



US007080139B1

(12) **United States Patent**  
**Briggs et al.**

(10) **Patent No.:** **US 7,080,139 B1**  
 (45) **Date of Patent:** **Jul. 18, 2006**

(54) **METHOD AND APPARATUS FOR  
 SELECTIVELY SHARING AND PASSIVELY  
 TRACKING COMMUNICATION DEVICE  
 EXPERIENCES**

(75) Inventors: **Darren P. Briggs**, Nashville, TN (US);  
**Brady O. Bruce**, San Francisco, CA  
 (US); **Michael W. Mitchell**, San  
 Francisco, CA (US); **Emile L. Reed,**  
 IV, San Francisco, CA (US)

(73) Assignee: **Fatbubble, Inc.**, San Francisco, CA  
 (US)

(\*) Notice: Subject to any disclaimer, the term of this  
 patent is extended or adjusted under 35  
 U.S.C. 154(b) by 597 days.

(21) Appl. No.: **09/841,475**

(22) Filed: **Apr. 24, 2001**

(51) **Int. Cl.**  
**G06F 15/173** (2006.01)

(52) **U.S. Cl.** ..... **709/224; 709/203; 709/205;**  
**709/207; 707/3**

(58) **Field of Classification Search** ..... **709/203-207,**  
**709/217-219, 224; 707/1, 3, 10; 706/45**  
 See application file for complete search history.

(56) **References Cited**

**U.S. PATENT DOCUMENTS**

5,760,917	A *	6/1998	Sheridan	.....	358/442
6,195,654	B1 *	2/2001	Wachtel	.....	707/3
6,480,885	B1 *	11/2002	Olivier	.....	709/207
6,578,072	B1 *	6/2003	Watanabe et al.	.....	709/217
2001/0036224	A1 *	11/2001	Demello et al.	.....	375/220
2002/0049686	A1 *	4/2002	Chuang et al.	.....	706/45
2002/0052925	A1 *	5/2002	Kim et al.	.....	709/217
2002/0087496	A1 *	7/2002	Stirpe et al.	.....	706/45
2003/0054810	A1 *	3/2003	Chen et al.	.....	455/422
2003/0225836	A1 *	12/2003	Lee et al.	.....	709/205
2004/0088355	A1 *	5/2004	Hagan et al.	.....	709/203

\* cited by examiner

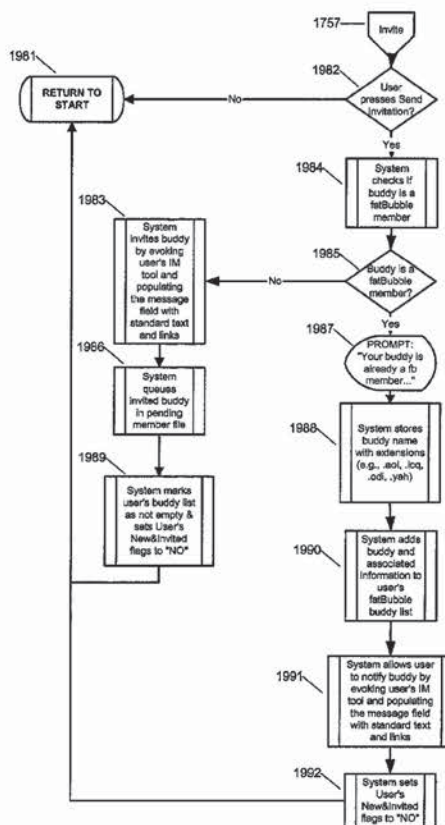
*Primary Examiner*—Wen-Tai Lin

(74) *Attorney, Agent, or Firm*—Ernest J. Beffel, Jr.; Haynes  
 Beffel & Wolfeld LLP

(57) **ABSTRACT**

The present invention includes methods and devices for passively tracking and selectively sharing user experiences with communication devices, including computers, web-enabled telephones, and PDAs. User rating or comments on their experiences can be captured. Particular aspects of the present invention are described in the claims, specification and drawings.

**32 Claims, 19 Drawing Sheets**



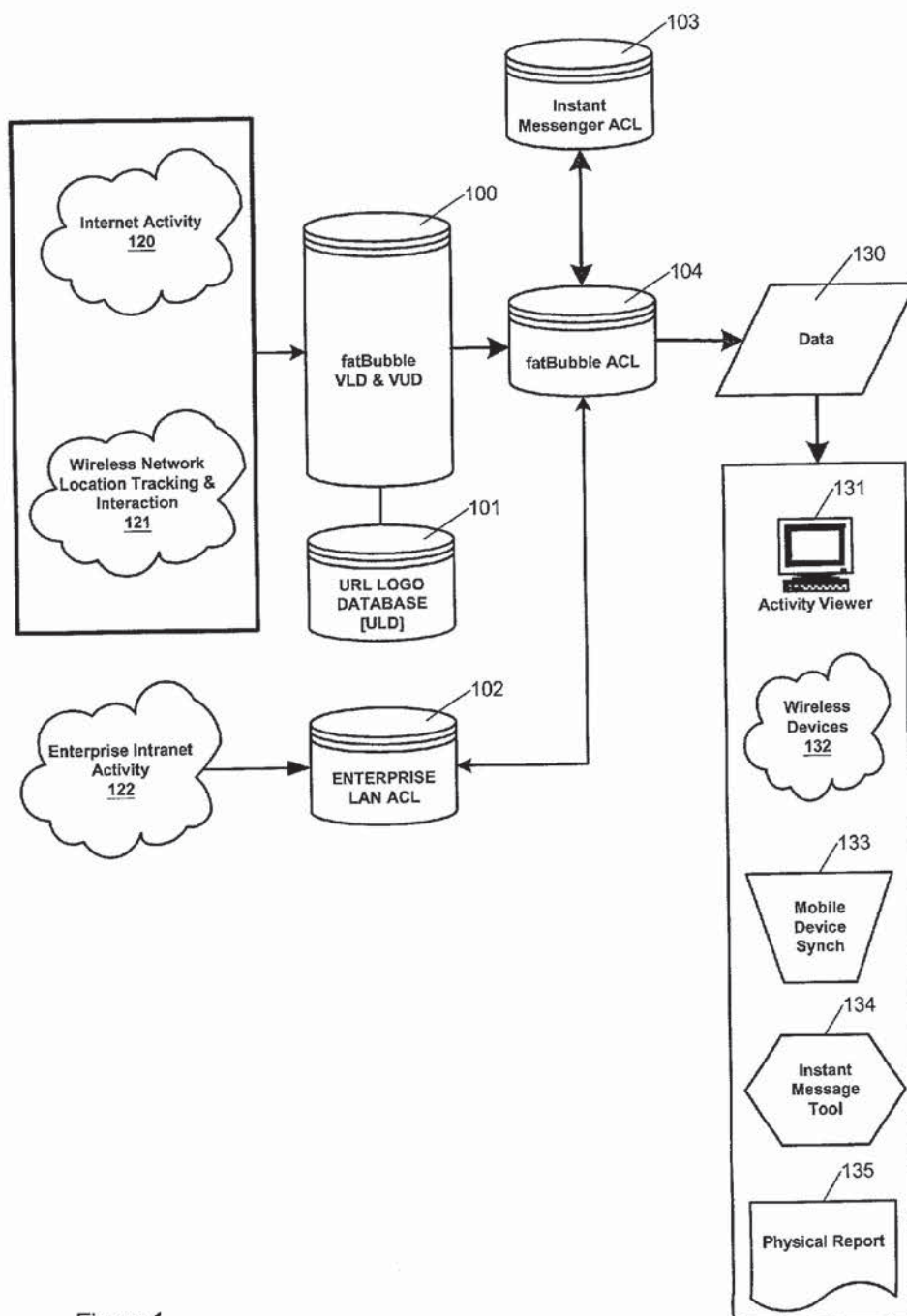


Figure 1

fatbubble® Sign On

Type your user name and password to sign on to fatbubble®.

User Name

Password

[Create a new user](#)

[I forgot my password](#)

**Sign On**

\*You must be a registered user to sign on to fatbubble®. [Join fatbubble® now!](#)

Figure 2

fatbubble®

CONDOW Best of 2000s Hip Hop

Comments

Sharing On

Find

Invite

What's Hot?

Find

Figure 3

Invite Buddy

Provide IM tool information for the buddy you're inviting.

IM Account

Screen name

[More Info](#)

**Send invitation!** **Done**

Figure 4

Invite Buddy Confirmation

Did your invitation get sent?

If your invitation did not get sent, you can choose to [send the invitation via email](#) or invite them again later.

\*Your invitation to dracoos.aim will be saved in your fatbubble® People list until dracoos.aim joins fatbubble®. To invite this person again later, simply select "Buddy List" from the fatbubble® menu and click "Invite again" next to this person's name. [More Info](#)

**Yes** **No...I'll invite them later**

Figure 5

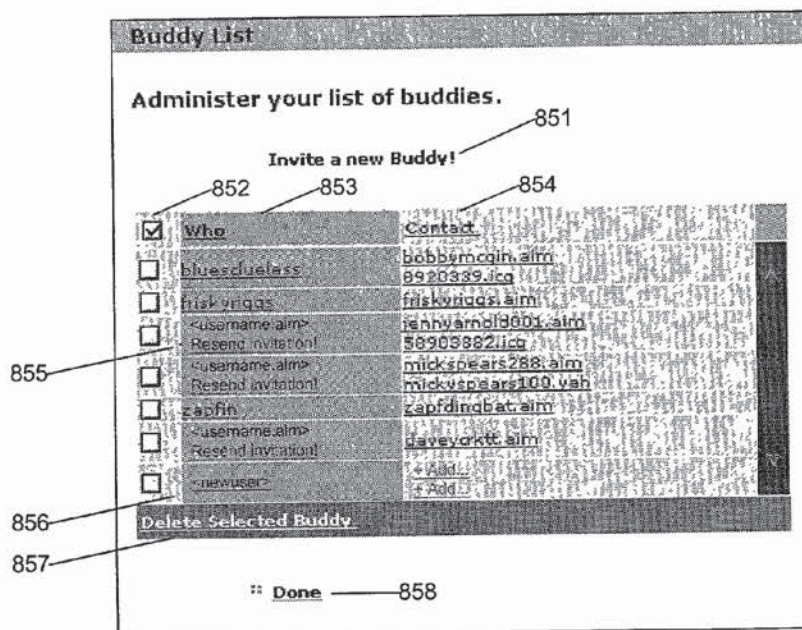
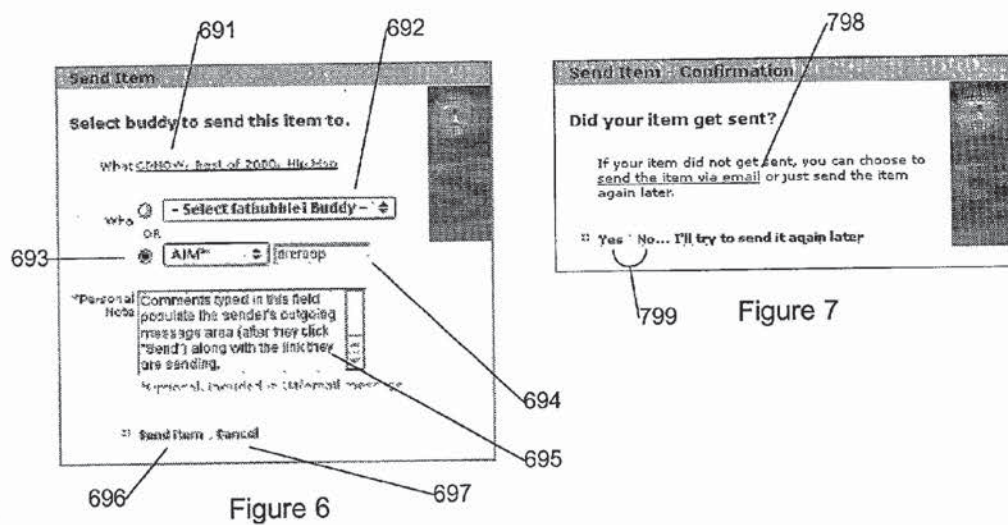


