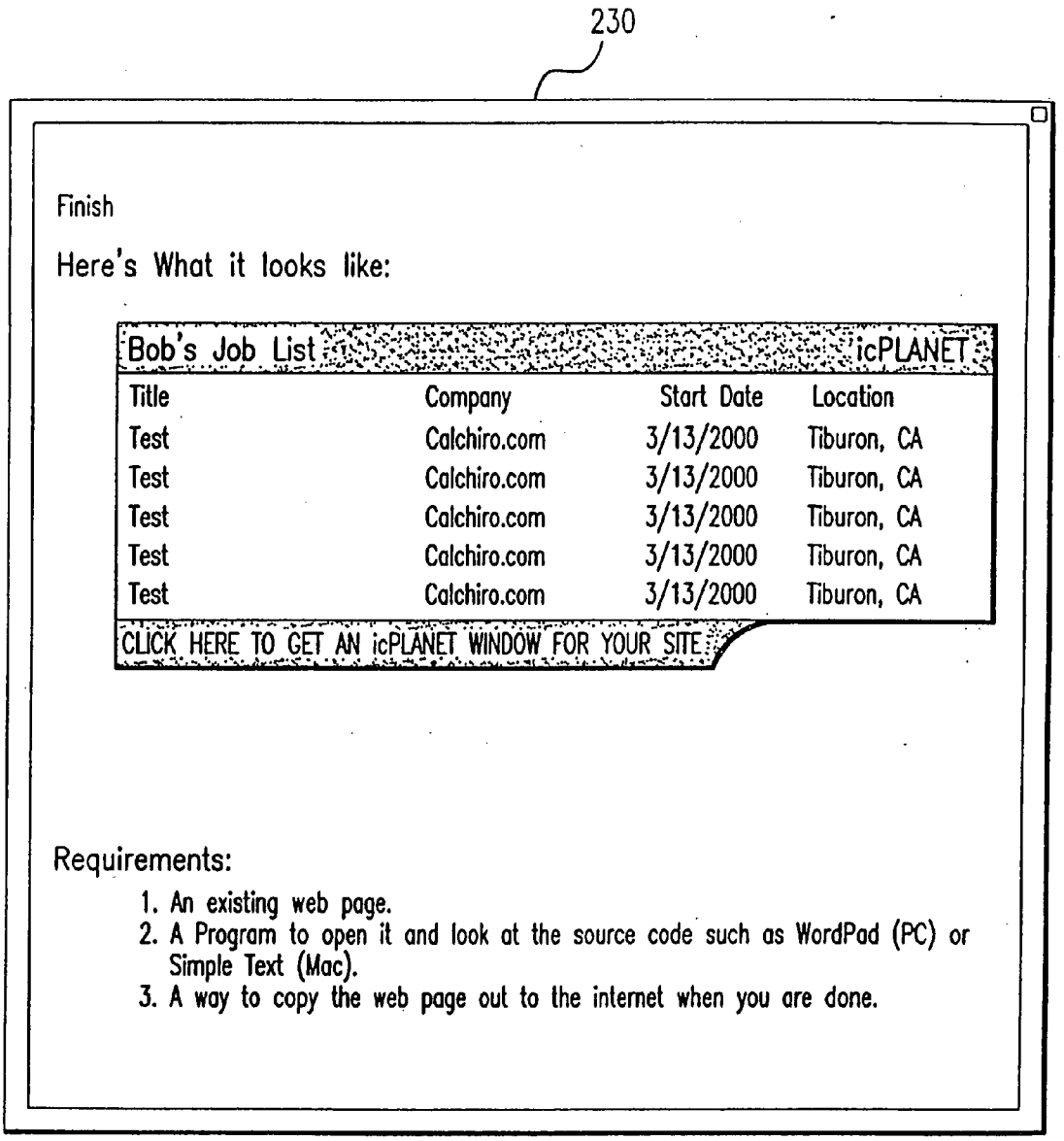

230
Finish
Here's What it looks like:
Bob's Job List
icPLANET
Title
Company
Start Date
Location
Test
Calchiro.com
3/13/2000
Tiburon, CA
Test
Calchiro.com
3/13/2000
Tiburon, CA
Test
Calchiro.com
3/13/2000
Tiburon, CA
Test
Calchiro.com
3/13/2000
Tiburon, CA
Test
Calchiro.com
3/13/2000
Tiburon, CA
CLICK HERE TO GET AN icPLANET WINDOW FOR YOUR SITE
Requirements:
1. An existing web page.
2. A Program to open it and look at the source code such as WordPad (PC) or Simple Text (Mac).
3. A way to copy the web page out to the internet when you are done.

FIG.2C

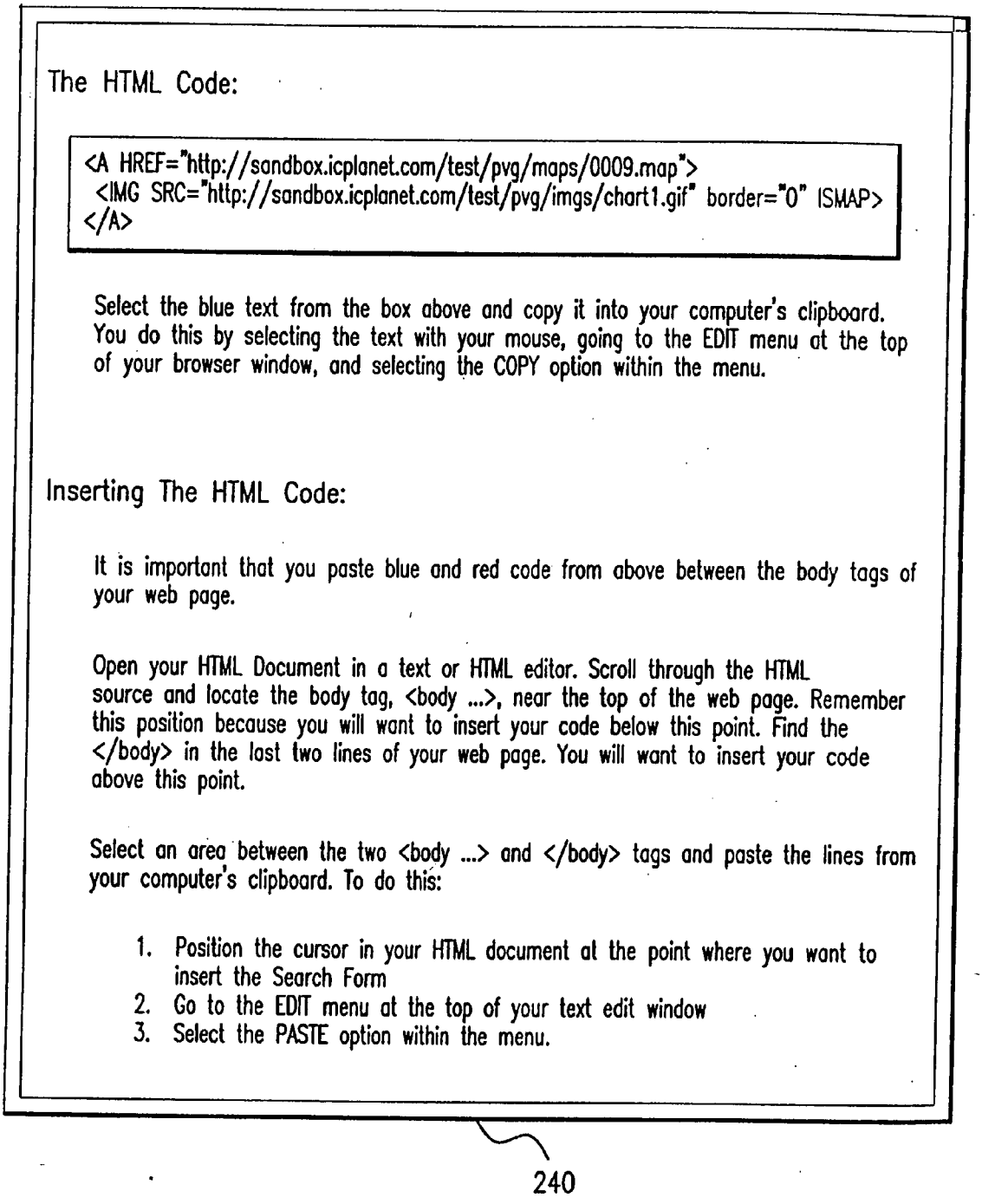

The HTML Code:
<A HREF="http://sandbox.icplanet.com/test/pvg/maps/0009.map">
<IMG SRC="http://sandbox.icplanet.com/test/pvg/imgs/chart1.gif" border="0" ISMAP>
</A>
Select the blue text from the box above and copy it into your computer's clipboard. You do this by selecting the text with your mouse, going to the EDIT menu at the top of your browser window, and selecting the COPY option within the menu.
Inserting The HTML Code:
It is important that you paste blue and red code from above between the body tags of your web page.
Open your HTML Document in a text or HTML editor. Scroll through the HTML source and locate the body tag, <body ...>, near the top of the web page. Remember this position because you will want to insert your code below this point. Find the </body> in the last two lines of your web page. You will want to insert your code above this point.
Select an area between the two <body ...> and </body> tags and paste the lines from your computer's clipboard. To do this:
1. Position the cursor in your HTML document at the point where you want to insert the Search Form
2. Go to the EDIT menu at the top of your text edit window
3. Select the PASTE option within the menu.
240

FIG.2D

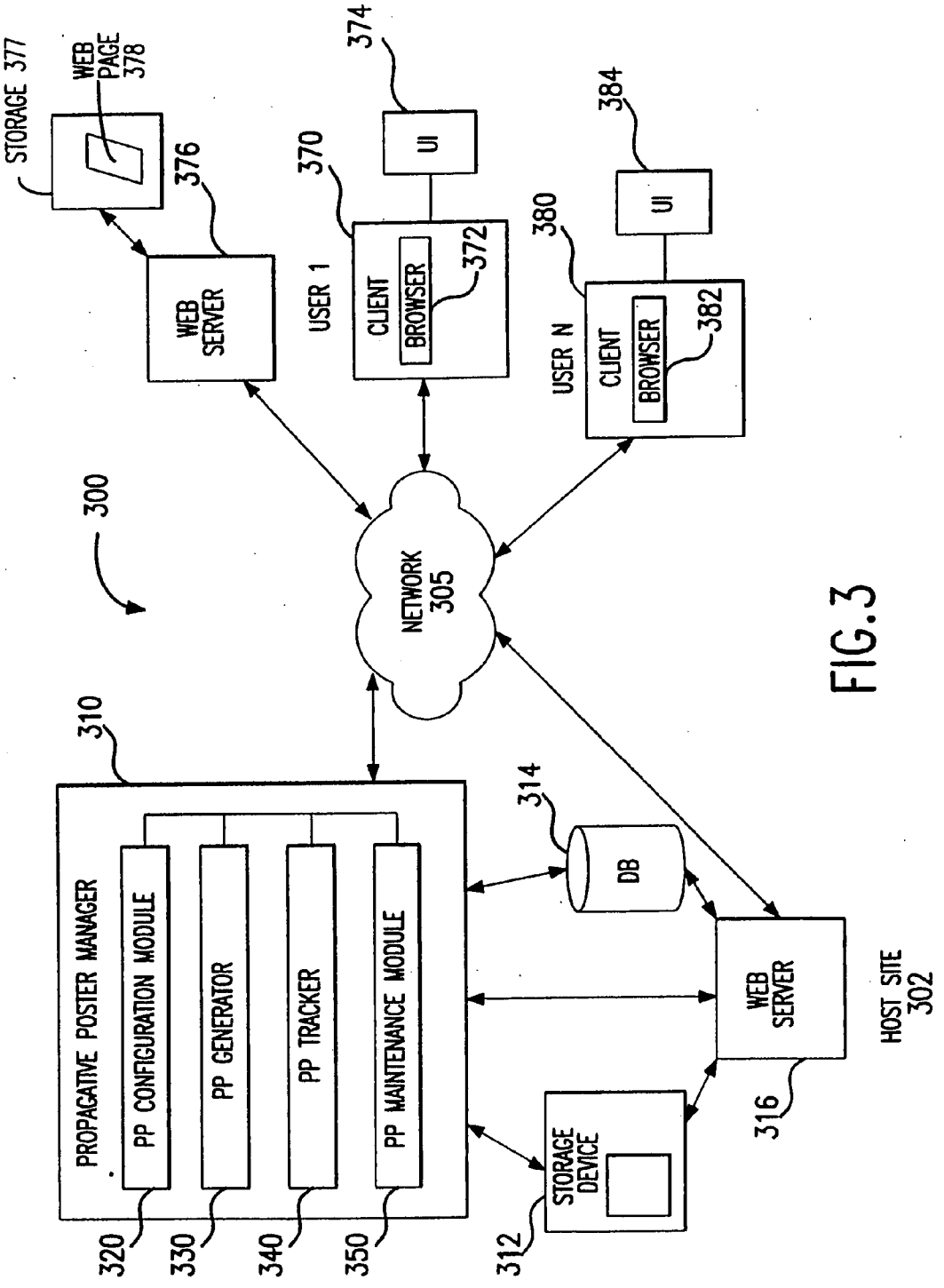

300
NETWORK 305
STORAGE 377
WEB PAGE 378
376
WEB SERVER
USER 1
370
CLIENT
BROWSER
372
UI
374
USER N
380
CLIENT
BROWSER
382
UI
384
310
PROPAGATIVE POSTER MANAGER
PP CONFIGURATION MODULE
PP GENERATOR
PP TRACKER
PP MAINTENANCE MODULE
320
330
340
350
314
DB
STORAGE DEVICE
312
WEB SERVER
316
HOST SITE 302