Figure 8A



861 Edit fatbubble<sup>®</sup> Profile - friskyriggs

862 Buddy Overview 863 Contact Information 864 Topic Sharing 865 File Sharing

866 View | Edit 867

Provide the user IDs for each tool you use to communicate with this buddy. [More Info](#)

868

IM accounts 869 AIM<sup>™</sup> 870 AIM Screen Na [More Info](#)

+ Added tool - Select - Next Tool ID [More Info](#)

872 + Add Another Account... 873

871 :: Save Changes 874

Figure 8B

881 Edit fatbubble<sup>®</sup> Profile - friskyriggs

882

View | Edit

Buddy Overview Contact Information Topic Sharing File Sharing

Use the checkboxes below to select which topic areas you want to share **by default**. You'll be able to turn these topic areas on or off for each user. [More Info](#)

Topics ☒ Select/Deselect All

☒ C:/fatbubble/shared/

☐ D:/projects/

☒ X:/shared/music/

+ Add File/Folder 883

:: Save Changes

Figure 8C

**Edit fatbubble® Profile - friskyriggs**

[View](#) [Edit](#)

<a href="#">Buddy Overview</a>	<a href="#">Contact Information</a>	<a href="#">Topic Sharing</a>	<a href="#">File Sharing</a>
--------------------------------	-------------------------------------	-------------------------------	------------------------------

Use the checkboxes below to select which topic areas you want to share **by default**. You'll be able to turn these topic areas on or off for each user. [More Info](#)

Topics

☒ [Select/Deselect All](#)

☒ [Arts & Entertainment](#)

☒ [Computers & Internet](#)

☒ [Food](#)

☒ [Games](#)

☒ [Health & Fitness](#)

☒ [Home](#)

☒ [Money](#)

☒ [Music](#)

[+ Add Topic Area](#)

☒ [News](#)

☒ [People](#)

☒ [Reference](#)

☒ [Science & Technology](#)

☒ [Shopping](#)

☒ [Sports](#)

☒ [Travel](#)

[Save Changes](#)

Figure 8D

**fatBubble - know what your friends know...**

fatbubble people activity files messages summaries

who: All Buddies topic: All Topics view: All Activity find: advanced

who	did	topic	what	where	thoughts	when
michael		Barnes & Noble.com - Dreamweaver 3 Hands-D...				2.18.01 8:17 P
daren		SF: CA: Italian: Sooma's			great but...	2.18.01 8:16 P
michael		Barnes & Noble.com - Computers...				2.18.01 9:16 P
michael		Amazon.com: buying info: Dreamweaver 3 Han...				2.18.01 9:14 P
brady		Maps.com - Plan a Trip				2.18.01 8:14 P
emile		Yahoo! FRONTIER - Why the We...				2.18.01 8:13 P
michael		E*TRADE				2.18.01 8:12 P

send selected items:

Figure 9



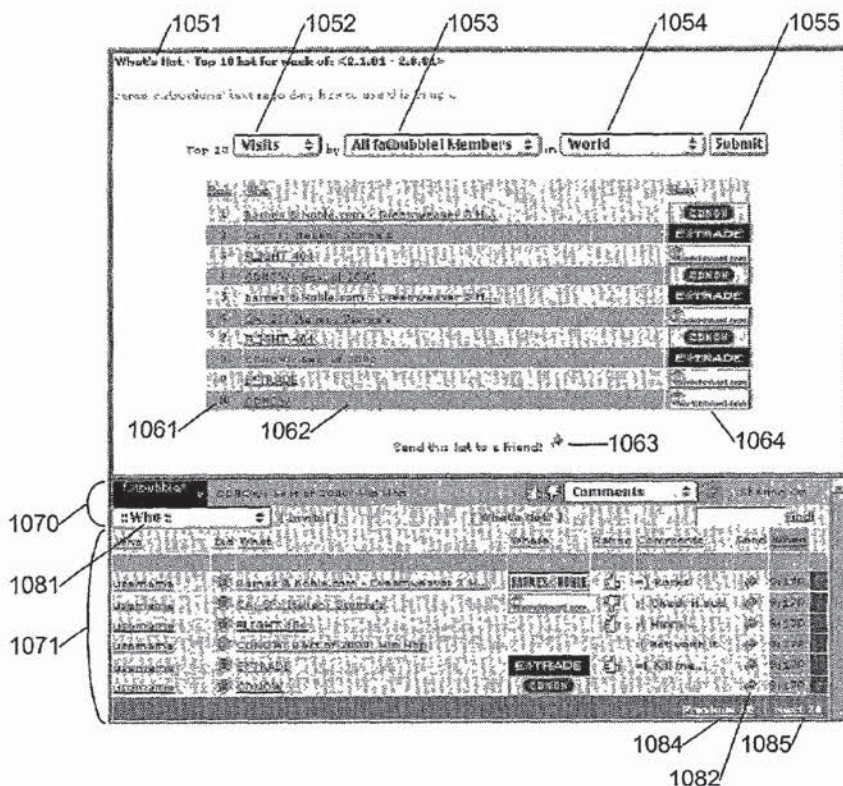


Figure 10

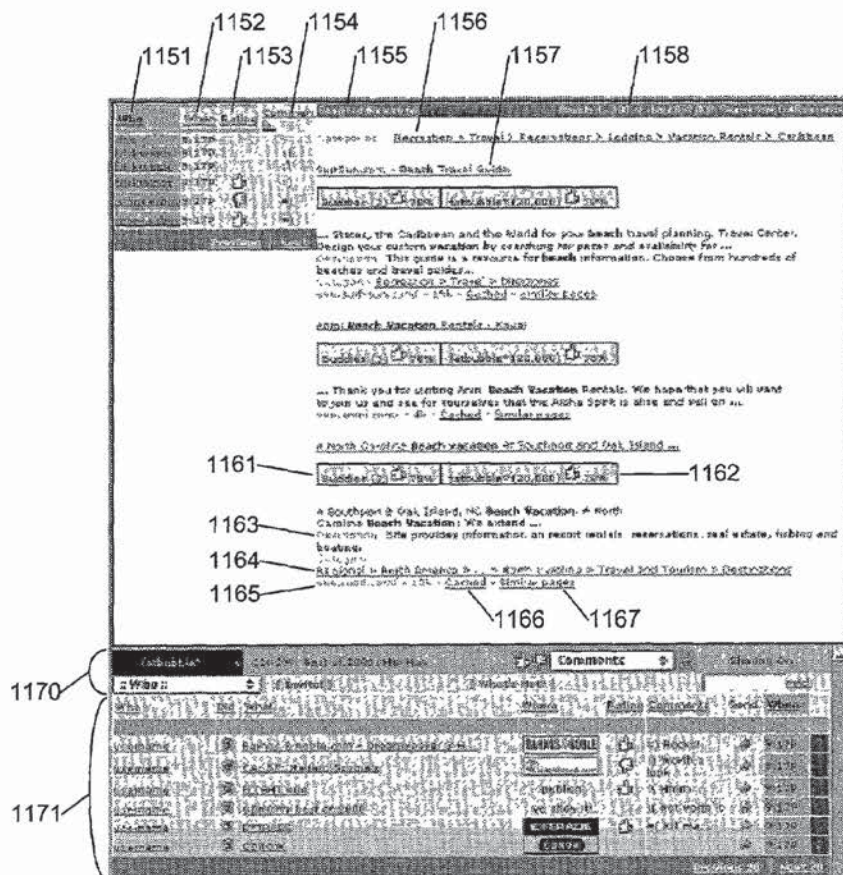


Figure 11

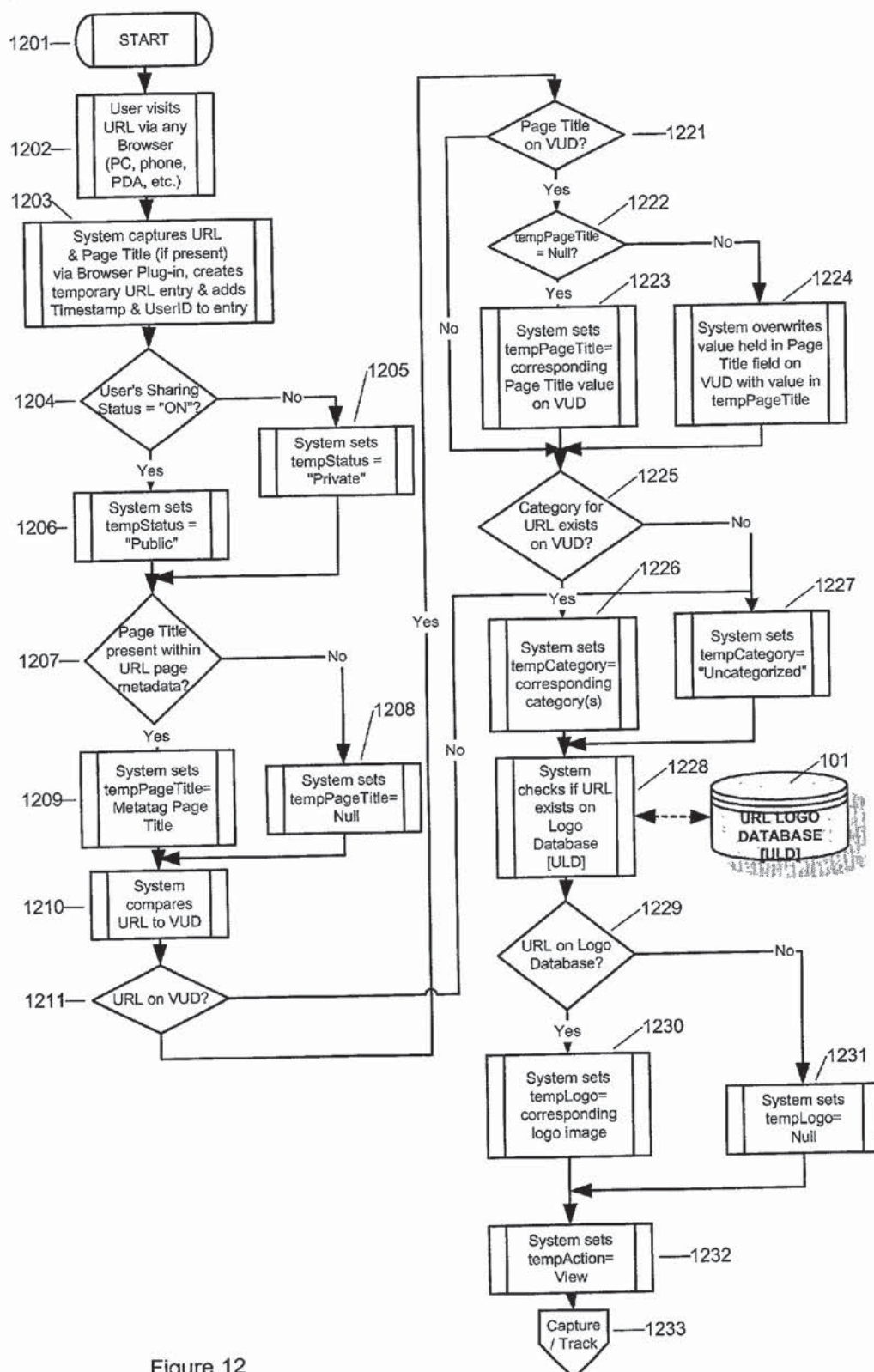


Figure 12



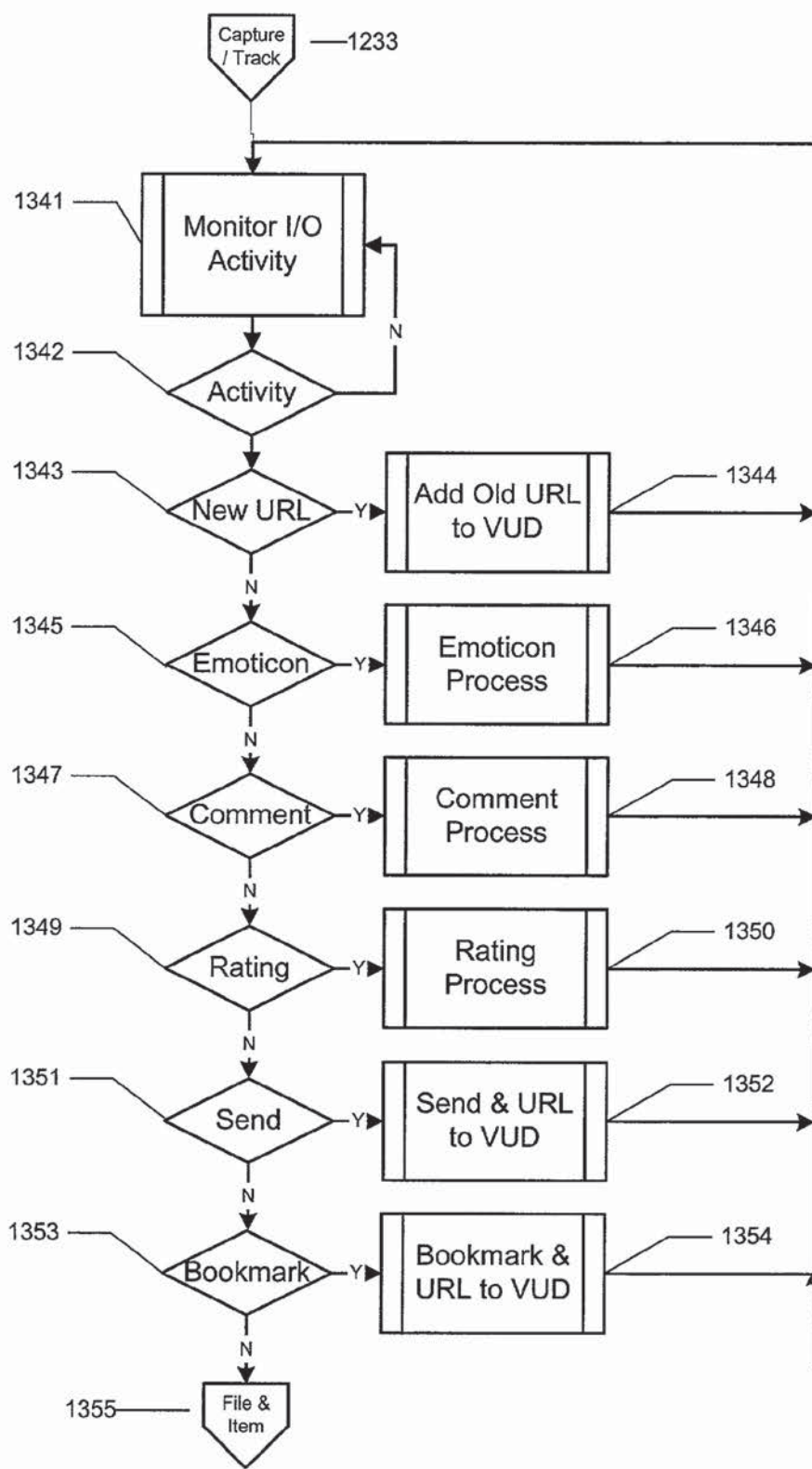