FIG. 3

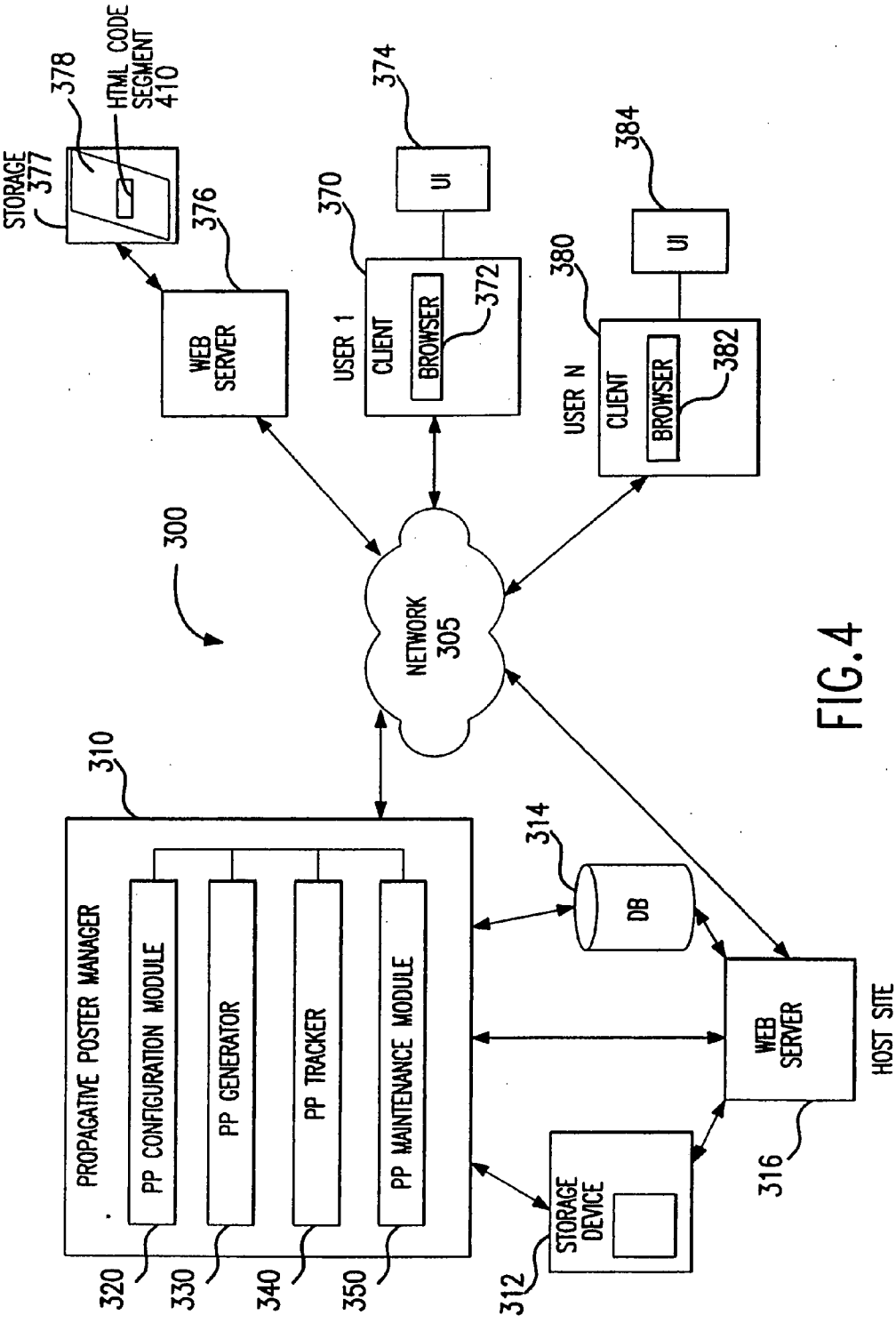

300
NETWORK 305
WEB SERVER
376
STORAGE 377
378
HTML CODE SEGMENT 410
USER 1
370
CLIENT
BROWSER
372
UI
374
USER N
380
CLIENT
BROWSER
382
UI
384
310
PROPAGATIVE POSTER MANAGER
PP CONFIGURATION MODULE
PP GENERATOR
PP TRACKER
PP MAINTENANCE MODULE
320
330
340
350
DB
314
STORAGE DEVICE
312
WEB SERVER
316
HOST SITE 302

FIG.4

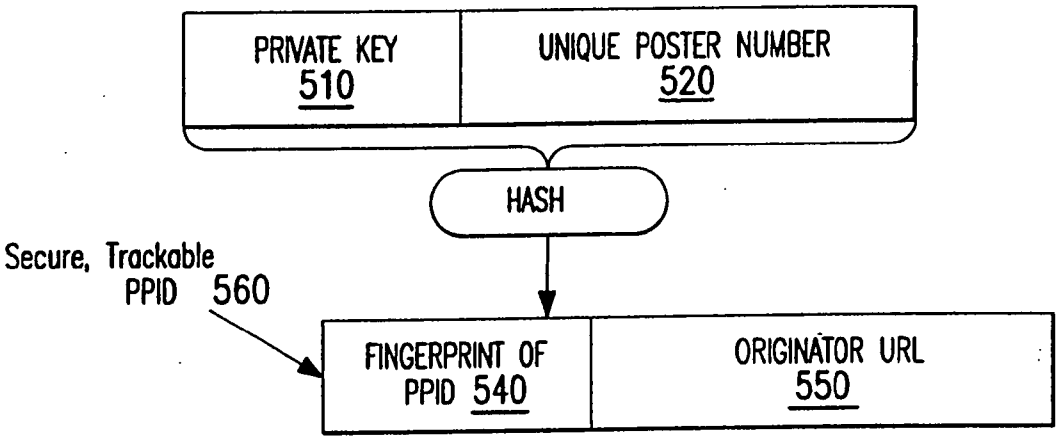

PRIVATE KEY
510
UNIQUE POSTER NUMBER
520
HASH
Secure, Trackable
PPID 560
FINGERPRINT OF
PPID 540
ORIGINATOR URL
550

FIG.5

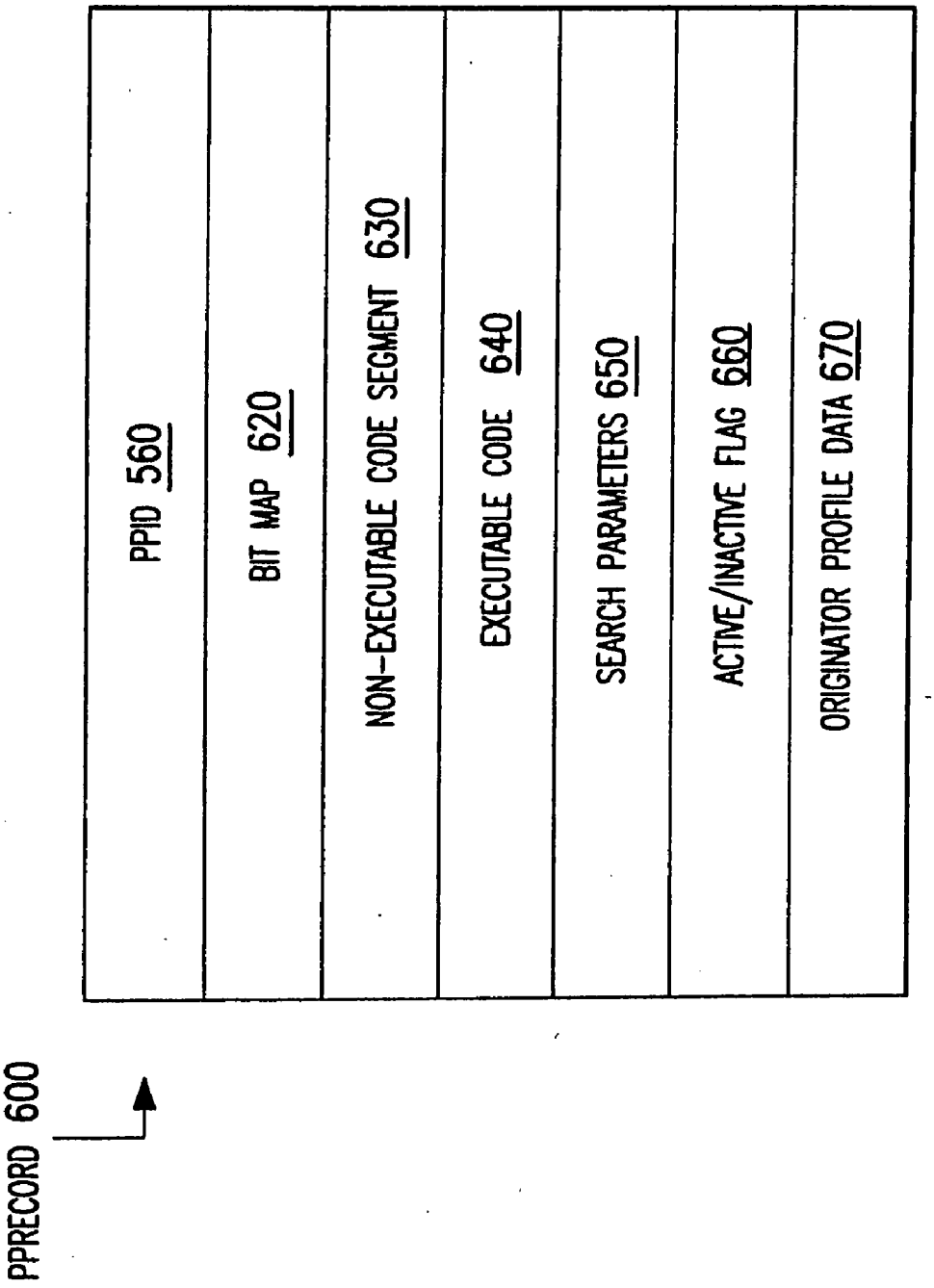

PPRECORD 600
PPID 560
BIT MAP 620
NON-EXECUTABLE CODE SEGMENT 630
EXECUTABLE CODE 640
SEARCH PARAMETERS 650
ACTIVE/INACTIVE FLAG 660
ORIGINATOR PROFILE DATA 670

FIG.6

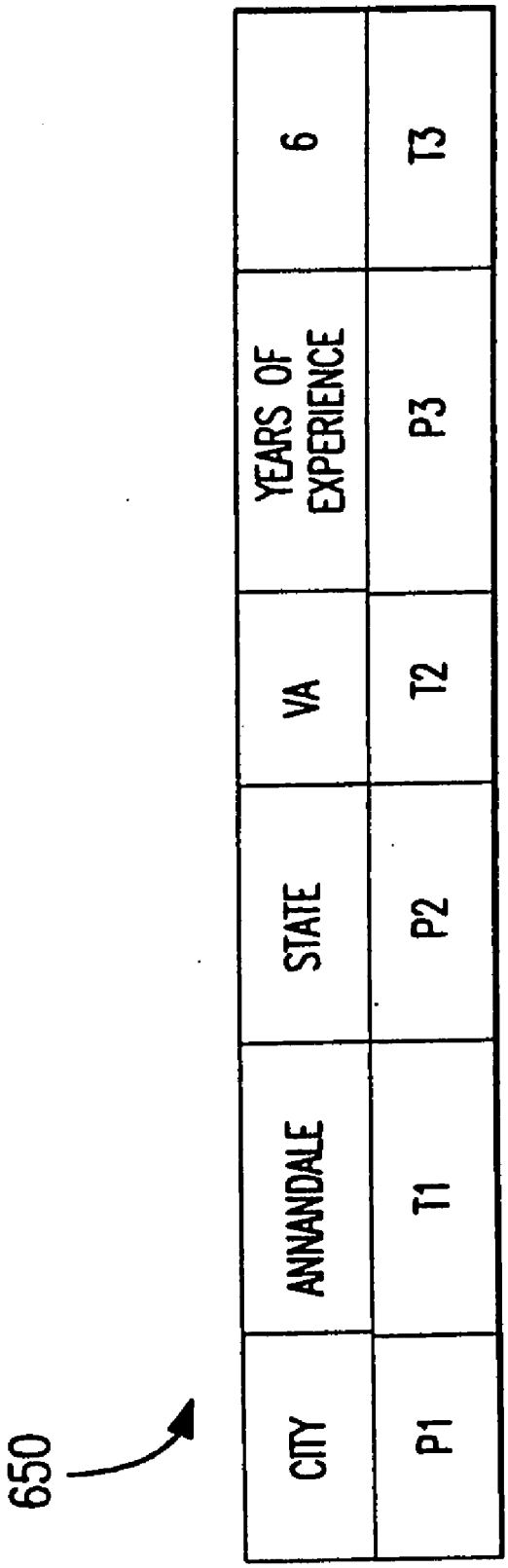

650
CITY
ANNANDALE
STATE
VA
YEARS OF EXPERIENCE
6
P1
T1
P2
T2
P3
T3

FIG.7

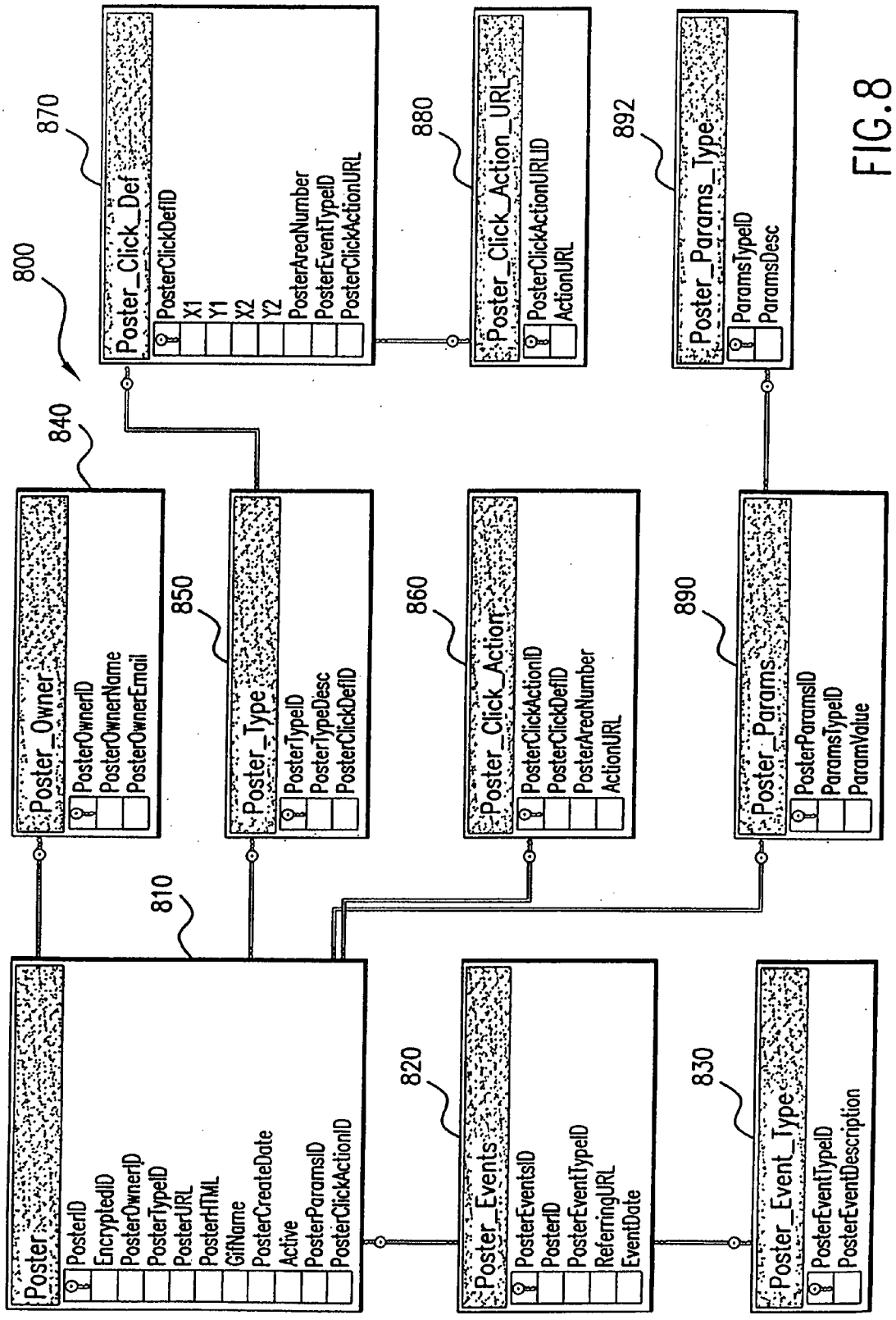

800
810
820
830
840
850
860
870
880
890
892
Poster
PosterID
EncryptedID
PosterOwnerID
PosterTypeID
PosterURL
PosterHTML
GifName
PosterCreateDate
Active
PosterParamsID
PosterClickActionID
Poster_Events
PosterEventsID
PosterID
PosterEventTypeID
ReferringURL
EventDate
Poster_Event_Type
PosterEventTypeID
PosterEventDescription
Poster_Owner
PosterOwnerID
PosterOwnerName
PosterOwnerEmail
Poster_Type
PosterTypeID
PosterTypeDesc
PosterClickDefID
Poster_Click_Action
PosterClickActionID
PosterClickDefID
PosterAreaNumber
ActionURL
Poster_Params
PosterParamsID
ParamsTypeID
ParamValue
Poster_Click_Def
PosterClickDefID
X1
Y1
X2
Y2
PosterAreaNumber
PosterEventTypeID
PosterClickActionURL
Poster_Click_Action_URL
PosterClickActionURLID
ActionURL
Poster_Params_Type
ParamsTypeID
ParamsDesc

FIG.8

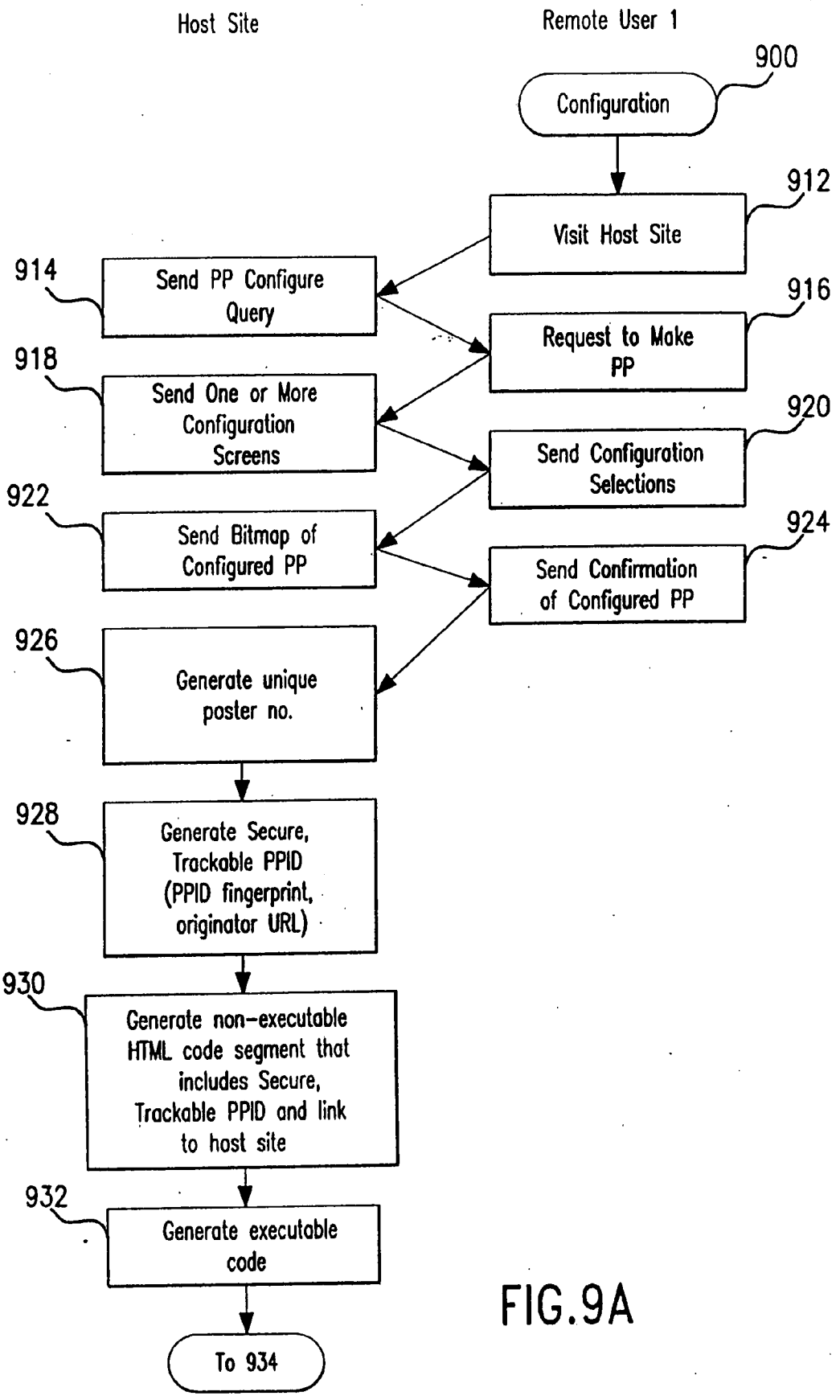

Host Site
Remote User 1
900
Configuration
912
Visit Host Site
914
Send PP Configure Query
916
Request to Make PP
918
Send One or More Configuration Screens
920
Send Configuration Selections
922
Send Bitmap of Configured PP
924
Send Confirmation of Configured PP
926
Generate unique poster no.
928
Generate Secure, Trackable PPID (PPID fingerprint, originator URL)
930
Generate non-executable HTML code segment that includes Secure, Trackable PPID and link to host site
932
Generate executable code
To 934

FIG.9A

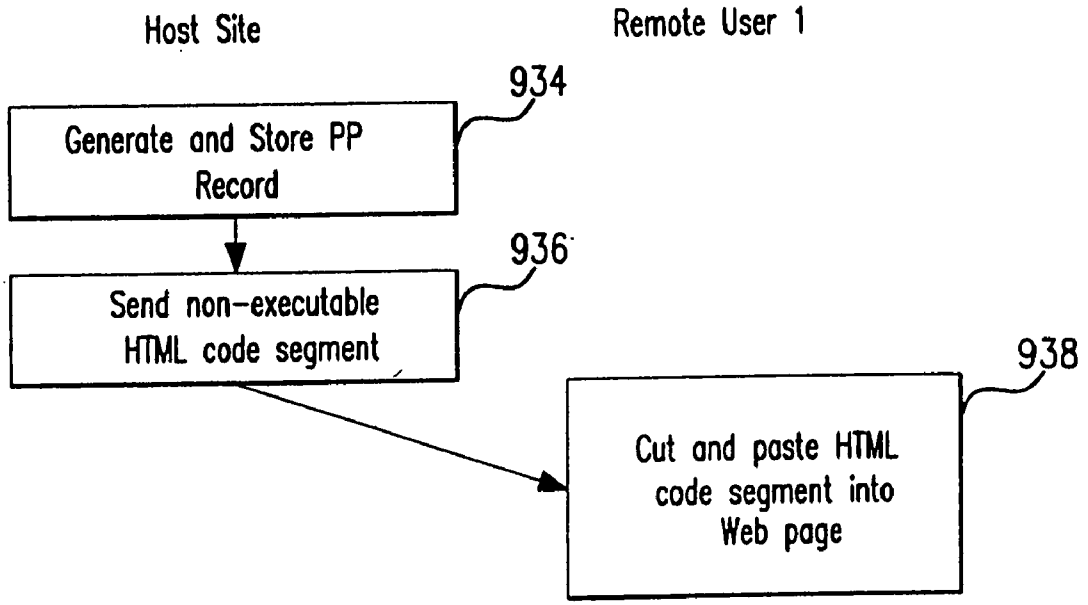

Host Site
Remote User 1
934
Generate and Store PP Record
936
Send non-executable HTML code segment
938
Cut and paste HTML code segment into Web page

FIG.9B

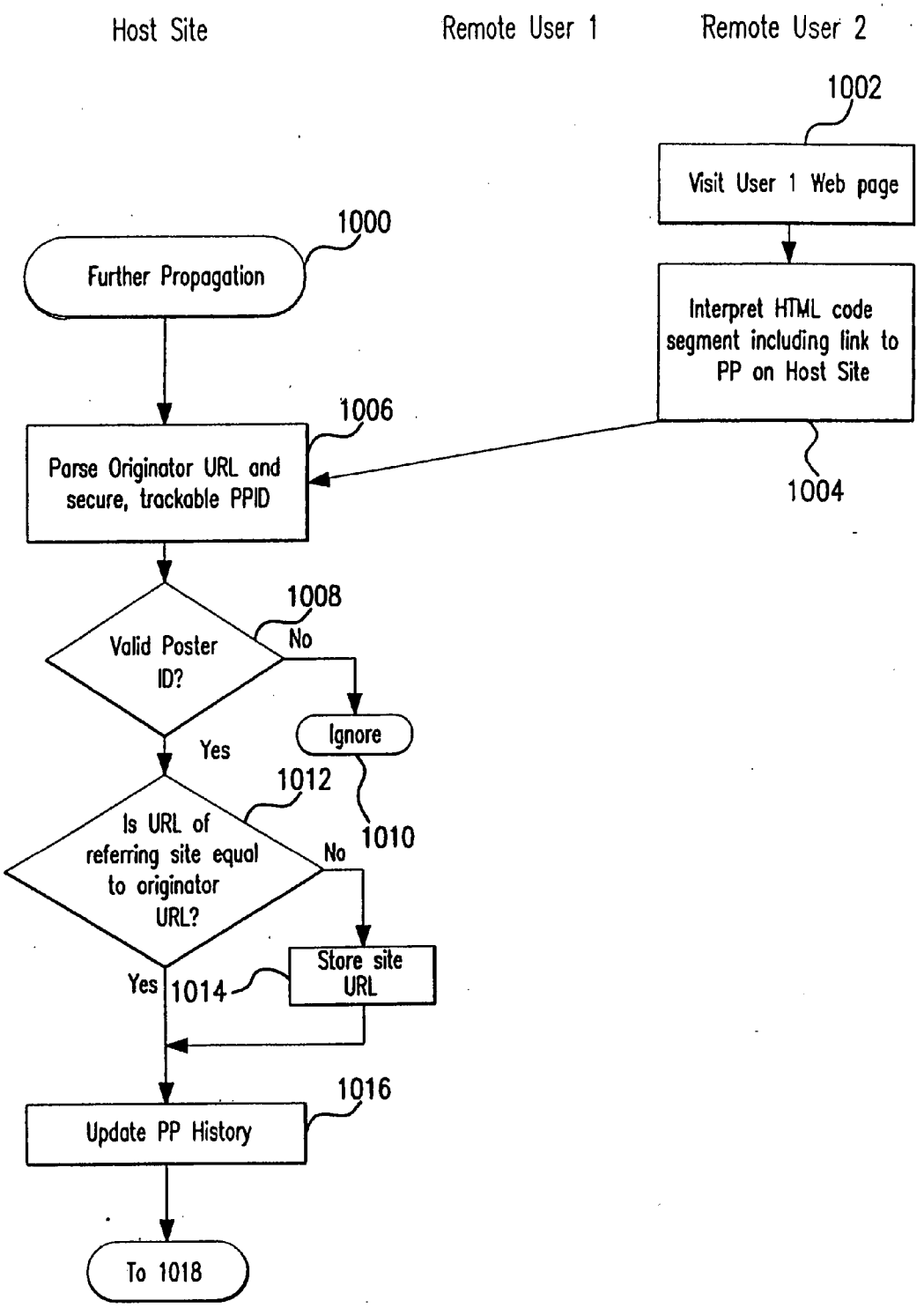

Host Site
Remote User 1
Remote User 2
1002
Visit User 1 Web page
1000
Further Propagation
Interpret HTML code segment including link to PP on Host Site
1006
Parse Originator URL and secure, trackable PPID
1004
1008
Valid Poster ID?
No
Ignore
Yes
1012
Is URL of referring site equal to originator URL?
1010
No
Store site URL
Yes
1014
1016
Update PP History
To 1018

FIG.10A

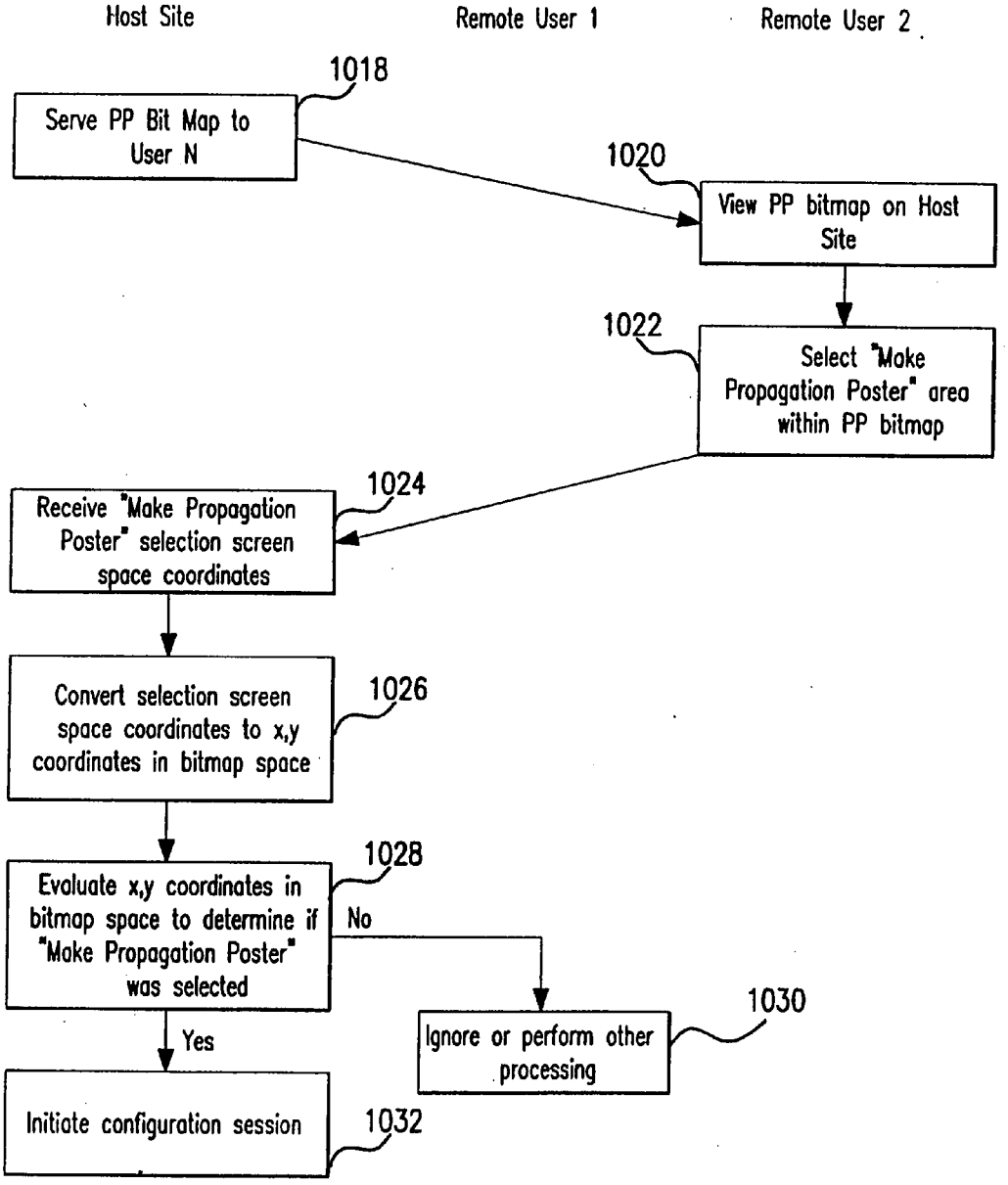

Host Site
Remote User 1
Remote User 2
1018
Serve PP Bit Map to User N
1020
View PP bitmap on Host Site
1022
Select "Make Propagation Poster" area within PP bitmap
1024
Receive "Make Propagation Poster" selection screen space coordinates
Convert selection screen space coordinates to x,y coordinates in bitmap space
1026
Evaluate x,y coordinates in bitmap space to determine if "Make Propagation Poster" was selected
1028
No
Yes
Ignore or perform other processing
1030
Initiate configuration session
1032