Figure 13

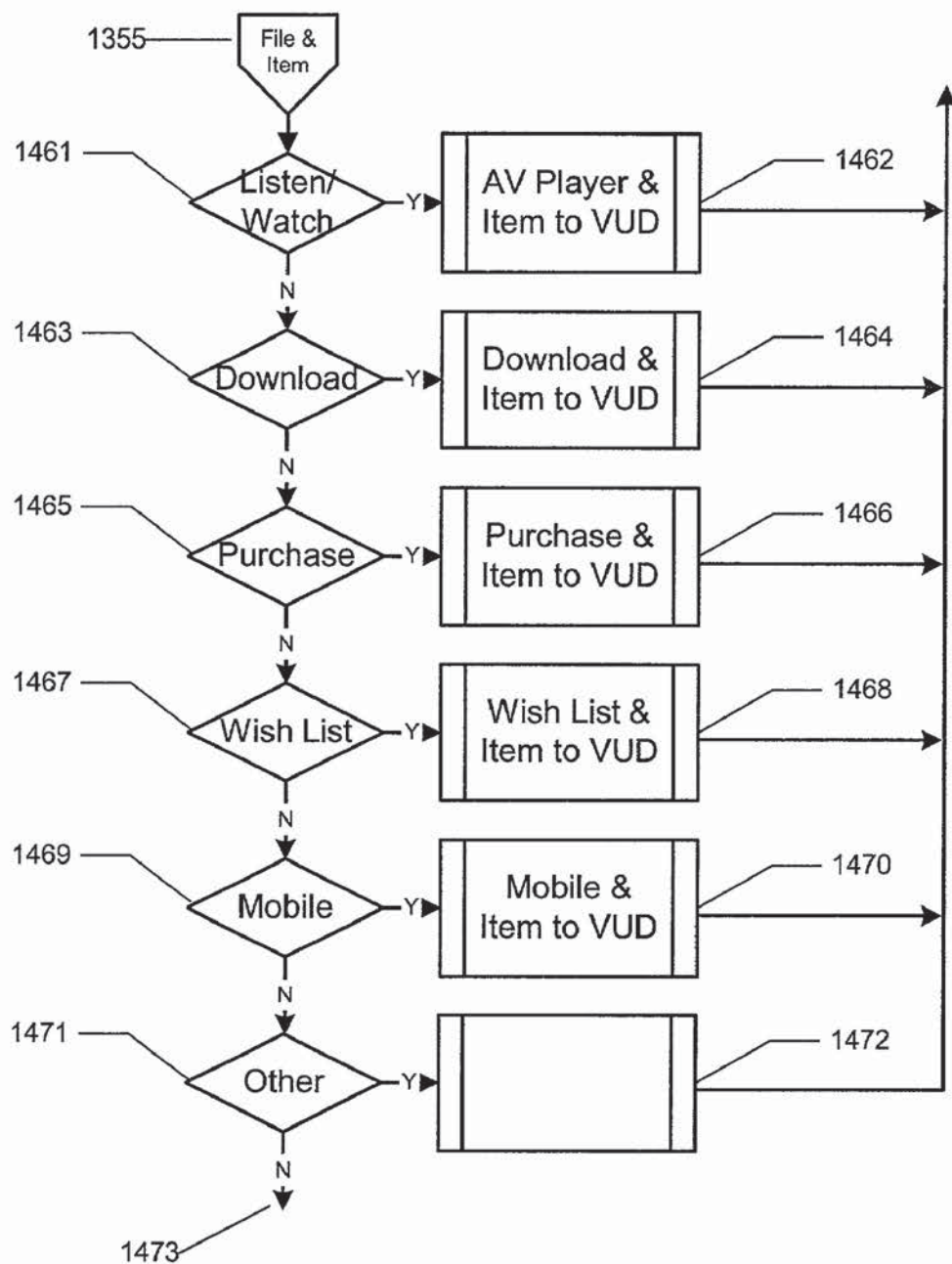
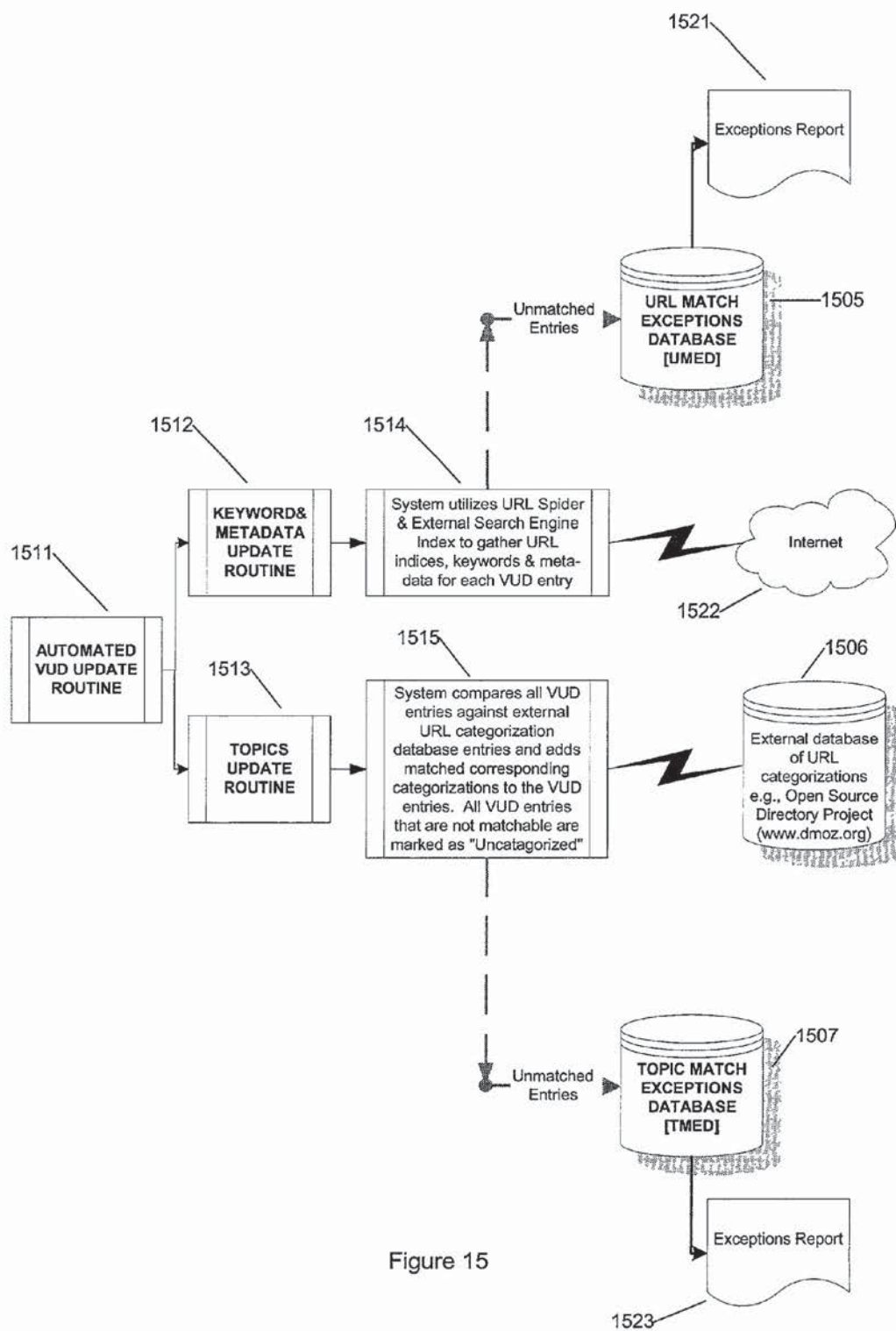
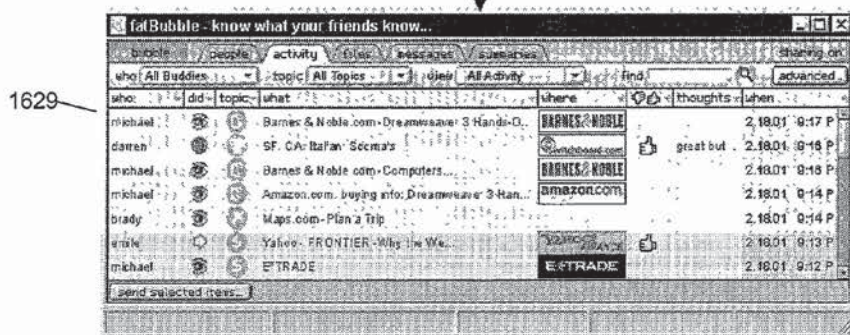
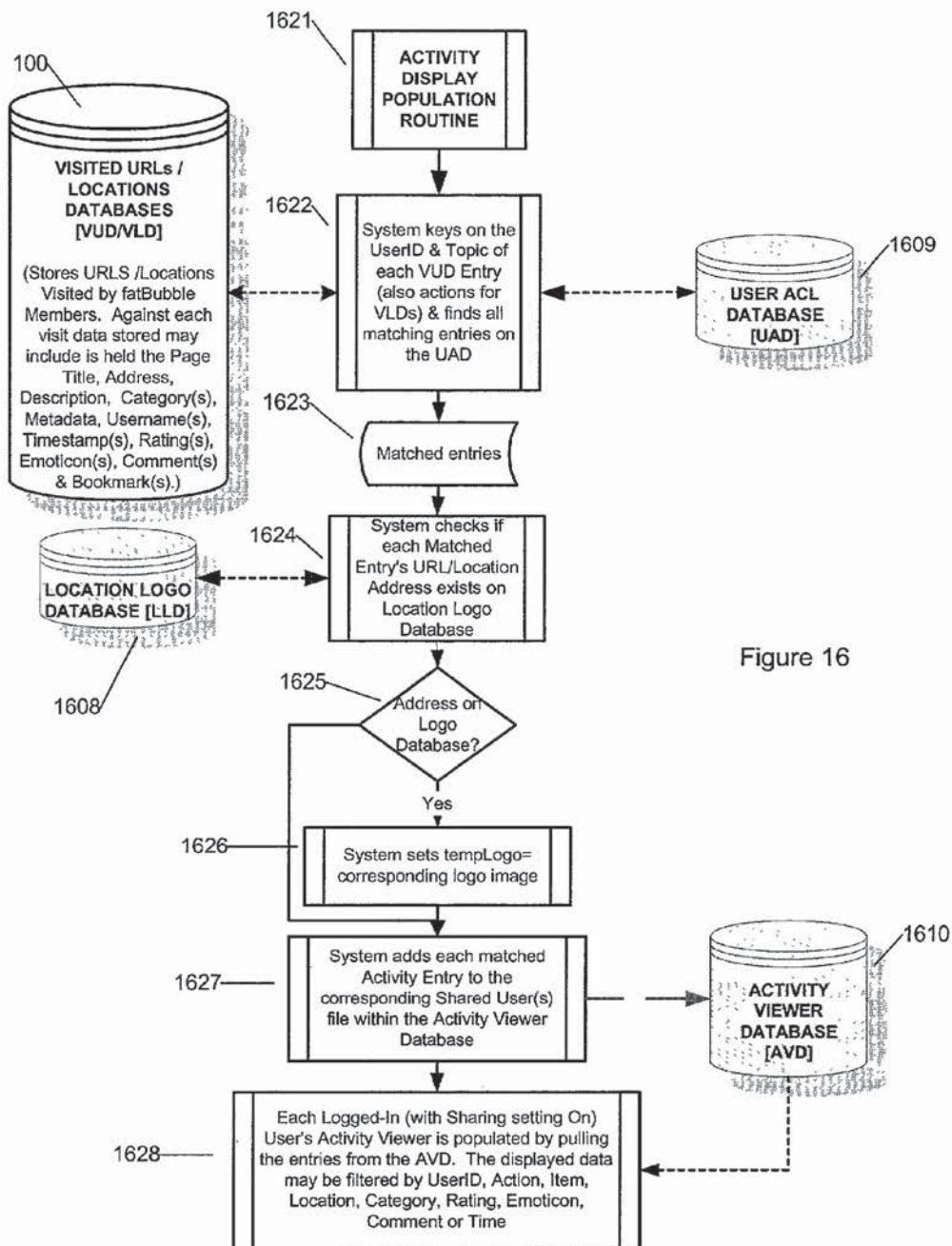