FIG.10B

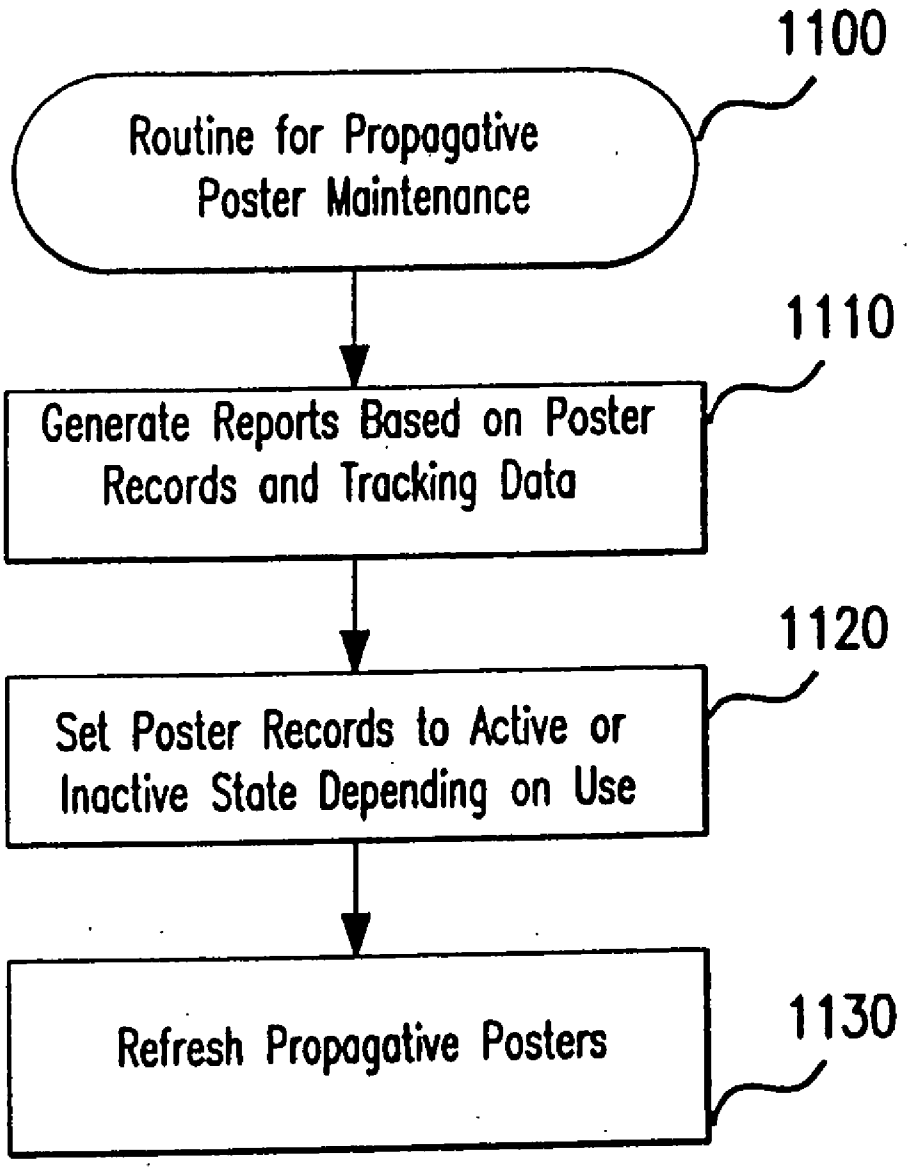

1100
Routine for Propagative Poster Maintenance
1110
Generate Reports Based on Poster Records and Tracking Data
1120
Set Poster Records to Active or Inactive State Depending on Use
1130
Refresh Propagative Posters

FIG.11

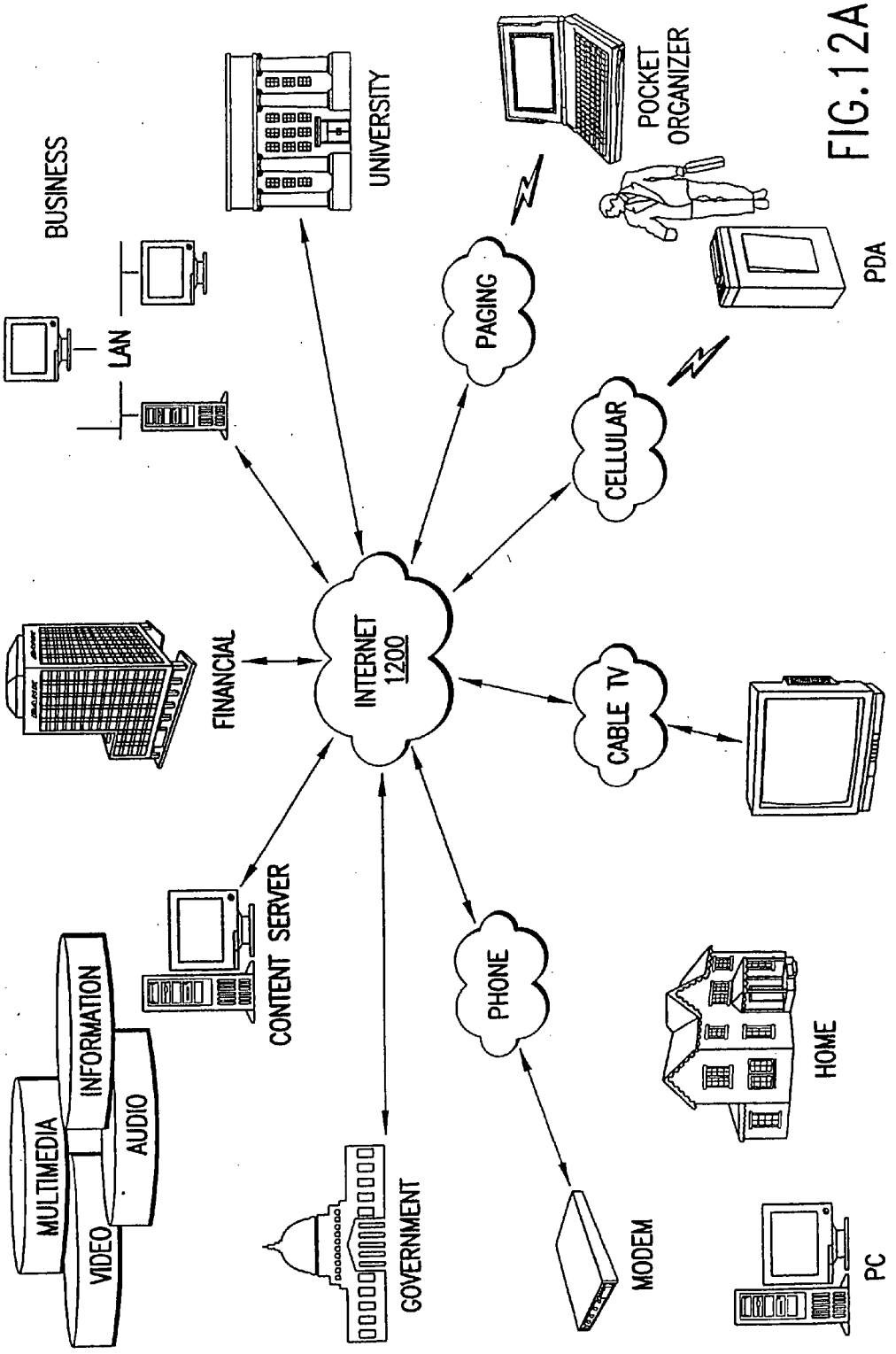

BUSINESS
LAN
UNIVERSITY
POCKET ORGANIZER
PDA
PAGING
CELLULAR
FINANCIAL
INTERNET 1200
CABLE TV
CONTENT SERVER
MULTIMEDIA
INFORMATION
AUDIO
VIDEO
GOVERNMENT
PHONE
HOME
MODEM
PC

FIG.12A

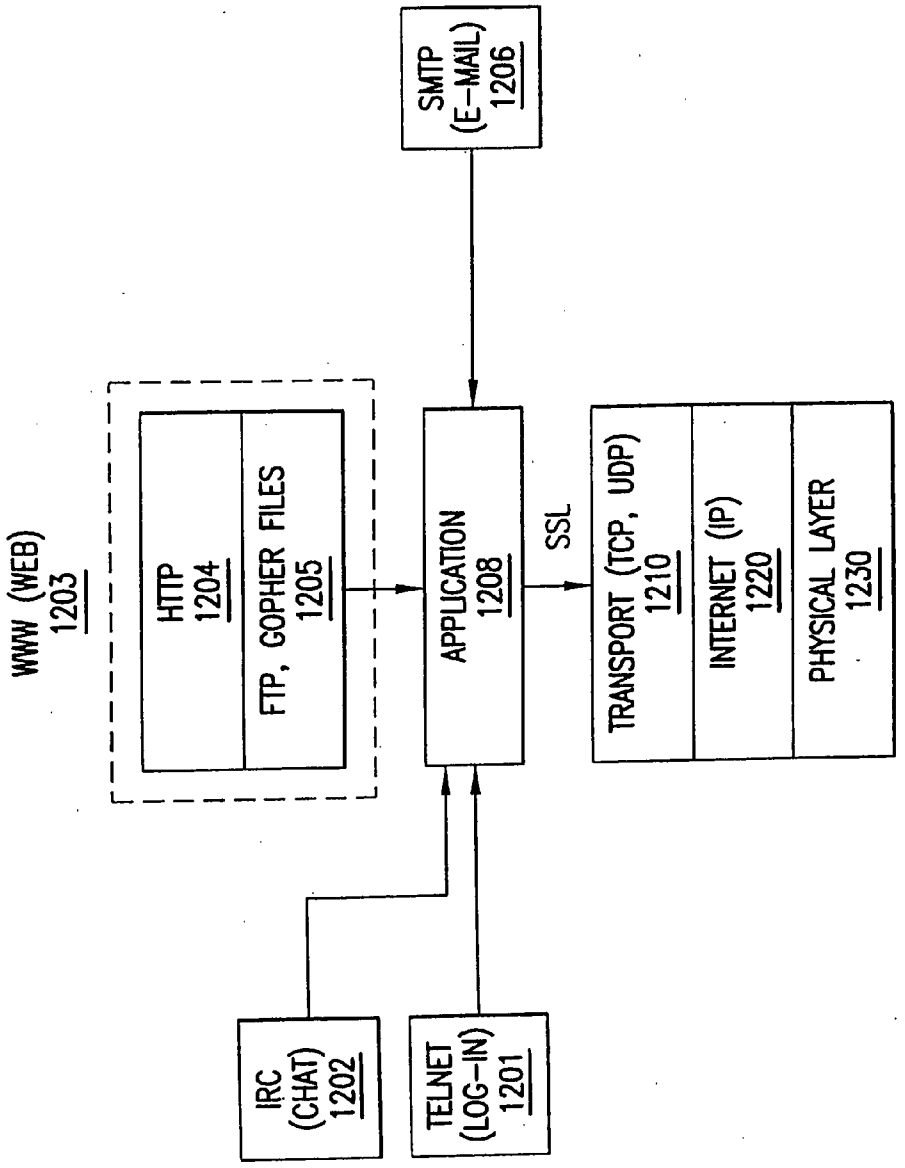

SMTP (E-MAIL) 1206
WWW (WEB) 1203
HTTP 1204
FTP, GOPHER FILES 1205
APPLICATION 1208
SSL
TRANSPORT (TCP, UDP) 1210
INTERNET (IP) 1220
PHYSICAL LAYER 1230
IRC (CHAT) 1202
TELNET (LOG-IN) 1201

FIG.12B

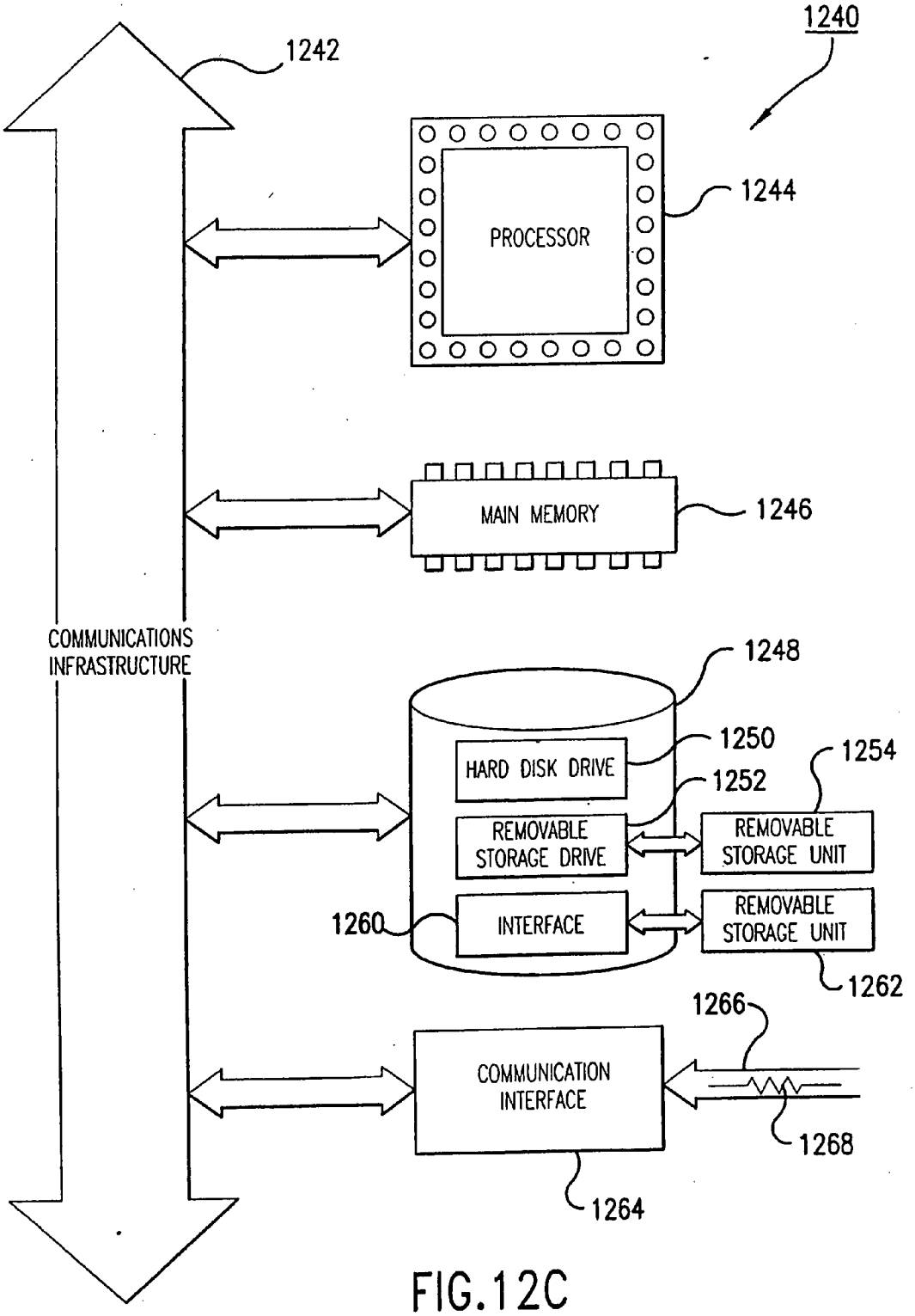

1240
1242
PROCESSOR
1244
MAIN MEMORY
1246
COMMUNICATIONS INFRASTRUCTURE
1248
HARD DISK DRIVE
1250
1252
1254
REMOVABLE STORAGE DRIVE
REMOVABLE STORAGE UNIT
1260
INTERFACE
REMOVABLE STORAGE UNIT
1262
1266
COMMUNICATION INTERFACE
1268
1264

FIG.12C

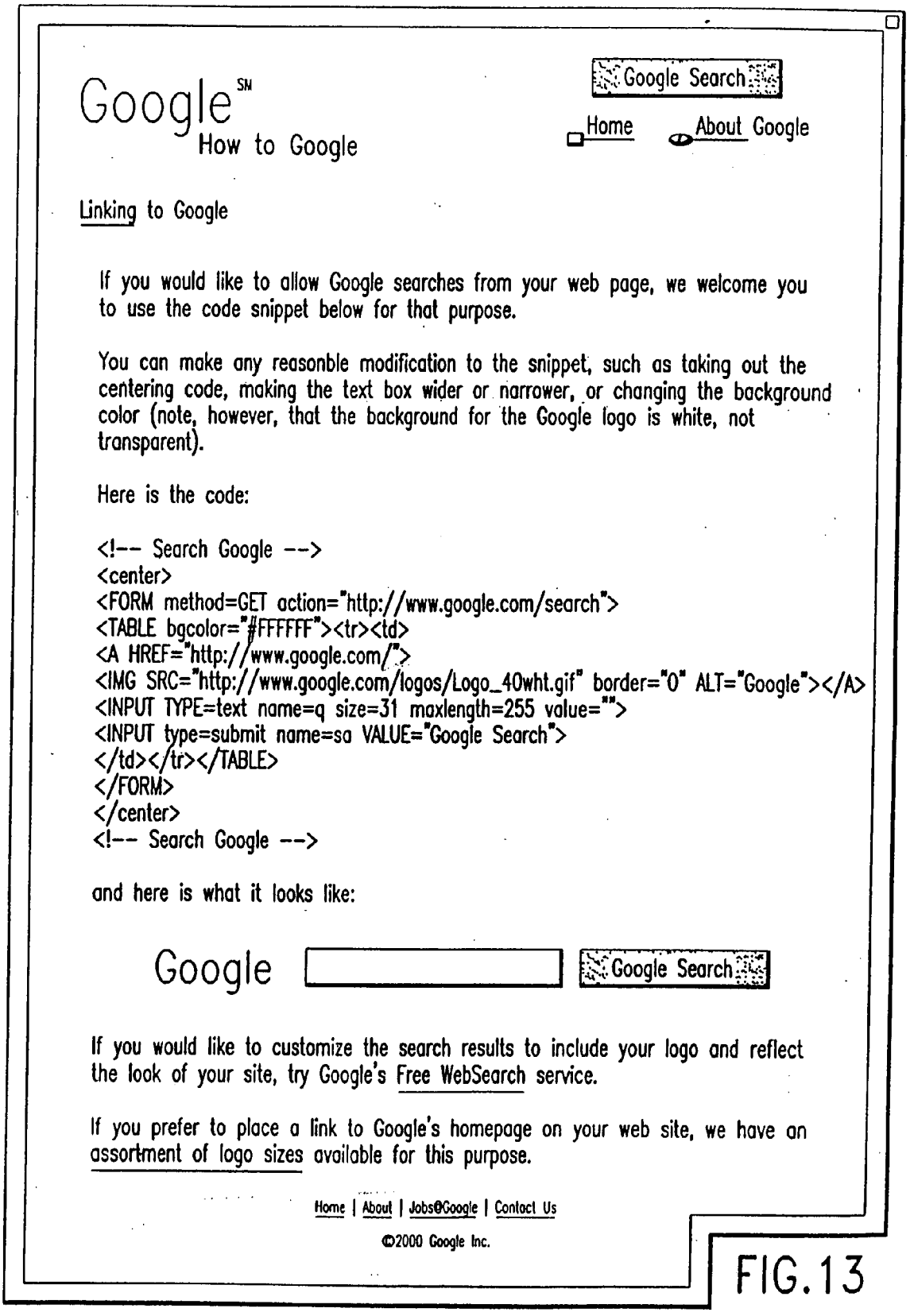



FIG. 13

PRIOR ART

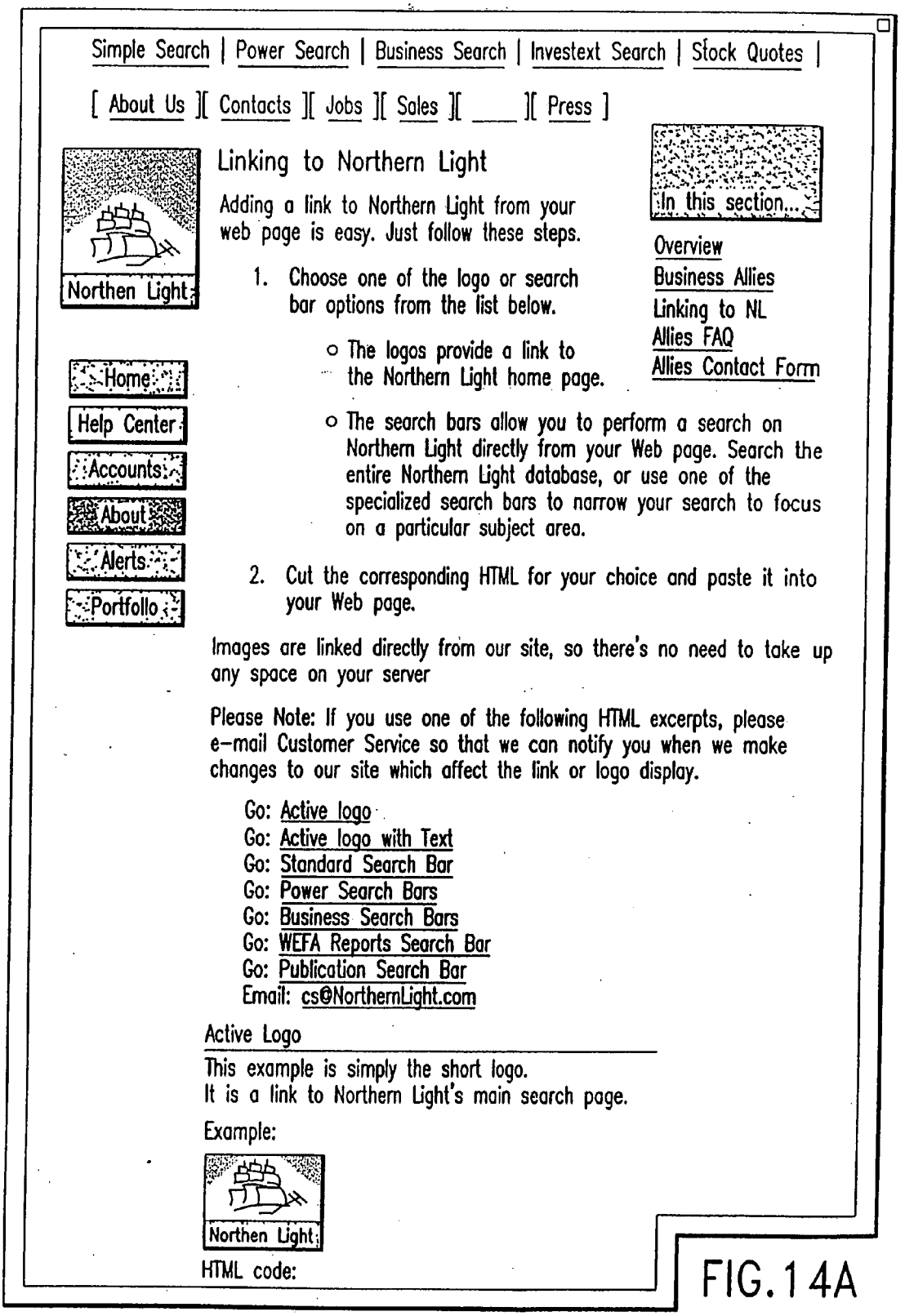



FIG. 14A

PRIOR ART

Get: HTML for the Active Logo

## Active Logo with Text

This example is simply the short logo and a line of text underneath. Both are links to Northern Light's main search page. They are placed in a table to make the two elements a single discrete element that can be placed on your page.

Example:




Nothern Light Search

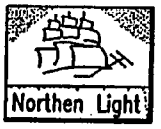
HTML code:

Get: HTML for the Active Logo with Text

## Northern Light Search Bar

Search Northern Light's entire database of Web and Special Collection Information.

Example:




Search for: Search Tips

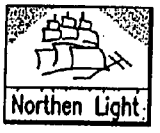
HTML code:

Get: HTML for the Standard Search Bar

## Power Search Pulldown Search Bar

A search bar with the option to search within one of Northern Light's Power Search subjects.

Example:




Power Search for: Search Tips

Power Search All subjects

HTML code:

Get: HTML for the Power Search Pulldown Bar

FIG. 14B

PRIOR ART

```
<!--
 ATTENTION
To add this search bar to your web page copy the HTML below and paste it into any web
page. This search bar is subject to the conditions of Northern Light's Terms of Service
available at http://www.northernlight.com/docs/gen_help_tos.html
-->

<!-- CUT BELOW THIS LINE to add Northern Light's Search Bar -->

<table border=0>
<tr><td valign=top>
<a href="http://www.northernlight.com/"><img src="http://www.northernlight.com/doc...>
</td>
<td><img border=0 src="http://www.northernlight.com/docs/gif/transparent.gif" widt...></td>
<td>
<table border=0 cellspacing=0 cellpadding=0>
<form action="http://www.northernlight.com/nlquery.fcg" method=get><input type=hid...>
<tr>
        <td valign=top rowspan=4 nowrap align=right><img src="http://www.n..."></td>
        <td align="LEFT" valign="TOP"><img src="http://www.northernlight.com/..."></td>
<font face="Arial, Helvetica" size="-1" color="#0000ff">Search for:</font></td>
</tr>

<tr>
        <td valign=middle><input type=text size=30 name="qr" maxsize=100 v...><td>
<td> </td>
<td><input name=sb type=image src="http://www.northernlight.com/docs/gif/btn_searc..."></td>
 <td><font size=1 face=arial,helvetica><a href="http://www.northernlight.com/docs/..."></td>
</tr><tr>
 <td align=left><SELECT NAME=orl TITLE=source>
<OPTION>ALL Sources</OPTION>

<OPTION VALUE=2:1>World Wide Web</OPTION>
<OPTION VALUE="2:-1">Special Collection</OPTION>
<OPTION value="">----------</oplion>
<OPTION VALUE=2:12818>Investext Reports</OPTION>
<OPTION VALUE=2:1648>WSJ Abstracts</OPTION>
<OPTION VALUE=2:6123>Business Week</OPTION>
<OPTION VALUE=2:439>Fortune</OPTION>
<OPTION VALUE=2:9>Newspapers, Wires &amp;amp; Transcripts</OPTION>
<OPTION VALUE=2:18519>College newspapers</OPTION>
<OPTION VALUE=2:18508>Broadcast News Transcripts</OPTION>
</SELECT></td>
</form>
</tr>
</form>
</table>
</td></tr></table>

<!-- END OF SEARCH BAR -->
```

FIG. 14C

PRIOR ART

# METHOD, SYSTEM, AND COMPUTER PROGRAM PRODUCT FOR PROPAGATING REMOTELY CONFIGURABLE POSTERS OF HOST SITE CONTENT

## CROSS-REFERENCE TO RELATED APPLICATIONS

[0001] This application is a continuation of U.S. application Ser. No. 09/551,746, filed Apr. 18, 2000, which is incorporated herein in its entirety by reference.

## BACKGROUND OF THE INVENTION

[0002] 1. Field of the Invention

[0003] The present invention relates to computer networking and communication, including Web-based communications and commerce.

[0004] 2. Related Art

[0005] The World Wide Web is increasingly becoming the Internet technology relied upon for conducting electronic commerce and communication. The World Wide Web, also called the Web or WWW, has three basic parts: client software, servers and content. Client software runs on a user's computer and, among other things, provides the graphical user-interface through which a user can "browse" or "surf" the Web. Servers (also called Web servers) are computers that provide the content to users through a communication link. Content can be any kind of multimedia, e.g., images, text, animation, motion video, sound, and Java applets.

[0006] Communication between a browser and a server is carried out through Hyper Text Transfer Protocol (HTTP), Hyper Text Transfer Protocol-Secure (HTTPS) or other Web-compatible protocol. Web content is primarily transferred in Web documents or files, called Web pages, which are addressed by a Uniform Resource Locator (URL). Web pages are often multi-media hypertext documents written in a HyperText Markup Language (HTML) which supports hyper-linking. Data entry in Web pages allows users to make selections and fill-out template or profiles to facilitate user input. For example, scripts are often run on servers through a Common Gateway Interface (CGI) to implement data entry. Programming languages, such as Java, and plug-ins such as Flash, are also being extended to support data entry on the Web.

[0007] These parts are well-suited for electronic communication and commerce between remote users. Indeed, the popularity and use of the World Wide Web has increased dramatically. The number of Web sites and Web pages continues to grow. Accordingly, it has become increasingly important to many Web businesses and services to draw traffic to their site. Advertising revenue, registration fees and other sources of revenue generally increase as the number of hits to a site rises. It is also important for many Web businesses and services that access to the local content on their site be distributed widely. Accordingly, it is important to distribute knowledge about the content of a Web site.

[0008] Hyperlinking between Web pages is one way a Web site increases traffic to its site. Hyperlinking alone, however, has disadvantages. For example, consider the case where a remote user with a remote Web page adds a hyperlink to another site, such as, a Web site that provides sports information. The remote user inserts a URL for the sports Web site into his or her Web page (e.g., an HTML document). The URL itself, however, does not provide any significant contextual information or actual information about the content of the sports Web site. A user may provide text to describe the sports Web site, but this information can be soon out of date and may not reflect actual information on the Web site.

[0009] Some Web services, such as, search engines attempt to increase traffic to their sites by making available HTML code for logos or search bars to be inserted in Web pages on other sites. FIG. **13** shows an example screen served up at the GoogleSM search engine Web site to facilitate linking. In this case, a user is provided with an HTML code segment (called a snippet) and an image that shows how the snippet will appear on the user's Web page. The user is then expected to cut and paste the HTML code segment into their own Web page. FIGS. **14**A to **14**C show similar examples displayed at the Northern Light search engine. A user is provided with a variety of options (logos and search bars) and corresponding HTML code segments from which to select.

[0010] In both of these examples, the HTML code segments are predetermined. No real-time configuration or modification can be made by the user prior to cutting and pasting the HTML code snippet. Any configuration of the HTML code segments must be done by the user. In addition, the servers generating the HTML code segments do not facilitate or support real-time configuration based on user selections or preferences. This increases the burden on the user. Users who do not know HTML or how to configure or modify the HTML code snippet are unable to tailor the link as they desire.

[0011] What is needed is an invention which remotely and easily propagates access to Web content. Users need to be able to remotely and easily configure in real-time a link to another Web site.

## SUMMARY OF THE INVENTION

[0012] A method, system, and computer program product for propagating access to host site content to remote users over the World Wide Web are provided. Access to host site content is distributed more widely and easily through propagative posters. Remote users can access a host site and configure propagative posters in real-time. A Web code segment corresponding to a configured propagative poster is then generated and sent to the remote user in real-time. A remote user can easily cut and paste the generated Web code segment into the user's remote Web page. Alternatively, the generated Web code segment can be automatically inserted into the user's remote Web page if access rights to write on the Web page are available. According to the present invention, propagative posters also permit users to click on (i.e., select) displayed summary information to access further information about a selected item or topic.

[0013] In one embodiment, a Web code segment is generated that includes a propagative poster identifier and a link to the host site. The propagative poster identifier allows each poster to be identified. For example, the propagative identifier can be a unique poster number. In one embodiment, to enhance security and facilitate URL tracking, a respective

private key and a unique poster number are sent through a hash function to obtain a secure fingerprint. The propagative poster identifier is then a combination of the secure fingerprint, the unique poster number and the URL of the remote user that created the poster.

[0014] In one embodiment, a propagation poster manager is provided for managing propagation posters of host site content to remote users over the World Wide Web. The propagation poster manager includes a propagative poster configuration module and a propagative poster generator. The propagative poster configuration module hosts a configuration session that allows a remote user to configure a propagative poster of host site content based on at least one configuration selection input by the remote user. The propagative poster generator generates and forwards the propagative poster identifier and the Web code segment to the remote user in real-time.