Figure 14







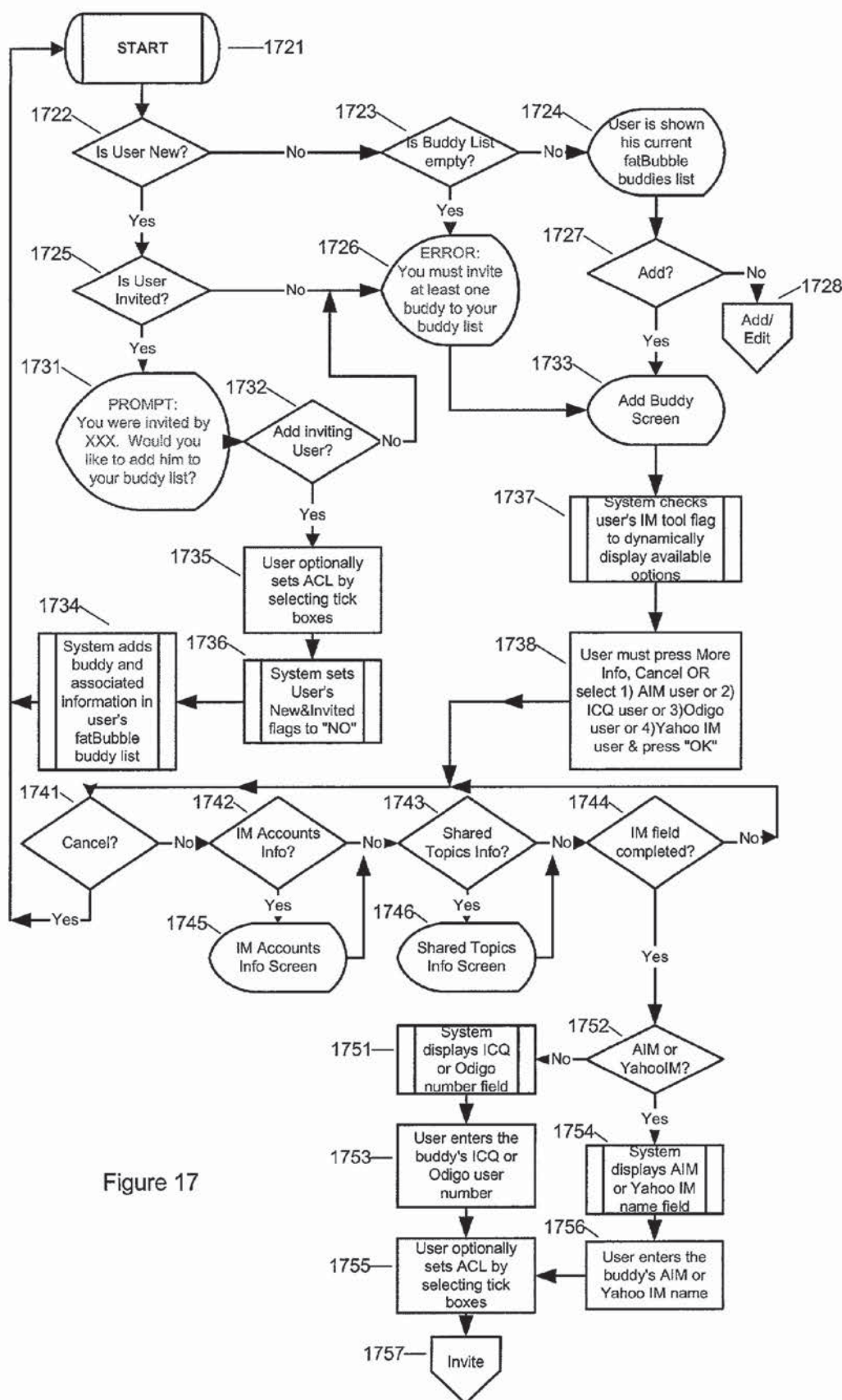


Figure 17

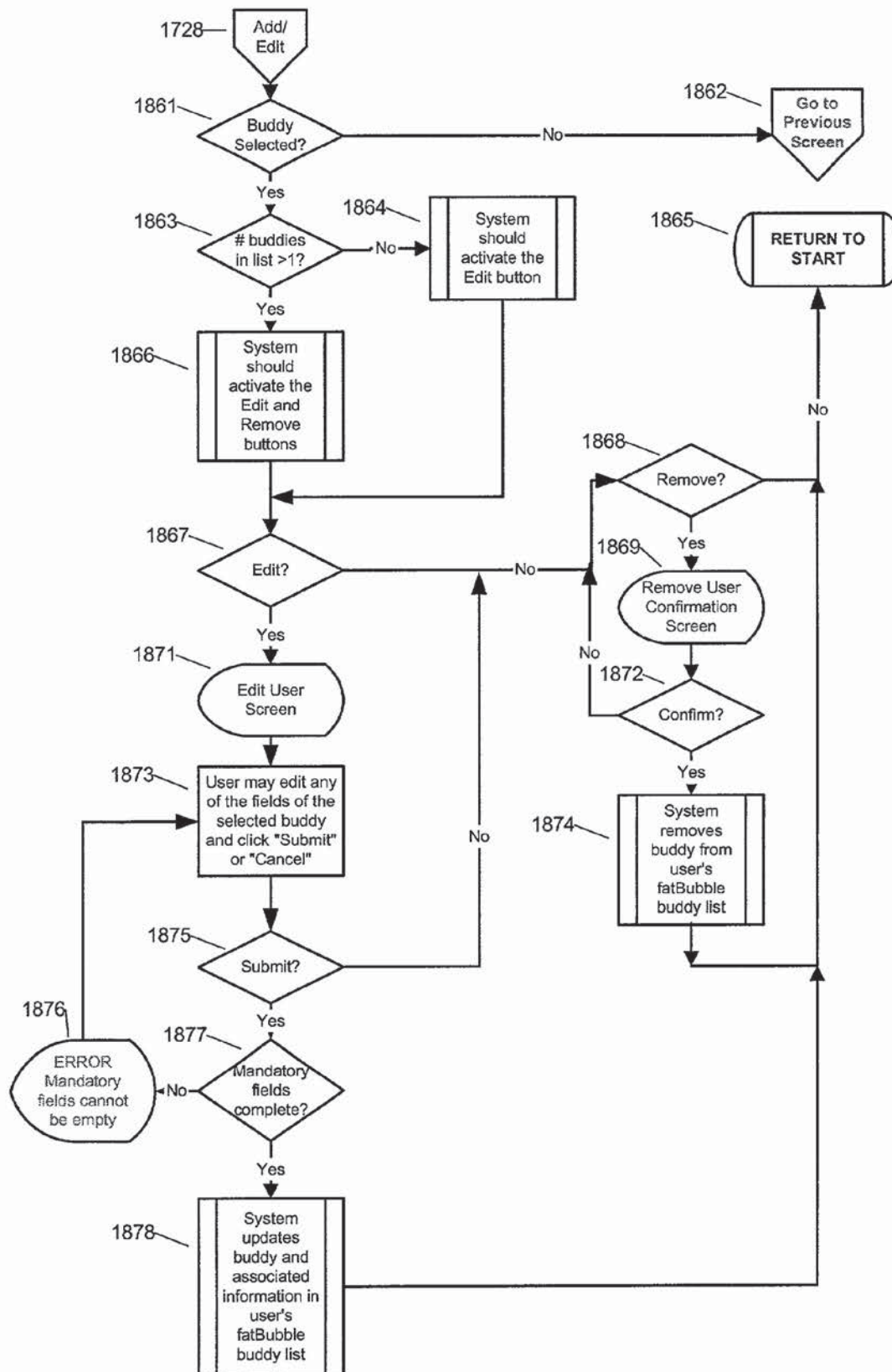


Figure 18



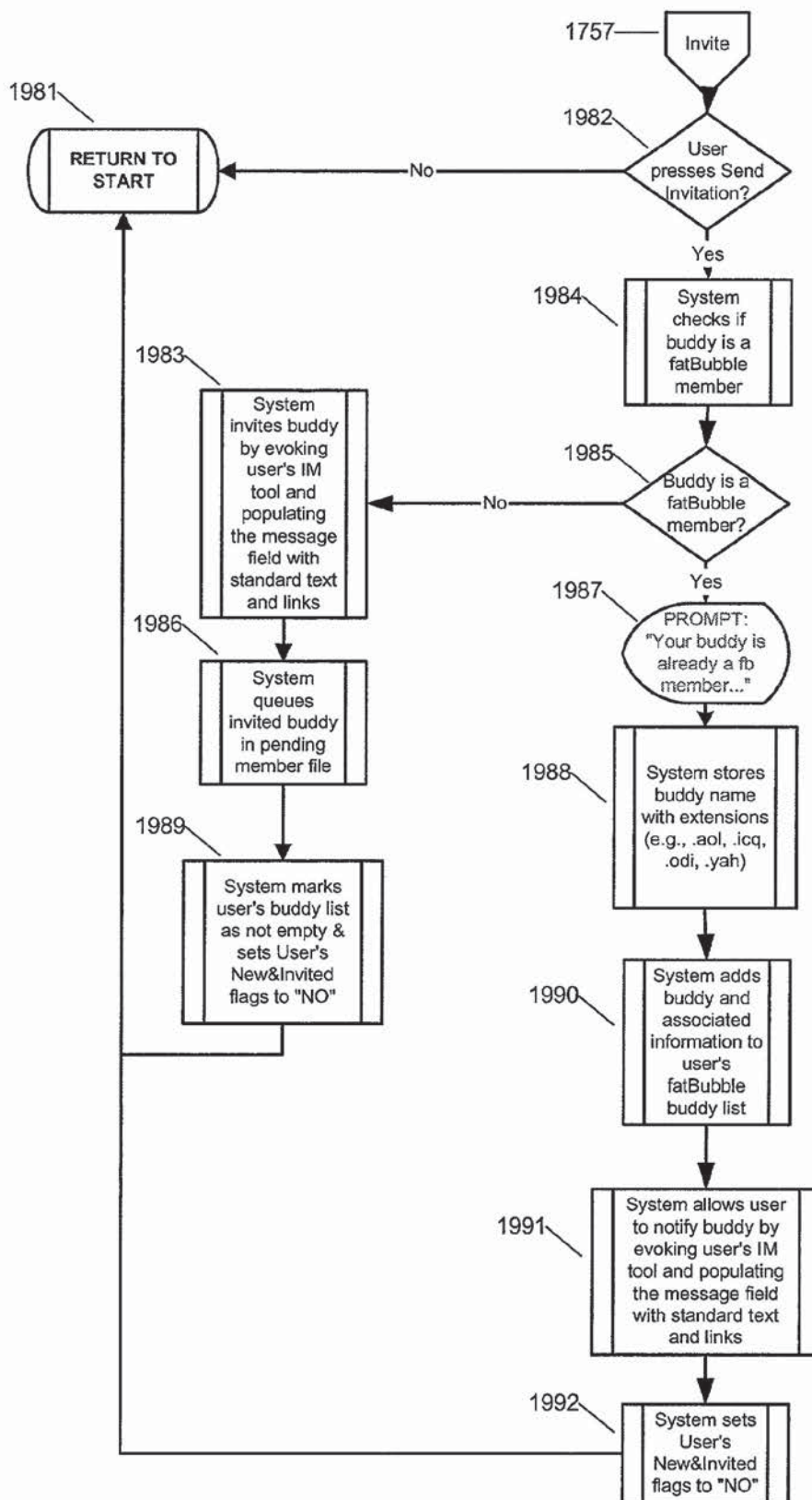


Figure 19

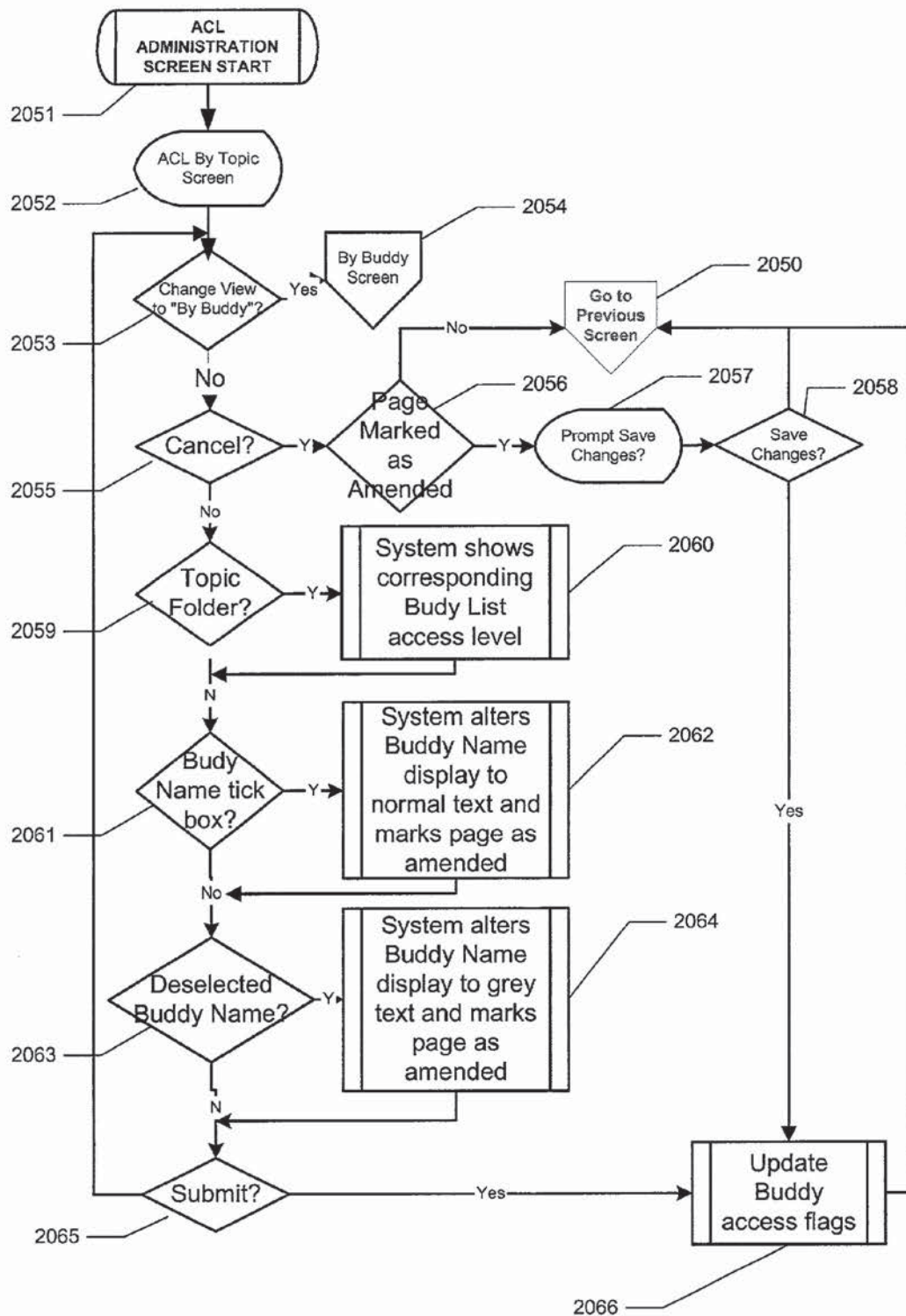


Figure 20

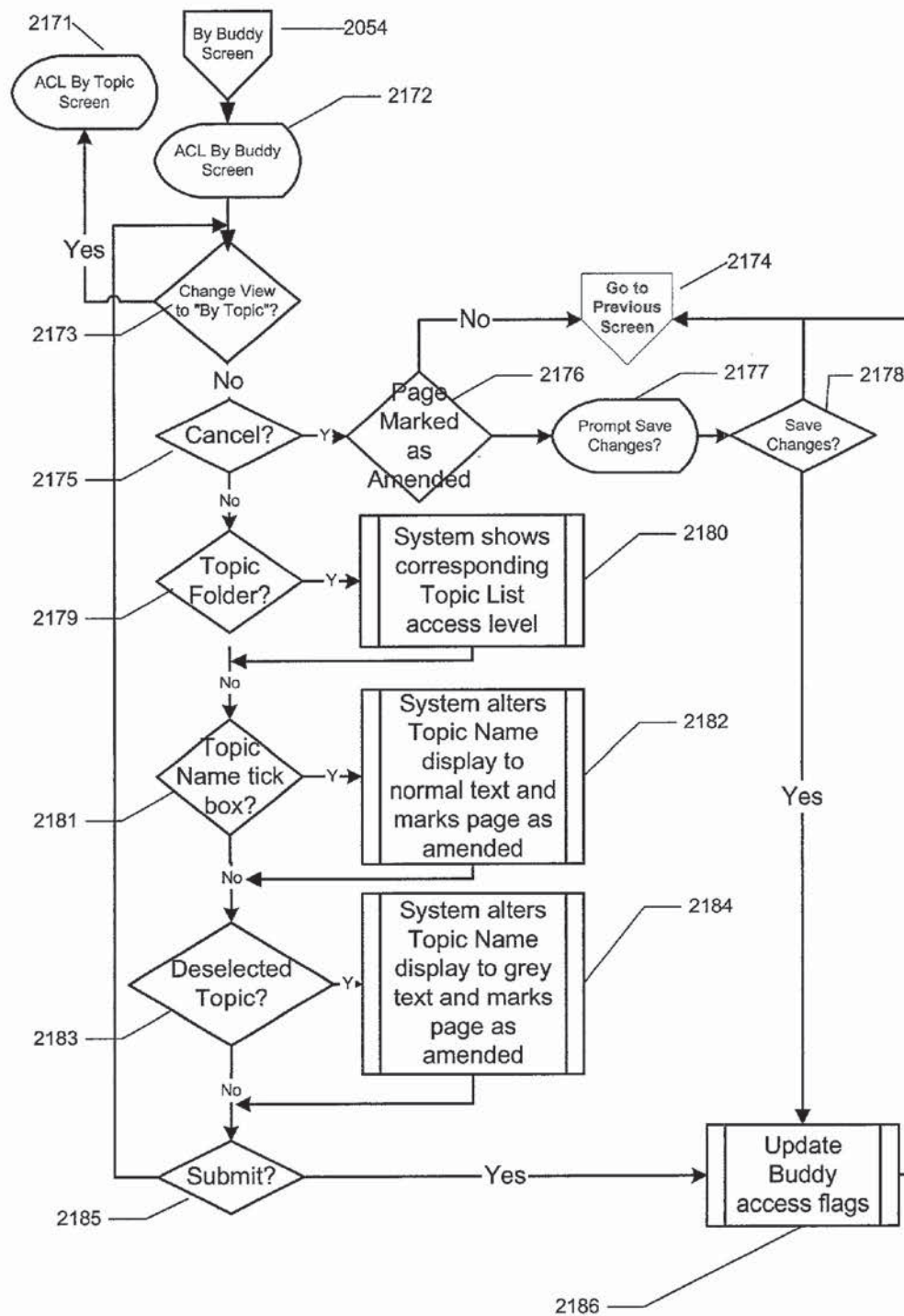


Figure 21



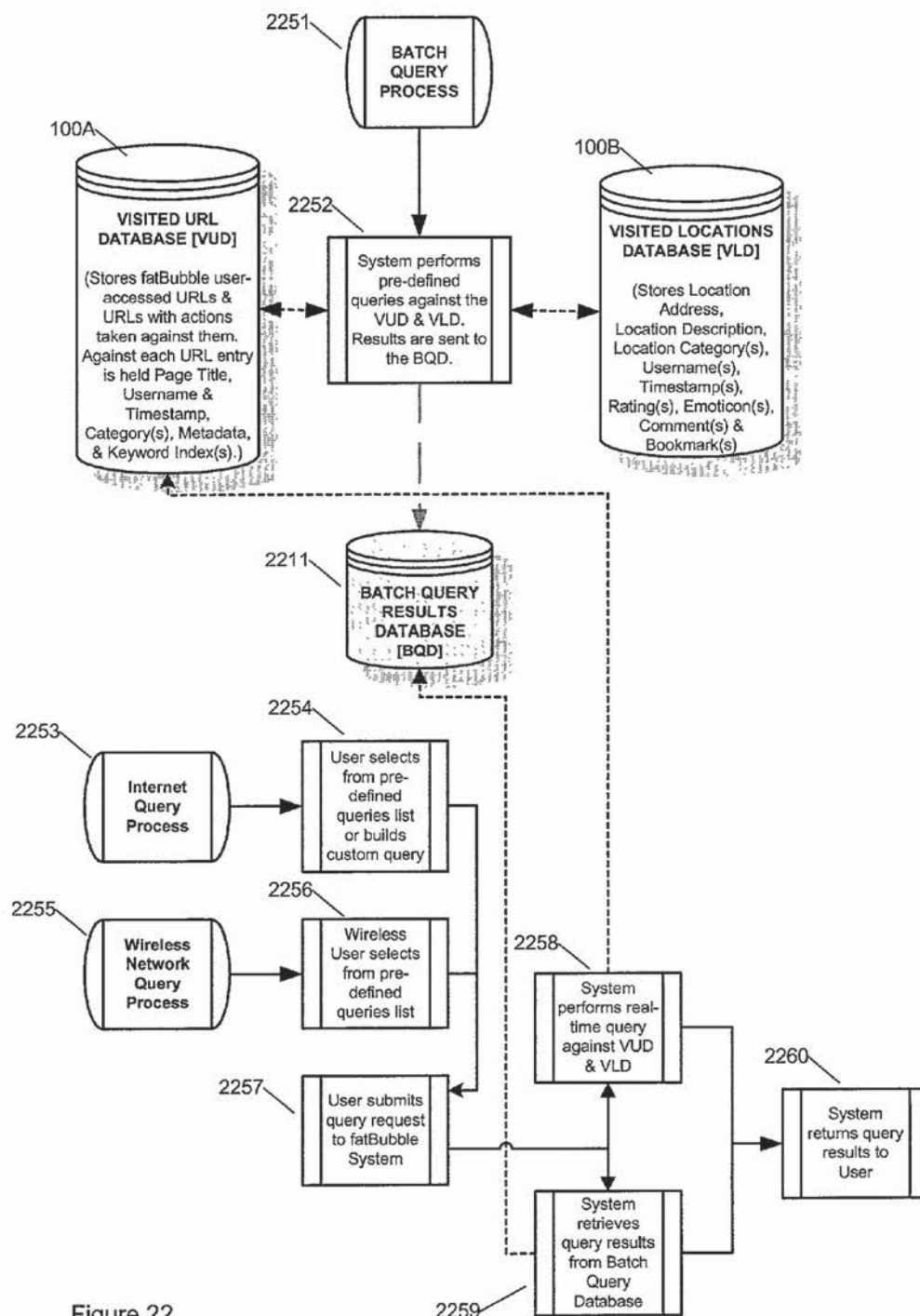


Figure 22

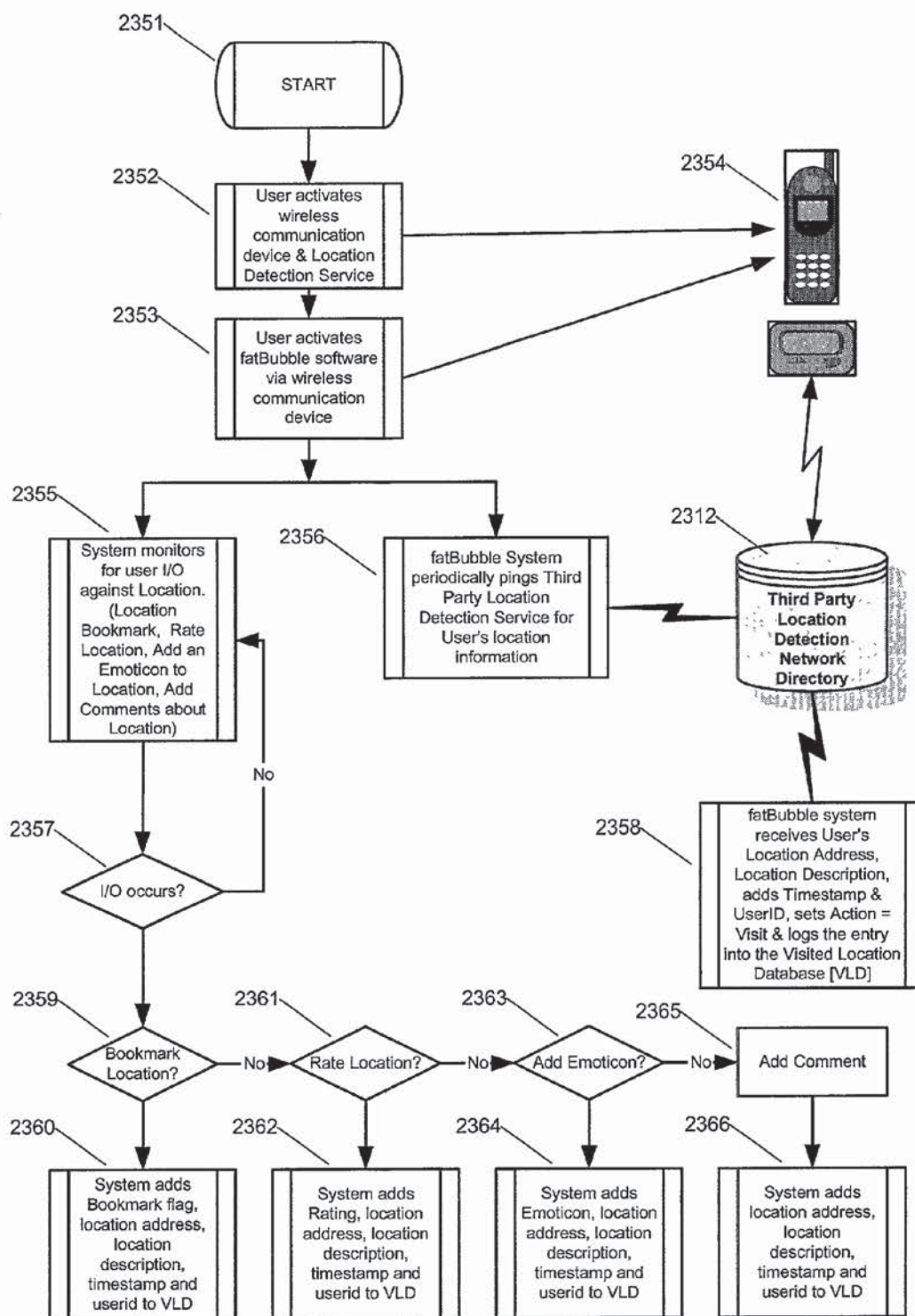


Figure 23