[0015] In one embodiment, configuration is made easy for a user by presenting a series of configuration screens to guide user input. For example, the propagative poster configuration module serves data that enables a first configuration screen to be displayed that includes images of different types of sample posters that can be configured by a user. The propagative poster configuration module then receives a selection by a remote user that identifies one selected type of sample poster and serves data that enables a second configuration screen to be displayed. The second configuration screen has a template for the remote user to configure the selected type of sample poster. The propagative poster configuration module then receives inputs entered in the template. The inputs represent configuration selection inputs made by the remote user. The propagative poster configuration module serves data that enables a third configuration screen to be displayed that includes the first remote user-configured propagative poster. In this way, the remote user can verify in real-time that the user-configured propagative poster is acceptable. After verification, a fourth configuration screen is served that includes the Web code segment to be copied. In one example, the Web code segment is a HTML code segment that enables a browser to access the remote user-configured propagative poster for display.

[0016] According to a further feature of the invention, a propagation poster, initially configured by a first remote user, is easily used by subsequent remote users. The propagative poster generator generates the original remote user-configured propagative poster in response to a hit on the first remote user Web page by subsequent remote user that selects at least a portion of the Web page of the first remote user that corresponds to the generated Web code segment. For example, if the first remote user configured a button or link to access the poster, then a button or link is added in the generated Web code segment. When the second remote user selects the button or link in the Web page of the first remote user, the browser of the second remote user is transferred to the host site. The propagative poster generator then receives the propagation poster identifier and generates data from the host site that corresponds directly to the data presented in the original propagative poster.

[0017] According to a further feature, a propagation poster further includes an input portion, such as, a "Make Propagation Poster Now" button. The input portion enables a remote user to make another propagative poster. Another configuration session to create a new poster is then easily initiated by a user by selecting the input portion. For example, the propagation poster configuration module further hosts a second configuration session that allows a second remote user to configure a second remote-user configured propagative poster of host site content based on at least one configuration selection input by the second remote user. In this way, content on a host site is distributed more quickly to a wider audience as users who visit the web page of the first remote user can select and propagate their own posters.

[0018] In one embodiment, the propagation poster is periodically refreshed or updated in that the poster is generated based on code executed on current data in the host site content. In one example, at least one configuration selection input made by the first remote user includes at least one search parameter. The propagative poster generator then generates a propagation poster by first executing a search query of data based on each search parameter to obtain a search result based on current host site content. The propagative poster is then generated which includes the current search result. This executing of the code can occur in real-time at the time any remote user accesses the poster or off-line such as during a periodic maintenance run.

[0019] In one example implementation, a propagative poster can be any type of window or image including, but not limited to, a window listing job postings, a window listing resume information, a button or go to link to the host site, a search box to search the host site, or a window displaying data related to content on the host site, such as, statistical information, data reports, etc.

[0020] According to a further feature, the propagation poster manager includes a propagative poster tracker. The propagative poster tracker tracks URL addresses of remote users accessing the first remote user-configured propagative poster.

[0021] According to a further feature, the propagation poster manager includes a propagative poster maintenance module. The propagative poster maintenance module that generates reports based on propagative poster records and data tracked by the propagative poster tracker.

[0022] A further feature is the ability to track which posters are not being viewed and to discontinue the off-line generation of the posters until a remote user attempts to view it again, thereby causing it to be automatically generated as well as putting it back in the automatic generation queue. This feature enables reduction of the overhead of offline generation without disrupting service.

[0023] In one example implementation, a storage device is coupled between a server and a Web server. The server includes a propagative poster configuration module, a propagative poster generator, a propagative poster tracker, and a propagative poster maintenance module. The storage devices stores at least the following fields of information related to respective generated user-configured propagative posters: a propagative poster identifier, a bit map, a non-executable Web code segment, and an executable code. A database is also coupled between the server and the Web server. The database stores propagative poster records that include user profile and tracking information related to respective generated user-configured propagative posters.

[0024] Further features and advantages of the present invention, as well as the structure and operation of various embodiments of the present invention, are described in detail below with reference to the accompanying drawings.

## BRIEF DESCRIPTION OF THE DRAWINGS

[0025] The accompanying drawings, which are incorporated herein and form part of the specification, illustrate the present invention and, together with the description, further serve to explain the principles of the invention and to enable a person skilled in the pertinent art make and use the invention.

[0026] FIG. **1** is a flowchart of a routine for propagating remotely configurable posters according to one embodiment of the present invention.

[0027] FIGS. **2**A, **2**B and **2**C show configuration screens served during a configuration session according to one embodiment of the present invention.

[0028] FIG. **2**D show a screen with HTML text for propagating a poster according to one embodiment of the present invention.

[0029] FIGS. **3** and **4** are block diagrams of a system for propagating remotely configurable posters according to one embodiment of the present invention.

[0030] FIG. **5** is a diagram of a propagative poster identifier and a secure, trackable propagative poster identifier according to one embodiment of the present invention.

[0031] FIG. **6** is a diagram of a propagative poster record according to one embodiment of the present invention.

[0032] FIG. **7** is a diagram of example search parameters that can be used in the propagative poster record of FIG. **6**.

[0033] FIG. **8** is a diagram of a set of records for managing propagative posters according to one embodiment of the present invention.

[0034] FIGS. **9**A and **9**B are flowcharts of a routine for propagating remotely configurable posters according to one embodiment of the present invention.

[0035] FIGS. **10**A and **10**B are flowcharts of a routine for further propagating remotely configurable posters including tracking and profiling, according to one embodiment of the present invention.

[0036] FIG. **11** is a flowchart of a routine for propagative poster maintenance according to one embodiment of the present invention.

[0037] FIG. **12**A is a diagram of an example internetwork environment according to the present invention.

[0038] FIG. **12**B shows a simplified four-layered communication model supporting Web commerce.

[0039] FIG. **12**C is a block diagram of a computer system according to an example implementation of the present invention.

[0040] FIG. **13** shows an example screen displayed at the GoogleSM search engine Web site to facilitate non-configurable linking.

[0041] FIGS. **14**A, **14**B, and **14**C show example screens displayed at the Northern Light search engine to facilitate non-configurable linking.

[0042] The present invention will now be described with reference to the accompanying drawings. In the drawings, like reference numbers indicate identical or functionally similar elements. Additionally, the left-most digit(s) of a reference number typically identifies the drawing in which the reference number first appears.

## DETAILED DESCRIPTION OF THE FIGURES

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### I. Overview and Terminology

[0054] The present invention provides a method, system, and computer program product for propagating access to host site content to remote users over the World Wide Web (also referred to as WWW or the Web). Access to host site content is distributed more widely and easily through propagative posters. Remote users can access a host site and configure propagative posters in real-time. A Web code segment corresponding to a configured propagative poster is then generated and sent to the remote user in real-time. Propagative posters also permit users to select summary information about an item or topic displayed thereon to access further information about that selected item or topic.

[0055] The term "propagative poster" refers to any type of poster created and managed according to the present invention. Such a "poster" can include, but is not limited to, any one or more of an image, bitmap, link, button, window, display view, and/or applet.

[0056] The term "real-time" means information, such as a user input and a host site response, that can be exchanged in a round-trip cycle between a remote user and the host site

with little or no delay, such as, within seconds or minutes (any delay being essentially a function of the communication medium and devices connected between a user and the host site).

[0057] The terms "Web code segment" and "non-executable code segment" refer interchangeably to an segment that can be inserted into a Web page and is capable of being interpreted by a browser. A Web code segment can include, but is not limited to, HTML text.

[0058] The present invention is described with respect to propagating posters over the Web. The present invention is not necessarily limited to the Web and can be applied in any interactive, computer networking service, including but not limited to the Web.

II. Propagating Remotely Configurable Posters

[0059] The operation of the present invention is described first with respect to a routine **100**, as shown in FIG. **1**. During the description of routine **100**, reference is made to example display screens **210**, **220**, **230**, and **240** shown in FIGS. **2**A-**2**D. Propagative poster management is then further described with respect to an example system and architecture shown in FIGS. **3** and **4**. Example data structures used in the propagative poster management system of FIG. **3** are further described with respect to FIGS. **5**, **6**, **7**, and **8**. The operation of the propagative poster management system **300** is further described with respect to flowcharts shown in FIGS. **9**A and **9**B, FIGS. **10**A and **10**B, and FIG. **11**.

[0060] FIG. **1** shows a routine **100** for propagating remotely configurable posters of content on a host site (steps **110**-**190**).

[0061] A. Configuration

[0062] First, a configuration session is hosted that allows a remote user to configure a propagative poster (step **110**). The configuration session allows the remote user to configure a propagative poster based on inputs or configuration selections made by the remote user. In one example, the present invention serves data that enables a series of configuration screens to be displayed to the remote user. The configuration screens can include templates or forms to further guide input by the user.

[0063] FIGS. **2**A-**2**D show one example series of screens for configuring and propagating a propagative poster. FIG. **2**A shows a first configuration screen **210**. Configuration screen **210** includes images of different types of sample posters that can be configured by user. In this example, four sample types of posters can be selected by a user. The first type is a window that displays job posting information at a host site. The second type is a window that displays resume information at the host site. The third type is a search button that enables a user to perform a search of data at the host site. The fourth type of poster is a data display window that displays information. For example, a data display representing statistical information about data on the host site can be provided in a propagative poster.

[0064] A user then selects the desired type of propagative poster from configuration screen **210** and is presented with a second configuration screen **220**, as shown in FIG. **2**B. Configuration screen **220** allows the user to further configure the content of the propagative poster. For example, if a user selected the job posting type of propagative poster in configuration screen **210**, then a configuration screen **220** is served that allows the user to configure user-specified criteria. As shown in FIG. **2**B, a template is provided in configuration screen **220** that allows a user to enter a title for the propagative poster, and to select a job function, type of industry, city, and state information. Pop-up windows can be selected to further guide a user to different types of job functions or types of industries which can be input. Similar configuration screens are presented when a user selects a resume type of propagative poster. These configuration screens, however, include templates designed to facilitate user input of fields related to resume information, such as user name, start date, years of experience, and location.

[0065] When anything but the search box type of propagative poster is configured, the configuration screens include one or more templates that allow a user to enter desired search parameters. Finally, when a data window is selected as the type of propagative poster to be configured, configuration screens are presented that allow a user to select the type of data display. For example, a template can be displayed that allows a user to select the type of data to be displayed (e.g., job or resume type of information), and the type of display format (e.g., statistical summaries, pie charts, bar charts, graphs, tables, and other formats).

[0066] As shown in FIG. **2**C, a third configuration screen **230** is then displayed that shows the user configured propagative poster as it would appear on a web page. The remote user can then verify that the configured propagative poster is acceptable. In one example, an OK button or other input device can be used to enable the user to indicate that the poster is acceptable.

[0067] B. Web Code Segment Generation

[0068] After configuration, a Web code segment is generated. First, a propagative poster identifier is generated (step **120**). The propagative poster identifier references the configured propagative poster on the host site. In step **130**, a Web code segment is generated that includes at least a propagative poster identifier and a link to the host site. The link can be a URL of the host site through which the propagative poster can be accessed. In step **140**, the generated Web code segment is forwarded in real time to the browser of a remote user. The generated Web code segment is then inserted into a remote page at a remote site designated by the user (step **150**).

[0069] FIG. **2**D shows an example screen **240** that illustrates steps **120**-**150**. Example screen **240** includes an example Web code segment generated according to steps **120**-**130**. The Web code segment is HTML text and includes a propagative poster identifier and a link to the host site. The HTML text is sent over an HTTP link for display in the browser of the remote user (step **140**). For example, as shown in FIG. **2**D the HTML text can be provided in a box within the screen **240** to enable a user to easily select the HTML text. The user can then cut and paste the HTML text into another remote Web page as described with respect to step **150**.

[0070] Note screen **240** also includes instructions to guide the user to further facilitate easy cutting and pasting of the HTML code segment. Alternatively, the Web code segment can be automatically inserted by the host site into a desig-

nated Web page of the remote user. This of course requires that the host site be granted access rights to write on the Web server of the remote user.

[0071] The display screens **210** through **240** described with respective FIGS. **2**A through **2**D are illustrative and not intended to limit the present invention. For example, a smaller or larger number of screens can be used. Different types of information and format can be included in screens **210-240** in accordance with the present invention. Any type of user input entry device can be used, including but not limited to templates, forms or other data entry modes.

[0072] After step **150**, the first or original configured propagative poster is then accessible to subsequent users that visit the remote Web page with the inserted Web code segment. For example, the remote Web page may include a display of the propagative poster itself and/or a button or link to the propagative poster. When a subsequent user visits or "hits" the remote Web page the original configured propagative poster is generated (step **160**). Because the inserted Web segment included a link to the propagative poster host site the subsequent user can be hyperlinked to the host site itself through conventional HTTP. The propagative poster identifier drawn from the Web code segment further allows the host site to automatically serve the appropriate propagative poster to the second or subsequent remote user. In particular, an overlay window is generated on the browser of the subsequent remote user that displays the original configured propagative poster.

[0073] At this time, the subsequent user is communicating directly with the host site. The host site can generate the original configured propagative poster based on current data at the time the poster is accessed. Alternatively, the host site can display the original configured poster data based on data in the host site at the time the original user configured the poster or at the time when the poster was periodically "refreshed" or updated. For example, the host site may periodically generate and store the configured propagated posters offline as part of a daily maintenance or updating procedure. Regardless, the subsequent user is able to view the poster configured by the original user that includes data on the host site. In this way, host site data is propagated and distributed widely over the WWW.

[0074] C. Tracking

[0075] The host site can further track information related to the original remote user that configured the propagative poster and subsequent accesses made to the configured propagative poster (step **170**). For example URL history information of the original remote user and subsequent remote users that access the propagative posters can be tracked. Click-through information can be tracked. In general, any type of tracking and user profiling can be used depending on what we have access to via the document object model (DOM) and/or other methods. According to one feature of the present invention, the number of accesses made to configured propagative posters and the frequency of the number of accesses made is tracked. In this way more active propagative posters can be refreshed more often.

[0076] D. Further Remotely Configurable Poster Propagation

[0077] According to a further feature of the present invention a propagation poster further includes an input portion, such as, a "Make Propagation Poster" button. The input portion enables a remote user to easily make another propagative poster. For example, as shown in the configuration screen **230**, a propagative poster can include an input portion labeled "click. here to get a window for your site" or "make propagation poster now."

[0078] In step **180**, a check is made to determine whether a user wishes to configure a propagative poster. In particular, a check is made to determine whether the user has made a selection to the input portion for making a propagative poster. When a user does wish to configure a propagative poster, a configuration session to create a new poster is then initiated. Steps **110** through **170** are then repeated for the subsequent remote user. In this way, another propagation poster is easily generated for the subsequent remote user. Content on the host site is then distributed even more quickly to a wider audience as users who visit the Web page of the remote user select and propagate their own posters. When a user doesn't want to configure a propagative poster then routine **100** ends (step **190**).

III. Example On-Line Propagative Poster System

[0079] FIGS. **3** and **4** are block diagrams of an on-line system **300** for propagating remotely configurable posters according to one embodiment of the present invention. Propagative poster system **300** includes a host site **302**. Host site **302** is coupled through communication links over network **305** to any number of clients of remote users. For clarity, only client **370** of user **1** and client **380** of user n are shown. Client **370** includes a browser **372** and a user interface **347**. Similarly, client **380** includes a browser **382** and a user interface **384**. A remote Web server **376** is also coupled to network **305**. Web server **376** is further coupled to a storage device **377** storing Web page **378**. FIG. **4** shows how an example HTML segment **410** generated according to the present invention is inserted into a remote Web page **378**.

[0080] A. Host Site with Propagative Poster Management

[0081] Host site **302** includes a propagative poster manager **310**, storage device **312**, database **314**, and Web server **316**. Propagative poster manager **310** and Web server **316** are coupled to one another and to storage device **312** and database **314**. Storage device **312** stores records related to the content of propagative posters and the management of propagative posters. Database **314** stores data for host site **302**, that is, the local content of host site **312**. Propagative poster manager **310** further includes a propagative poster configuration module **320**, propagative poster generator **330**, propagative poster tracker **340**, propagative poster maintenance module **350**.