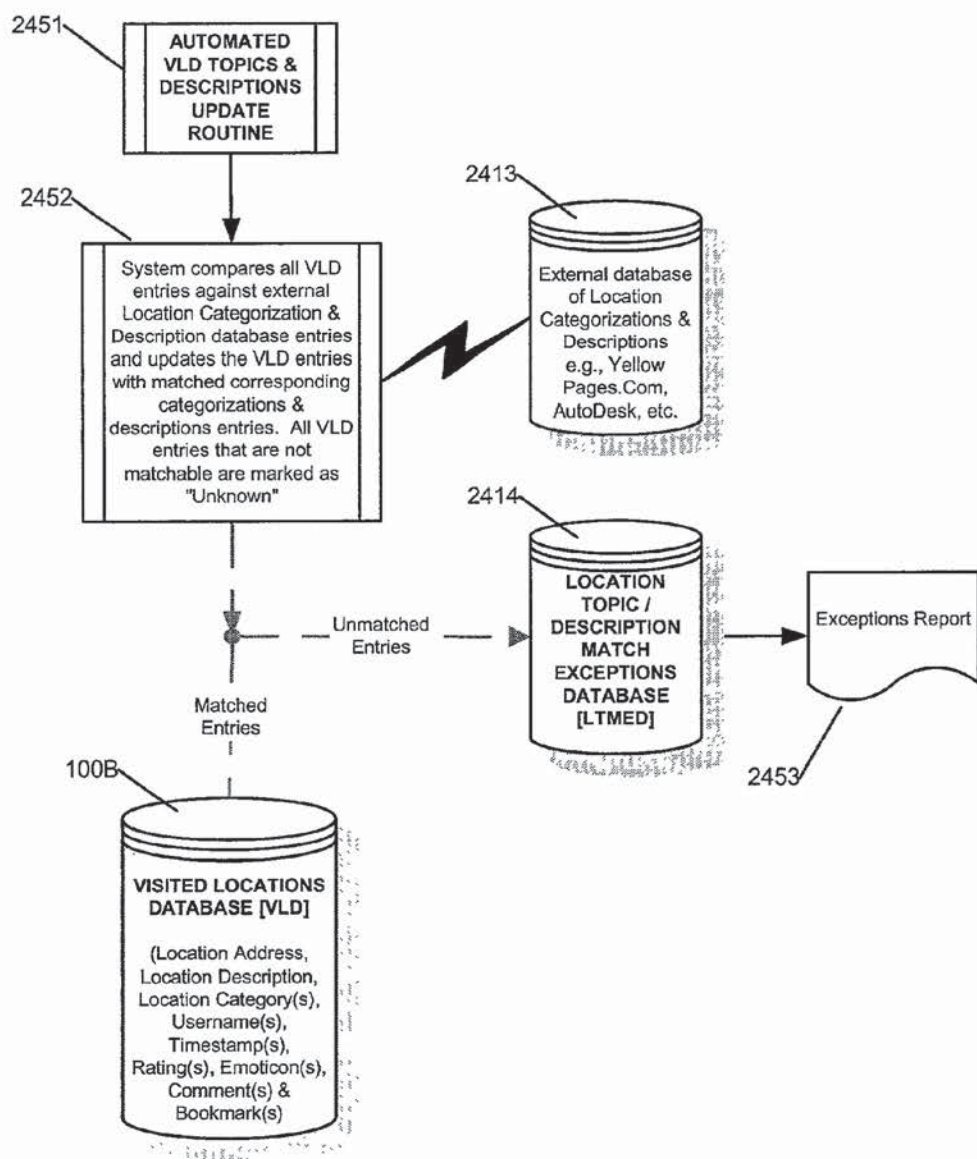


Figure 24



1

# METHOD AND APPARATUS FOR SELECTIVELY SHARING AND PASSIVELY TRACKING COMMUNICATION DEVICE EXPERIENCES

## BACKGROUND OF THE INVENTION

The Internet has opened up new channels of communication and vectors of influence over decision-making. Web sites, peer-to-peer technologies, e-mail and instant messengers are new communication technologies, which have major impacts.

Advertisers and marketers have shown great interest in the influence of these new technologies. However, it is difficult to observe the channels of communication or vectors of influence using traditional market research methods.

Users of the new communication technologies have been particularly quick to embrace instant messengers. Users desire new ways of sharing with friends the experiences they have and discoveries they make using the new communication technologies.

Therefore, there is an opportunity to introduce a new technology, a method and device which provide a new way of sharing experiences, potentially allowing advertisers and marketers to study channels of communication and vectors of influence at the same time.

## SUMMARY OF THE INVENTION

The present invention includes methods and devices for sharing communication device usage experiences, including computer usage experiences. Particular aspects of the present invention are described in the claims, specification and drawings.

## BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a block diagram of interrelated components of systems practicing aspects of the present invention.

FIG. 2 is a user interface for logging in or creating a new account.

FIG. 3 is a user interface for providing access to system features.

FIGS. 4 and 5 are user interfaces for inviting a "buddy" to join in practicing aspects of the present invention.

FIGS. 6 and 7 are user interfaces for sending a buddy an item.

FIGS. 8A-8D are aspects of a user interface for administration of a buddy list.

FIG. 9 is a user interface for viewing activity of buddies. The interface illustrated applies as well to viewing of other item or location related data.

FIG. 10 is a user interface for viewing a so-called hits list, combined with a user interface for viewing activity. The interface illustrated applies as well to viewing of other item or location related data.

FIG. 11 is a user interface for viewing details regarding particular items. This user interface is combined, like FIG. 10, with a user interface for viewing activity.

FIGS. 12-14 are flowcharts illustrating the capture of URL related data from a user. The actions illustrated by these flowcharts apply as well to capture of other item or location related data.

FIG. 15 is a flowchart of automated updating of a visited URL database ("VUD"), with exception processing. The

2

actions illustrated by these flowcharts apply as well to updating of databases reflecting captures of other item or location related data.

FIG. 16 is a flow chart of an activity viewer. The actions illustrated by these flowcharts apply as well to viewing of other item or location related data.

FIGS. 17-19 are flow charts of buddy list and access control list ("ACL") administration.

FIGS. 20-21 are flow charts of access control list interface actions.

FIG. 22 is a flow chart of the batch and custom query processes.

FIG. 23 extends aspects of the present invention to wireless devices, such as cellular telephones and pagers.

FIG. 24 is a flow chart of populating the visited location database ("VLD").

## DETAILED DESCRIPTION

The following detailed description is made with reference to the figures. Preferred embodiments are described to illustrate the present invention, not to limit its scope, which is defined by the claims. Those of ordinary skill in the art will recognize a variety of equivalent variations on the description that follows.

A common theme among aspects of the present invention is collecting data regarding a user's computer usage experience and sharing that data. So-called "buddies" identified on buddy lists of instant messaging products can share selected aspects of their computer usage experiences. Administrative tools and processes can be provided to set up selective collection and sharing of data. Collection tools and processes operate on a variety of computer usage activities and user responses to their computer usage experiences. Processing tools and methods filter, integrate and correlate the collected data. Display tools and processes make portions of the data accessible on a pre-defined basis, such as according to defined rights of buddies. Aggregation tools and processes assemble statistics about user experiences across different bases, such as buddy lists, categories of users, and all service participants.

## DATA COMPILED

Aspects of the present invention include building and making accessible various databases and combinations of databases. The databases specifically described below are illustrated in one or another of the figures; reference numbers are provided for ease of reference. One database is a visited URL database ("VUD") 100A. A VUD stores URLs visited by users, or by participants. More generally, a user could visit a web site, listen to or watch content, rate a site or content, assign an emoticon or quick comment to a site or content, send or bookmark a site or content or download data; a VUD entry could result. A rating may be thumbs up or thumbs down or its equivalent, a scaled alpha or numeric rating or its equivalent. An emoticon is an icon conveying a reaction, such as: ":", ":", ":", ":", ":", ":", etc. Quick comments may be user defined and later accessible through a menu, such as a pull-down menu. In addition to URLs, the database stores additional information such as page title, address, description, categories applicable to the URL, metadata, names of users accessing the URL, timestamps of visits, ratings of the URL, emoticons evaluating the URL, comments on and bookmarks to the URL, or keywords for retrieval. The page title, address, description and metadata may be ascertained from visiting the URL itself. With



3

assistance of the URL's author, metadata may include suggested categorization. Alternatively, categorization may be provided by an existing content analysis provider, such as Yahoo or the Open Source Directory Project at [www.dmoz.org](http://www.dmoz.org) 1506. A further alternative is that content could be categorized by a service provider or other sponsor, either for web content or for intranet, extranet or other network content.

Another database used to practice aspects of the present invention is the visited location database ("VLD") 100B. A VLD stores similar information for locations visited by users or participants carrying portable devices. For instance, a Bluetooth equipped cell phone or pager could interact with a location that a user entered. Walking in the door of a popular restaurant, nightclub or other location could trigger an interaction between a Bluetooth device and a Bluetooth access point sponsored at the location. The Bluetooth device could learn the location visited and report that location immediately or later when the device returned to the proximity of a home access point or the device docked with a home access point. Alternatively, the Bluetooth device could disclose its identity to a Bluetooth access point at a particular location and the access point could report the visit. The user of the Bluetooth device could have the same options for providing additional information regarding the location, as for URLs. The VLD also could store geographic information regarding the location, such as geo-coded data. Several equivalent methods of associating a portable device with a location are available. Sophisticated networks may fingerprint, triangulate or otherwise locate a wireless device based on radio signal characteristics. Sophisticated devices may include circuits that determine the device's location; these circuits may utilize GPS, DGPS, Loran or any other location fixing protocol. The physics of how the device and the location are associated are relatively unimportant; an independent service may be used to track locations visited by a user based on any of the protocols identified above or any other protocol.

The VUD and VLD databases are readily extended to a visited item database 100, which could include items on a computer, intranet, extranet or any network. These items may be data such as multimedia files, XML documents, database searches or virtually any other material. One distinction between practicing aspects of the present invention and general database processing is storing user-based information, such as the user's pattern of visiting and the user's rating, emoticon or comments regarding an item and making stored, user-based information available to buddies. Collectively, VUDs, VLDs and visited item databases can be referred to as VXD. Reference to one of the three VXD is intended to refer to all three, unless the context makes it clear that only one of the three applies.

Access control lists ("ACLs") 102, 103, 104, 1609 also can be maintained as databases. An ACL identifies buddies and controls their access to VUD, VLD, visited item and other activity-related data. A user could set up his or her own ACL via buddy list and access control list administration functions. An enterprise could set up ACLs for enterprise users. ACL-like data compiled for instant messaging products could be accessed and utilized to compile ACLs for users or enterprises.

A URL logo database ("ULD") 101 can be useful for associating logos with web sites. The logos may be sponsors, advertisers or others who provide support for operation of a service practicing aspects of the present invention.

Item categorization for VUD, VLD or visited items can generate exception databases, such as an item match excep-

4

tions database (for instance, a URL match exceptions database ("UMED") 1505) or a topic match exceptions database ("TMED") 1507. These exception databases record data which require further attention after initial processing to update the VUD, VLD or a visited item database.

An activity viewer database ("AVD") 1610 can store information associating particular users with URLs, locations or items. Raw data regarding user activity is filtered and matched with entries from the VUD, VLD or visited item database to create the AVD. The AVD holds users' activity parsed into a format for display via the Activity Viewer. It includes the activity, internal flag settings, the URL, the page title, the logo, the username, the timestamp & category for an entry. If a user filters the display of data on the Activity Viewer, data is pulled from this database.

Batch query results can be stored in a database, a "BQD" 2211. Pre-defined queries can be run against the VUD, VLD or visited item database. For instance, top 10 hits, top 50 hits or top 100 hits in a wide range of categories are most efficiently recalculated periodically on a batch basis, rather than in response to ad hoc inquiries.

Third party location detection data can be stored in a detection network directory 2312. Third party data can be provided as received, on an interrupt-like basis, or in response to periodic requests, on a polling or batch basis. Location categorizations and descriptions 2413, e.g., Yellow Pages.Com, AutoDesk, etc. can be used to provide supplemental information about locations.

Location/topic entries which require further attention, after processing to update the VLD, can be stored in another match exceptions database, a "LTMED" 2414.

One aspect of practicing the present invention can include tying into a user's instant messaging products or, more generally, into the user's messaging facilities. For instant messaging ("IM"), users or participants typically set up so-called buddy lists. Other users or participants agree to participate in instant messaging. One IM user can send an instant message to another IM user, if their IM products are compatible. The two can carry on a dialog or a so-called "chat". More than two users may be included in a real-time chat, when the instant messaging product allows multiple participants. Examples of instant messaging products include AOL's Instant Messenger software, MSN Messenger software, Yahoo! Messenger software, America Online's ICQ software, Odigo's instant messenger software and Jabber's instant messenger software. Reciprocal inclusion on buddy lists typically involves a closer relationship between participants than inclusion on an e-mail mailing list or directory, but this is not necessarily the case. Buddy lists sometimes are shorter and more selective than general messaging lists or directories.

The present invention also may be applied to a user's messaging facilities by selectively enabling others listed on a general e-mail or messaging list or directory to participate. Selectively enabling others limits the intrusion on a user's privacy and limits various administrative (e.g., setup and administration) and responsive (e.g., junk mail) burdens. Alternatively, group functions used for other e-mail or messaging purposes can be a basis for defining rights to sharing of activity data.

## OVERVIEW AND USER INTERFACES

FIG. 1 is a block diagram of interrelated components of systems practicing aspects of the present invention. Tracked activity may include Internet activity 120, wireless network location track and interaction activity 121 and enterprise



5

intranet activity 122. Activities tracked in these domains may include view, listen, rate, comment, assign emoticon, send, watch, download, bookmark or visit. A user views a URL, watches a visual presentation and listens to an audio presentation. A user visits a restaurant or other location. A user who views, watches, listens or visits may respond to their experience. A user's response may be to rate, comment, assign an emoticon, send information to a buddy, download data or bookmark an item for later access.

Data stored regarding an experience may include VUD, VLD or VXD databases 100, a logo database for URLs, locations or items 101 and a variety of ACL databases. The access control lists can be maintained at the service provider level 104, the enterprise level 102 or the individual user level 103.

Data 130 reflecting individual experiences and aggregated experiences can be accessed or reported in a variety of ways. An activity viewer running on a user's system 131, either fixed or portable, can appear in a window. Reports on locations, either the experiences of others visiting the location or the proximity of buddies or buddies of buddies can be reported automatically to Bluetooth enabled wireless devices 132 when such devices reach a location or are in contact with a location-sponsored Bluetooth access point. Wireless devices can be synchronized 133 when reasonable bandwidth is available to retain data that would be too voluminous to access via a low bandwidth connection. The interfaces of instant message tools 134 can serve as an output channel, as licensing arrangements become available. Physical reports 135 can be printed for analysis. These reports can cover analysis of interactions among participants and spreading of information from one user to others.