[0082] Host site **302** can be implemented on any one or more processors. In one example, not intended to limit the present invention, propagative poster manager **310** is implemented on one or more servers. Likewise, Web server **316** can be one or more Web servers supporting Web services. Storage device **312** can be type of data storage device or combination of data storage devices including, but not limited to, a type of memory and/or database. Database **314** can be any type of database (relational or non-relational). Additional databases can be added to accommodate greater capacity. In one example, host site **302** is a Web site that supports on-line employment services, especially for independent consultants and hiring managers who are looking to

hire independent consultants. These on-line employment services can include but are not limited to presenting and managing job postings, resume collection, formatting and storage, spidering, and e-mail campaign generation and management. Other servers and modules (not shown) can support these services and provide data for database **314**.

[**0083**] B. Propagative Poster Manager

[**0084**] Propagative poster manager **310** further includes a propagative poster configuration module **320**, propagative poster generator **330**, propagative poster tracker **340**, propagative poster maintenance module **350**. Propagation poster configuration module **320** hosts configuration sessions that allow remote users to configure propagative posters of host site content. Propagative poster generator **330** generates propagative poster identifiers and corresponding Web code segments as described above with respect to Steps **110**-**130**. Propagative poster tracker **340** tracks URL addresses of remote servers accessing the user configured propagated posters and other profiling and tracking information. Propagative poster maintenance module **350** generates reports based on propagative poster records and data tracked by the propagative poster tracker **340**. Propagative poster manager **310** (including each component propagative poster configuration module **320**, propagative poster generator **330**, propagative poster tracker **340**, and propagative poster maintenance module **350**) can be control logic implemented in software, firmware, hardware or any combination thereof. The operation of the on-line propagative poster system **300** and in particular propagative poster manager **310** is described further with respect to the example data structures in FIGS. **5** to **8** and the operational flowchart of FIGS. **9**A, **9**B, **10**A, **10**B, and **11**.

[**0085**] C. Operation

[**0086**] As shown in FIG. **9**A, a first configuration session **900** begins when a remote user **1** visits host site **302** (step **912**). User **1** enters the URL of host site **302** (in particular, the URL of Web server **316**) into browser **372**. User **1** is then linked to Web server **316**. Host site **302** then through Web server **316** presents different web pages to browser **372** for reviewing by user **1**. These web pages can include any type of host site content. In step **914**, a propagation poster query is sent. This query for example can be an input portion on a window that indicates "make propagation poster now." Alternatively, a separate window asking the remote user if they wish to configure a propagative poster can be displayed.

[**0087**] In step **916**, user **1** requests to make a propagative poster. Host site **302** receives the request and sends one or more configuration screens (step **918**). In particular, propagation poster configuration module **320** sends one or more configuration screens **210**-**230** in a configuration session as described above with respect to step **110** and FIGS. **2**A to **2**C. User **1** inputs desired configuration selections into the one or more screens. Browser **372** then sends the user's configuration selections to host site **302** (step **920**).

[**0088**] Propagative poster manager **310** then generates and sends a bitmap or text of a configured propagative poster to browser **372** (step **922**). Browser **372** then sends a confirmation input by user **1** indicating that the configured propagative poster is acceptable (step **924**).

[**0089**] Propagative poster generator **330** then generates a propagative poster identifier that includes a unique poster number (step **926**). Alternatively, in one embodiment to enhance security and promote tracking propagative poster **330** further includes a hash function generator. Any type of hash function can be used including but not limited to a one-way hash function such as the MD**5** message-digest algorithm (B. Schneier, *Applied Cryptography, Second Edition* (John Wiley & Sons, Inc. United states of America) 1996, pp. 351-354, and R. Rivest, "MD5 Message-Digest Algorithm," Networking Group Request for Comments: 1321 MIT Laboratory for Computer Science and RSA Data Security, Inc., April 1992 (downloaded Mar. 30, 2000)), each of which is incorporated in its entirety herein by reference.

[**0090**] The hash function generator as shown in FIG. **5** receives a respective private key **510**, and unique poster number **520**. The hash function generator then outputs a secure fingerprint **540**. Propagative poster (PP) generator **330** then concatenates the secure fingerprint **540** and the URL of the first or originating remote user to generate a secure, trackable propagative poster ID (PPID) **560** (step **928**).

[**0091**] PP generator **330** then generates a non-executable HTML code segment **410** that includes secure, trackable PPID **560** and a link (URL) to host site **302** (step **930**). PP generator **330** further generates executable code. PP generator **330** then generates and stores a PP record **600** in storage device **312** (step **934**).

[**0092**] FIG. **6** shows an example propagative poster record **600** stored in storage device **312**. Propagative poster record **600** includes a propagative poster ID **560**, bitmap **620**, non-executable code segment **630**, executable code **640**, search parameter **650**, active/inactive flag **660**, and originator profile data **670**. Bitmap **620** is an image of the propagative poster configured by user. Non-executable code segment **630** represents the web code segment (e.g, HTML segment **410**) generated in step **930**.

[**0093**] Executable code **640** is executable code that enables host site **302** to generate a propagative poster configured in accordance with the selections of the user based on data in database **314** of host site **302**. For example, executable code can include, but is not limited to, Structured Query Language (SQL) or other language that enables a search of database **314** to be performed. Search parameter **650** are keywords, Boolean operators, or other operators that identify a particular search selected or configured by the user during the configuration of the respective propagative poster. In one example, search parameters can include poster title, job function, zip code and state. FIG. **7** shows an example of search parameters input to obtain a desired resume information type of propagation poster. For example, search parameter **650** as shown in FIG. **7** include field type (P**1**, P**2**, P**3**) and field value (T**1**, T**2**, T**3**) information. Field type P**1** corresponds to city information with a value of "Annandale" T**1**. Field type P**2** corresponds to state information with a value of "VA" T**2**. Field type information P**3** corresponds to years of experience with a value "6" T**3**. In this way, executable code **640** can be executed by host site **302** to search database **314** based on search parameter **650** to generate and refresh propagative poster content.

[**0094**] This example is illustrative only and not intended to limit the present invention. Any number and type of data fields and values can be used as would be apparent to a person skilled in the art given this description. Also, search parameter **650** may not be used for certain types of posters that do not require a search of host site data.

[**0095**] Active/inactive flag **660** is set by propagative poster maintenance module **350** depending upon how fre-

quently a particular propagative poster is accessed. For example, if propagative poster maintenance module **350** determines that no hits have been made to the propagative poster, then propagative maintenance module **350** sets flag **660**, to an inactive value. When a hit is made to the propagative poster, propagative maintenance module **350** initiates immediate generation and then sets the flag to active. Propagative poster manager **310** further stores original profile data **670**. Original profile data **670** can include profile information entered by the user creating the poster during configuration (or a prior registration session).

[**0096**] Propagative poster manager **310** then sends the non-executable HTML code segment **630** to browser **372** at client **370** (step **936**). User **1** through browser **372** then inserts non-executable HTML code segment into a Web page (step **938**). As described with respect to step **150**, the non-executable HTML code segment can be inserted manually (e.g., cut and pasted) by a user or automatically by host site **302**.

D. Further Propagation

[**0097**] The distribution of propagative posters is further described with respect to FIGS. **10**A and **10**B. Remote user n (e.g. user **2**) visits user **1** web page (step **1002**). Remote server then interprets HTML code segment **410** (step **1004**). Browser **382** is then linked to host site **302** and Web server **316**. Propagative poster tracker **340** parses the originating URL (User **1**'s URL), and secure trackable PPID **560** (step **1006**).

[**0098**] PP tracker **340** further tracks the referring URL of server **376**. In step **1008**, PP tracker **340** checks whether a valid poster ID is obtained. For example, PP tracker **340** decrypts fingerprint **540** with a copy of the private key previously stored in host site **302** and compares it with the unique poster number or ID **520** to determined if the poster ID that is valid. If a valid poster ID has not been sent, then PP tracker **340** ignores the remote user n (step **1010**). Otherwise, when a valid poster ID is verified, PP tracker **340** determines whether the URL of remote user n equals the originator URL of user **1** (step **1012**). If the URL of remote user n is not equal then PP tracker **340** recognizes that a different user is accessing the poster and stores the URL of remote user n (step **1014**) and proceeds to step **1016**. Otherwise, propagative poster tracker **340** proceeds directly to step **1016**.

[**0099**] In step **1016**, propagative poster tracker **340** updates the history information of propagative poster. In particular, the history is updated to indicate that an access to the propagative poster has been made and to provide a history of the accessing URL and time stamp information. As shown in FIG. **10**A, after a valid poster ID has been verified in step **1008**, and the URL of the accessing remote server **376** has been evaluated in step **1012**, and propagative history updated in step **1016**, then propagative poster manager **310** serves the propagative poster bitmap **620** in real-time to remote user n (step **1018**). Browser **382** then displays to user n the propagative poster in an overlay window (step **1020**). At this time, remote user n is now viewing PP bitmap **620** on host site **302**.

[**0100**] In step **1022**, remote user n selects an input portion or "make propagation poster" area within PP bitmap **620**. Browser **382** forwards this selection to host site **302**. Propagative poster manager **310** receives the "make propagation poster" selection including a mouse click represented by a set of screen space coordinates (step **1024**). Propagative poster manager **310** converts the selection screen space coordinates to x-y coordinates in bitmap space of the poster (step **1026**). Propagative poster manager **310** then evaluates the x-y coordinates in bitmap space to determine if the "make propagation poster" was selected (step **1028**). For example, if a small "make propagation poster" label is added at the bottom of a poster the x-y coordinates in bitmap space are checked to see if they correspond to the area of the small label at the bottom of the poster. If not, then PP manager **310** ignores the input or performs other processing (step **1030**). If yes, then control is transferred to PP configuration module **320** to initiate a configuration session (step **1032**).

[**0101**] E. Propagative Poster Maintenance

[**0102**] Propagative maintenance module **350** carries out a routine for propagative poster maintenance **1100** as shown in FIG. **11**. PP maintenance module **350** generates reports based on poster records and tracking data (step **1110**). Any type of report can be generated based on the information in the poster records and tracking data. Such reports can include but are not limited to reports of each kind of poster that provides information on how many posters reviewed today, how many posters were clicked on today, how many posters were made today, what's the view/click ratio, what are the most active sites that view those site posters, what are the most active sites that generate mouse clicks or searches, what sites generate the most poster creations, what posters are the most popular, and what single poster identifier is on the most sites. PP maintenance module **350** also sets poster records to active or inactive state depending on use (step **1120**). In particular, PP maintenance module **350** sets flag **660** in each PP record **600** to an active state when the poster has been activated on a frequent basis (i.e., at least one hit a day), or to an inactive value if the poster has not been accessed on a frequent basis.

[**0103**] Next, PP maintenance module **350** refreshes propagative posters (step **1130**). For example, PP maintenance module **350** searches and identifies each active PP record **600** (with an active flag **660**). For each active PP record **600**, PP maintenance module executes the executable code **640** based on search parameters **650**. Executable code **640** then generates an updated propagated poster image based on current content in database **314**. An updated image of the propagated poster is then stored on storage device **312**. In other words, it is rewritten over the existing bit map **620**. Originator profile data **670** can also be updated based on tracked URL history and/or click-through data.

[**0104**] F. Example Propagative Poster Record and Tracking Information

[**0105**] FIG. **8** shows an example propagative poster record data structure **800** according to one example implementation of the present invention. Propagative poster record data structure includes a poster object **810**, poster events object **820**, poster event object type **830**, poster owner object **840**, poster type object **850**, poster click action **860**, poster click definition object **870**, poster click action URL object **880**, poster parameters **890**, and poster parameters type object **892**. Each of the objects **810** through **892** are generated and tracked for a respective propagative poster. The different fields and function of each field for each of the objects **810** through **892** is described further in corresponding tables below.

[0106] Poster object **810** includes the following fields and content as set forth in Table 1 below.

TABLE 1

Poster Object 810

| Field | Content |
|---|---|
| PosterID | unique poster identifier number |
| Encrypted ID | encrypted poster identifier |
| PosterOwner ID | unique poster owner identifier number (pointer to poster object 840) |
| PosterType ID | number identifying type of poster (e.g., job posting poster, resume poster, search button, or statistical display), GIF or TEXT version of poster, choice of color and size scheme. (pointer to poster object 850) |
| PosterURL | URL of original user that created poster |
| PosterHTML | HTML segment that is cut and pasted to propagate poster |
| GIFName | file name of stored poster (e.g., a hash coded secure, trackable ID filename with a .gif file type extension) |
| PosterCreateDate | time and date stamp of when poster was created by originator |
| Active | active/inactive flag |
| PosterParamsID | number identifying poster search parameters (pointer to poster object 890) |
| PosterClickActionID | number identifying poster click action parameters (pointer to poster object 860) |

[0107] Poster events object **820** includes the following fields and content shown in Table 2 below.

TABLE 2

Poster Events Object 820

| Field | Content |
|---|---|
| PosterEventsID | event number |
| PosterID | unique poster number |
| PosterEventTypeID | number identifying type of poster event (pointer to poster object 830) |
| ReferringURL | URL address of site that accessed or "hit" poster |
| EventDate | time and date stamp of hit on poster |

[0108] Poster event type object **830** has fields and content as shown below in Table 3.

TABLE 3

Poster Event Type Object 830

| Field | Content |
|---|---|
| PosterEventTypeID | number identifying type of poster event |
| PosterEventDescriptionID | textual description of poster event (e.g., poster hit, poster viewed for length of time) |

[0109] Poster owner object **840** includes the following fields and content as set forth in Table 4.

TABLE 4

Poster Owner Object 840

| Field | Content |
|---|---|
| Poster Owner ID | unique poster owner identifier number |
| PosterOwnerName | name of originator of poster |
| PosterOwnerEmail | email address of originator of poster |

[0110] Poster type object **850** has the following fields and content provided in Table 5.

TABLE 5

Poster Object Type 850

| Field | Content |
|---|---|
| PosterTypeID | number identifying type of poster (e.g., job posting poster, resume poster, search button, or statistical display), GIF or TEXT version of poster, choice of color and size scheme. |
| PosterType Description | textual description of type of poster (e.g., job posting poster, resume poster, search button, or statistical display), GIF or TEXT version of poster, choice of color and size scheme. |
| PosterClick DefID | number identifying which area corresponds to an input portion on poster for making another propagation poster (pointer to poster object 870) |

[0111] Poster click action object **860** includes the following fields and content as shown in Table 6.

TABLE 6

Poster Click Action Object 860

| Field | Content |
|---|---|
| PosterClick ActionID | number identifying poster click action parameters |
| PosterClickDefID | number identifying poster click action parameters (pointer to poster object 870) |
| PosterAreaNumber1 | area number of poster (e.g., one of three areas where banner ads can be placed) |
| ActionURL | URL |

[0112] Poster click define object **870** has the following fields and content shown in Table 7. Note points (x**1**,y**1**) and (x**2**,y**2**) can be two points defining a rectangle (or square) area on a web page in bitmap space. In one embodiment, this set of points defines an input portion where a user clicks to propagate another poster.

TABLE 7

Poster Click Define Object 870

| Field | Content |
|---|---|
| PosterClickDefID | number identifying poster click action parameters |
| X1 | x coordinate of first point in bit map space |
| Y1 | y coordinate of second point in bit map space |
| X2 | x coordinate of second point in bit map space |
| Y2 | y coordinate of second point in bit map space |
| PosterAreaNumber | area number of poster (e.g., one of three areas where banner ads can be placed) |
| PosterEventTypeID | number identifying type of poster event (pointer to poster object 830) |
| PosterClickActionURL | number identifying type of poster click action (pointer to poster object 880) |

[0113] Poster click action URL **880** includes the following fields and content as shown in Table 8.

TABLE 8

Poster Click Action URL Object 880

| Field | Content |
|---|---|
| PosterClickActionURLID | number identifying type of poster click action URL |
| ActionURL | URL |

[0114] Poster parameters object **890** includes the following fields and contents and shown in Table 9.

TABLE 9

Poster Parameters Object 890

| Field | Content |
|---|---|
| PosterParametersID | number identifying type of poster search parameters (pointer to poster object 892) |
| ParametersTypeID | number identifying type of poster search |
| ParameterValue | value of type of poster search |

[0115] Poster parameters type object **892** includes the following fields and content as shown in Table 10.

TABLE 10

Poster Parameters Type Object 892

| Field | Content |
|---|---|
| ParamsTypeID | number identifying type of poster search |
| ParamsDescription | textual description of search parameters |

Note other information can be tracked including client side variables, such as, screen depth, screen width, platform type, browser, and plug-ins installed on client. Such information and tracking is optional depending upon a particular application or preference of an administrator of propagative poster manager **310**.

[0116] G. Detailed Viewing of Information Concerning Data Summarized on a Propagative Poster

[0117] As noted above, a feature of the present invention permits users to click on (i.e., select) summary information displayed on a propagative poster to access further information about a selected item or topic. In other words, a propagative poster allows a user to select summary information about an item or topic displayed on the propagative poster to thereby access further information about that selected item or topic.

[0118] In the context of a list of resumes, for example, a user can access details about a resume that looks interesting simply by clicking on a summary of the desired resume displayed in a list of resumes on a propagative poster. As described in the above sections, propagative poster manager **310** converts the selection screen space coordinates to x-y coordinates in bitmap space of the poster. Propagative poster manager **310** then evaluates the x-y coordinates in bitmap space to determine which resume summary was selected. The system then presents more detailed data corresponding to the resume summary from some host site to the user.

IV. Example Environment

[0119] The present invention can be implemented in any communication network, such as, the Internet, which supports interactive services and applications. In particular, the present invention can be implemented in any Web service, preferably a Web service supporting secure transactions, such as, the Secure Socket Layer (SSL) protocol and/or using a Secure HyperText Transport Protocol (S-HTTP). In one example, the present invention is implemented in a multi-platform (platform independent) programming language such as Java 1.1. Java-enabled browsers are used, such as, Netscape, HotJava, and Microsoft Explorer browsers. Active content Web pages can be used. Such active content Web pages can include Java applets or ActiveX controls, or any other active content technology developed now or in the future. The present invention, however, is not intended to be limited to Java or Java-enabled browsers, and can be implemented in any programming language and browser, developed now or in the future, as would be apparent to a person skilled in the art given this description.

[0120] FIG. **12**A is a diagram of an example internetwork environment according to the present invention. FIG. **12**A shows a communication network or combination of networks (Internet) **1200** which can support the invention. Internet **1200** consists of interconnected computers which supports communication between many different types of users including businesses, universities, individuals, government, and financial institutions. Internet **1200** supports many different types of communication links implemented in a variety of architectures. For example, voice and data links can be used including phone, paging, cellular, and cable TV (CATV) links. Terminal equipment can include local area networks, personal computers with modems, content servers of multi-media, audio, video, and other information, pocket organizers, Personal Data Assistants (PDAs), and set-top boxes.

[0121] Communication over a communication network such as, Internet **1200**, is carried out through different layers of communication. FIG. **12**B shows a simplified four-layered communication model supporting Web commerce including an application layer **1208**, transport layer **1210**, Internet layer **1220**, physical layer **1230**. As would be apparent to a person skilled in the art, in practice, a number of different layers can be used depending upon a particular network design and communication application. Application layer **1208** represents the different tools and information services which are used to access the information over the Internet. Such tools include, but are not limited to, telenet log-in service **1201**, IRC chat **1202**, Web service **1203**, and SMTP (Simple Mail Transfer Protocol) electronic mail service **1206**. Web service **1203** allows access to HTTP documents **1204**, and FTP and Gopher files **1205**. A Secure Socket Layer (SSL) is an optional protocol used to encrypt communications between a Web browser and Web server.

[0122] Description of the example environment in these terms is provided for convenience only. It is not intended that the invention be limited to application in this example environment. In fact, after reading the following description, it will become apparent to a person skilled in the relevant art how to implement the invention in alternative environments.

V. Example Computer System

[0123] An example of a computer system **1240** is shown in FIG. **12**C. The computer system **1240** represents any single or multi-processor computer. Single-threaded and multi-threaded computers can be used. Unified or distributed memory systems can be used.

[0124] Computer system **1240** includes one or more processors, such as processor **1244**. One or more processors **1244** can execute software implementing routine **100** as described above. Each processor **1244** is connected to a communication infrastructure **1242** (e.g., a communications bus, cross-bar, or network). Various software embodiments are described in terms of this exemplary computer system. After reading this description, it will become apparent to a person skilled in the relevant art how to implement the invention using other computer systems and/or computer architectures.

[0125] Computer system **1240** also includes a main memory **1248**, preferably random access memory (RAM), and can also include a secondary memory **1250**. The secondary memory **1250** can include, for example, a hard disk drive **1252** and/or a removable storage drive **1254**, representing a floppy disk drive, a magnetic tape drive, an optical disk drive, etc. The removable storage drive **1254** reads from and/or writes to a removable storage unit **1258** in a well known manner. Removable storage unit **1258** represents a floppy disk, magnetic tape, optical disk, etc., which is read by and written to by removable storage drive **1254**. As will be appreciated, the removable storage unit **1258** includes a computer usable storage medium having stored therein computer software and/or data.

[0126] In alternative embodiments, secondary memory **1260** may include other similar means for allowing computer programs or other instructions to be loaded into computer system **1240**. Such means can include, for example, a removable storage unit **1262** and an interface **1260**. Examples can include a program cartridge and cartridge interface (such as that found in video game devices), a removable memory chip (such as an EPROM, or PROM) and associated socket, and other removable storage units **1262** and interfaces **1260** which allow software and data to be transferred from the removable storage unit **1262** to computer system **1240**.

[0127] Computer system **1240** can also include a communications interface **1264**. Communications interface **1264** allows software and data to be transferred between computer system **1240** and external devices via communications path **1266**. Examples of communications interface **1264** can include a modem, a network interface (such as Ethernet card), a communications port, etc. Software and data transferred via communications interface **1264** are in the form of signals which can be electronic, electromagnetic, optical or other signals capable of being received by communications interface **1264**, via communications path **1266**. Note that communications interface **1264** provides a means by which computer system **1240** can interface to a network such as the Internet.

[0128] The present invention can be implemented using software running (that is, executing) in an environment similar to that described above with respect to FIG. **12**A. In this document, the term "computer program product" is used to generally refer to removable storage unit **1254**, a hard disk installed in hard disk drive **1252**, or a carrier wave carrying software over a communication path **1266** (wireless link or cable) to communication interface **1264**. A computer useable medium can include magnetic media, optical media, or other recordable media, or media that transmits a carrier wave or other signal. These computer program products are means for providing software to computer system **1240**.

[0129] Computer programs (also called computer control logic) are stored in main memory **1248** and/or secondary memory **1250**. Computer programs can also be received via communications interface **1264**. Such computer programs, when executed, enable the computer system **1240** to perform the features of the present invention as discussed herein. In particular, the computer programs, when executed, enable the processor **1244** to perform the features of the present invention. Accordingly, such computer programs represent controllers of the computer system **1240**.

[0130] The present invention can be implemented as control logic in software, firmware, hardware or any combination thereof. In an embodiment where the invention is implemented using software, the software may be stored in a computer program product and loaded into computer system **1240** using removable storage drive **1254**, hard drive **1250**, or interface **1260**. Alternatively, the computer program product may be downloaded to computer system **1240** over communications path **1266**. The control logic (software), when executed by the one or more processors **1244**, causes the processor(s) **1244** to perform the functions of the invention as described herein.

[0131] In another embodiment, the invention is implemented primarily in firmware and/or hardware using, for example, hardware components such as application specific integrated circuits (ASICs). Implementation of a hardware state machine so as to perform the functions described herein will be apparent to persons skilled in the relevant art(s).

VI. Conclusion

[0132] While various embodiments of the present invention have been described above, it should be understood that they have been presented by way of example only, and not limitation. It will be understood by those skilled in the art that various changes in form and details may be made therein without departing from the spirit and scope of the invention as defined in the appended claims. Thus, the breadth and scope of the present invention should not be limited by any of the above-described exemplary embodiments, but should be defined only in accordance with the following claims and their equivalents.

What is claimed is:

**1**. A method for propagating a poster of host site content to remote users over the World Wide Web, comprising the steps of:

(a) hosting a configuration session that allows a first remote user to configure a propagative poster of host site content based on at least one configuration selection input by the remote user;

(b) generating a propagative poster identifier that references the user-configured propagative poster;

(c) generating a Web code segment that includes the propagative poster identifier and a link to the host site; and

(d) forwarding the generated Web code segment to the first remote user in real-time; whereby the generated Web code segment can be inserted into a Web page of the first remote user to create a first remote user-configured propagative poster on the Web page of the first remote user.

**2**. The method of claim 1, further comprising the step of:

(e) generating the first remote user-configured propagative poster in response to a subsequent hit on the first remote user Web page by a second remote user that selects at least a portion of the Web page of the first remote user corresponding to the generated Web code segment.

**3**. The method of claim 2, wherein the at least one configuration selection input by the first remote user includes at least one search parameter, and wherein said generating step (e) includes the steps of:

executing a search query of data based on each search parameter to obtain a search result; and

generating the first remote user-configured propagative poster, wherein the user-configured propagative poster includes the search result.

**4**. The method of claim 3, wherein the search query executing step executes a search query of data at the host site based on each search parameter to obtain the search result.

**5**. The method of claim 2, further comprising the step of displaying the generated first remote user-configured propagative poster in a overlay window within a display view of a browser of the second remote user.

**6**. The method of claim 2, further comprising the step of hosting a second configuration session that allows the second remote user to configure a second remote-user configured propagative poster of host site content based on at least one configuration selection input by the second remote user.

**7**. The method of claim 6, wherein the first remote user-configured propagative poster includes an input portion that enables a second remote user to make another propagative poster; and further comprising the step of initiating said second configuration session hosting step in response to a selection of the input portion by the second remote user.

**8**. The method of claim 1, further comprising the steps of:

converting a pair of screen space coordinates of a user input selection to a pair of coordinates (x,y) in bitmap space; and at least one of:

determining whether the x,y coordinates in bit map space correspond to an input portion of the first remote-user configured propagative poster that enables a second remote user to make another propagative poster, and

displaying detailed information from the host site related to summary information given by the pair of coordinates.

**9**. A system for propagating a poster of host site content to remote users over the World Wide Web, comprising:

(a) hosting means for hosting a configuration session that allows a first remote user to configure a propagative poster of host site content based on at least one configuration selection input by the remote user;

(b) first generating means for generating a propagative poster identifier that references the user-configured propagative poster;

(c) second generating means for generating a Web code segment that includes the propagative poster identifier and a link to the host site; and

(d) forwarding means for forwarding the generated Web code segment to the first remote user in real-time; whereby the generated Web code segment can be inserted into a Web page of the first remote user to create a first remote user-configured propagative poster on the Web page of the first remote user.

**10**. The system of claim 9, further comprising:

(e) third generating means for generating the first remote user-configured propagative poster in response to a subsequent hit on the first remote user Web page by a second remote user that selects at least a portion of the Web page of the first remote user corresponding to the generation process.

**11**. The system of claim 10, wherein the at least one configuration selection input by the first remote user includes at least one search parameter, and wherein said third generating means (e) includes:

means for executing a search query of data based on each search parameter to obtain a search result; and

means for generating the first remote user-configured propagative poster, wherein the user-configured propagative poster includes the search result.

**12**. The system of claim 11, wherein said search query executing means executes a search query of data at the host site based on each search parameter to obtain the search result.

**13**. The system of claim 10, further comprising means for displaying the generated first remote user-configured propagative poster in a overlay window within a display view of a browser of the second remote user.

**14**. The system of claim 10, further comprising means for hosting a second configuration session that allows the second remote user to configure a second remote-user configured propagative poster of host site content based on at least one configuration selection input by the second remote user.

**15**. The system of claim 14, wherein the first remote user-configured propagative poster includes an input portion that enables a second remote user to make another propagative poster; and further comprising means for initiating said second configuration session hosting means in response to a selection of the input portion by the second remote user.

**16**. The system of claim 9, further comprising:

means for converting a pair of screen space coordinates of a user input selection to a pair of coordinates (x,y) in bitmap space; and

means for determining whether the x,y coordinates in bit map space correspond to an input portion of the first remote-user configured propagative poster that enables a second remote user to make another propagative poster.

**17**. A system for managing propagation of host site content to remote users over the World Wide Web, comprising:

a propagative poster configuration module that hosts a configuration session that allows a first remote user to configure a propagative poster of host site content based on at least one configuration selection input by the remote user; and

a propagative poster generator that generates a propagative poster identifier and a Web code segment, wherein the propagative poster identifier references the user-configured propagative poster the Web code segment includes the propagative poster identifier and a link to the host site, and forwards the generated Web code segment to the first remote user in real-time; whereby the generated Web code segment can be inserted into a Web page of the first remote user to create a first remote user-configured propagative poster on the Web page of the first remote user.

**18**. The system of claim 17, wherein said propagative poster generator further generates the first remote user-configured propagative poster in response to a subsequent hit on the first remote user Web page by a second remote user that selects at least a portion of the Web page of the first remote user corresponding to the generated Web code segment.

**19**. The system of claim 18, wherein the at least one configuration selection input by the first remote user includes at least one search parameter, and wherein said propagative poster generator executes a search query of data in a database based on each search parameter to obtain a search result, and generates the first remote user-configured propagative poster, wherein the user-configured propagative poster includes the search result.

**20**. The system of claim 18, wherein said propagative poster configuration module further hosts a second configuration session that allows the second remote user to configure a second remote-user configured propagative poster of host site content based on at least one configuration selection input by the second remote user.

**21**. A computer program product comprising a computer useable medium having computer program logic recorded thereon for enabling at least one processor to manage propagation of host site content to remote users over the World Wide Web in real-time over the World Wide Web (WWW), said computer program logic comprising:

first computer readable program code means for enabling said at least one processor to host a configuration session that allows a first remote user to configure a propagative poster of host site content based on at least one configuration selection input by the remote user;

second computer readable program code means for enabling said at least one processor to generate a propagative poster identifier that references the user-configured propagative poster;

third computer readable program code means for enabling said at least one processor to generate a Web code segment that includes the propagative poster identifier and a link to the host site; and

fourth computer readable program code means for enabling said at least one processor to forward the generated Web code segment to the first remote user in real-time; whereby the generated Web code segment can be inserted into a Web page of the first remote user to create a first remote user-configured propagative poster on the Web page of the first remote user.

**22**. A method for propagating a poster of host site content to remote sites over the World Wide Web, comprising the steps of:

(a) at a host site, hosting a configuration session that allows a first remote user to configure a propagative poster of host site content based on at least one configuration selection input by the remote user;

(b) at the host site, generating a propagative poster identifier that references the user-configured propagative poster;

(c) at the host site, storing the propagative poster identifier and the user-configured propagative poster;

(d) at the host site, generating a Web code segment that includes the propagative poster identifier and a link to the host site;

(e) at the host site, forwarding the generated Web code segment to a remote site in real-time;

(f) at the remote site, inserting into a Web page of the remote site the Web code segment;

(g) at the remote site, forwarding the Web page of the remote site with the Web code segment to a second remote user;

(h) at the host site, generating a remote propagative poster based on the propagative poster identifier; and

(i) at the host site, forwarding the remote propagative poster to the second remote user.

* * * * *