FIG. 2 is a user interface for logging in or creating a new account. In one embodiment, separate fields can be provided for user name 251 and password 254. In other embodiments, these fields could be combined. After filling in identification data, a user may select a sign on link 253 or press the enter, return key or other key or may take another action such as speaking a command or winking an eye, which triggers processing of the completed fields. A link is provided for creating a new user 252, which may be on demand or subject to an approval process. A new user can either be a new name for a registered user or a new registration. A user who forgot their password may use one of the commonly employed password recovery schemes, by selecting a forgotten password link 255. An additional link for new user registration is provided 256. In one embodiment, the system implements a strict, anonymous access privacy policy and does not collect any information about the user which could be used for identification of the user or compilation of a database of user-identified activities. In another embodiment, the user can choose the amount of information that the user provides and corresponding services that are enabled by providing information such as an e-mail address. In this second embodiment, the system can publish a range of privacy policies, including a default, and ask the user to opt-in to a specific privacy policy, which may include providing the user's name or e-mail address to a handful of select vendors that have products responsive or keyed to the user's shared activities.

FIG. 3 is a user interface for providing access to system features. The embodiment illustrated is a relatively low profile access window. A lower profile access window can be provided via an icon that is visually accessible, such as a floating menu bar having an always on top attribute or an icon in a system tray. Pressing a hot key is an alternative way to bring an access window into view. The access window

6

illustrated in FIG. 3 has many features, which can be included in a wide variety of combinations. The service provider logo 360 doubles as providing access to features not immediately visible. These features may include maximize, minimize, quit or selection of a particular display format. A current selection 361 identifies a current context, such as viewing an aggregated list of the best Hip Hop music of 2000. Rating choices 362 such as thumbs up and thumbs down or emoticons allow a user to instantly express their view regarding the current context with a simple action, such as a single click of a mouse. A user who wants to say more about their experience can select a comments button 363 to activate a window for entering comments. A scroll button 364 also supports entry of free form comments, definition of user comments, selection from among user comments, or selection of emoticons, either system supplied or user defined emoticons. When the scroll button 364 is used, the default item may change from "comments." Other button choices 363 can be provided to a user, in addition to comments, such as emoticons or sending the current context to one or more buddies. A send button 365 is immediately accessible and activates a window for selecting recipients of information from the current context. The current context may be a list or a particular item, either from a hit list or the like or from the user's own activities.

The sharing status toggle 366 allows a user to turn sharing on and off. When sharing is on, rights defined in the ACL provide access for buddies to the user's activity. When sharing is off, the user's activity will not be shared with buddies. However, the user's activity may still be recorded to a tracking server either for aggregation or to be associated with the user but not reported to buddies. The user's options or access to information may be limited when sharing is off, tending to encourage the user to leave sharing activated. The window maximize control 367 allows direct access to maximizing the window to a pre-selected format.

Other aspects of this interface include space for a banner 368 (either static or moving), an invite button 369, a hot list access 370, a search entry window 371 and a search button 372. The banner could be used to generate advertising revenue. The invite button 369 provides access to an invite interface such as FIG. 4. The hot list access 370 provides access to one or more options and access formats for aggregate ratings of items. The ratings may reflect the frequency of access to an item or rating scores assigned by users. The rating scores may be thumbs up/down or any of the other scoring approaches mentioned above. The search entry window 371 accepts text and logical connectors. The find button 372 can be implemented to search titles of items accessed by participants, content of such items, the Internet, an intranet or another domain of interest.

FIGS. 4-5 are aspects of an interface for inviting others to become buddies. FIG. 4 is one of many possible initial invitation interfaces. An instant messaging select button 473 allows a user to identify an instant messaging product which maintains a list of buddies who can be invited to join a group. In some implementations, such as an enterprise implementation, a network directory such as a Novell, NT or Windows 2000 server directory of users may be accessed instead of an instant messaging product. In other implementations, an e-mail system user directory may be accessed for users to invite. Group membership for enterprise implementations alternatively may be administered by a security department, instead of individual users. A scroll button 474 allows a user who has more than one source of lists, such as more than one instant messaging product, to select the user to be invited. The screen name window 475 accepts a text



7

string. It may provide assisted field completion, including a list of near matches. For some implementations, such as AIM or Yahoo IM, the screen name may be a name. For other implementations, such as Indigo and ICQ, the screen name may be a number which ties to a name, which may be locally unique or not unique at all. These alternatives are further presented in the discussion of FIG. 17, below. A send button **476** triggers transmission of an invitation to the identified buddy or other potential participant. The transmission may include a text message delivered by the instant messaging tool with a hyperlink for the recipient to sign up. The done button **477** signals that the user is done inviting buddies. A more information button **478** provides a help function.

FIG. 5 is an invitation follow-up interface. In some embodiments of the invitation process, there is no feedback from the instant messaging tool to an invitation process. The invitation process may query the user to determine whether an invitation was sent successfully. This interface provides a user with three alternative responses. If the instant message transmission was successful, the user indicates "yes" **582**. If the user attempted the instant messaging invitation, but the buddy was not available, the user may press the e-mail link **581**. Alternatively, the user may elect to invite the buddy again later **583**. Then, the buddy's name will appear on a buddy administration list (FIG. 8A) with a link such as "resend invitation." The system may allow a user to click on an entry in a list and resend the invitation, preferably when the invitee is on line. In other embodiments or using other instant messaging products, the IM product may assure delivery of the message when the recipient is not instantly available. Yet another approach is for the IM product to provide direct feedback to the activity sharing processes, so that an invitation or other follow-up interface appears only when needed and so that the user never needs to confirm that an invitation or item was successfully sent.

FIG. 6 depicts an interface for sending an item to a buddy. This interface may be invoked, for instance, by selecting the send button **365**. The item being sent is identified **691**. The item identification **691** may be linked to the item, a pull-down menu of items recently viewed or recently sent, or to a dialogue for selecting an item to send. The user selects between sending the item, a link to the item or other item-related information to a buddy who has enrolled to share activity data or to a person listed as an instant messaging buddy. In an enterprise implementation, as described above, the user might select an addressee from a network registry of users or an e-mail list. A personal note **695** may be sent along with an item. The system may be configured so that the personal note is not retained on the tracking server or so that it is retained. The send item button **696** signals that the items should be sent. The cancel button **697** indicates that the item is not to be sent. Either the send or cancel button can be accompanied by a confirmation screen.

FIG. 7 is a confirmation interface for items sent. The three choices are as in FIG. 5: to confirm that the message was sent **799** "yes"; to resend the item by e-mail **798**; or to queue it to be resent later **799** "later."

FIGS. 8A-8D depict interfaces for administration of buddy lists. The embodiments depicted are adapted to integration with instant messaging products. Slightly different embodiments would be better adapted to e-mail or other types of messaging facilities, such as Lotus Notes. FIG. 8A depicts one embodiment of a buddy list. A link is provided **851** for inviting a new buddy. An alternate link for adding a user may appear in the list of buddies **856**. The columns

8

provided in this embodiment include a tick box **852**, a buddy name **853**, and one or more instant messaging contact links **854**. The tick box **852** may be used to delete several selected buddies. The buddy name column **853** includes both buddy names and options to resend an invitation or add a new user. The buddy names may be active links which lead to additional interfaces, such as those depicted in FIGS. 8B-8D. The contact column **854** lists one or more instant messaging contact links. The extension following the link may identify a particular instant messaging tool. The link may be in the form of the user ID applicable to a particular instant messaging tool. This interface also includes a link for deleting selected buddies **857** and for indicating completion of buddy list administration **858**.

FIG. 8B is another of the buddy list administration interfaces. The name of the buddy being profiled appears as a header **861**. Optionally, a group of buddies may be administered. Related buddy administration screens include a buddy overview screen **862**, contact information **863**, topic sharing rights **864** and file sharing rights **865**. The user may either view **866** or edit **867** information regarding a buddy or group of buddies. More information can be obtained by clicking a link **868**. For particular buddy, a particular instant messaging tool is selected **869** and instant messaging ID is entered or selected **870**. When a buddy has more than one instant messaging tool or ID, a user may select a link for adding additional links **871**. The interface adds more rows, including more options for instant messaging tools and instant messaging ID's **872**, **873**. More than one instant messaging ID may be assigned to a buddy for a particular instant messaging tool. When the contact information is complete, the user selects the save changes link.

FIG. 8C uses tick boxes to select files or folders to be shared by default. Both default and particular user or user group administration is supported. Tick boxes **881** and directory or file names **882** can be used. Additional files or folders can be added to a list **883**. Alternatively, a Windows Explorer-style file directory tree can be used to select files and directories, as is done for backing up and restoring files or directories. Additional fields and links in FIG. 8C have the same placement and usage as in FIG. 8B.

FIG. 8D is a topic sharing interface. Both default and particular user or user group administration is supported. Tick boxes **891** and topic or sub topic names **892** can be used. Additional topics can be added to a list **893**. Alternatively, a browser-style bookmark tree can be used to select topics. Additional fields and links in FIG. 8B have the same placement and usage as in the previous figures.

## FLOWCHARTS

FIG. 9 is a user interface for viewing activity of buddies. The interface illustrated applies as well to viewing of other item or location related data. Tab **963** indicates that the activity-viewing mode of the interface is currently active. Other tabs may be provided for people **962**, files **964**, messages **965** or summaries **966**. The people tab **962** may invoke buddy list administration. The files tab **964** may invoke a hierarchical representation of the user's file system and selection boxes for designating directories and files, relative to particular buddies. The buddy may appear as columns adjacent to the file system representation or with a separate list, with selection boxes for users to be associated with particular rights. The message tab **965** may provide access to a message repository. Button **961** provides access to commands such as minimize, maximize, always on top, etc., which were previously discussed in the context of FIG.



3. The sharing button and indicator **967** behaves as previously described, also in the context of FIG. 3. In this embodiment, additional controls are provided in a row below the tabs and sharing button. Three filters **971**, **972** and **973** are provided. The who filter **971** specifies whose activity is of interest: for instance, all buddies or a user-defined group of buddies. The topic filter **972** selects one or more pre-defined topics. The view filter **973** allows viewing of all or selected portions of a participant's activity by topic. For instance, only items bookmarked or sent to others may be of interest, in a domain having substantial activity. A keyword search is in effect a fourth filter, including the search term window **974**, the find button **975** and the advanced find button **976**.

Several rows of information responsive to the filters **971**–**976** appear in FIG. 9. The columns of information displayed for each row include who **981** did **892** what **984** where **985** in what topic area **982** when **988**. Ratings **986** and comments **987** also may be provided. This interface can convey a substantial amount of information compactly. The who column **981** may use short labels, especially when the buddy list is short or subgroups of buddies are created. The did column **982** is compactly represented by an icon, from a recognizably short list of activity types. The icons depicted in this figure may signify viewing, visiting and sending items. Each of the activities mentioned above may be assigned an icon. The topic column **983** also is compactly represented by an icon. The variety of topics may be larger than the variety of activities. User defined subtopics may complicate the selection of icons. In some instances, a user may need to access more detailed information about an activity in order to understand the topic involved. This detailed information may be available through the topics filter **972** or by selecting a particular line including the icon. The what column **984** is an informative title for the item identified. For a URL, a page title may be more informative than the URL. Accordingly, page titles may be stored for URLs, to guard against loss of the page title when a content provider updates the page. Similarly useful shorthands for other types of items may be used. For instance, the name of a restaurant may be used instead of its Bluetooth access point address. The where column **985** is an opportunity to display banners, which may generate user impressions and revenue. Display of banners may be limited to vendors who pay a fee for preferential banner display. The rating column **986** may use a graphic, a color or a symbol to indicate a rating. In this embodiment, icons for thumbs up/down are depicted. The thoughts column **987** may support either free text comments or pick-list comments such as emoticons or user-defined quick comments. The when column **988** records a date and time of an activity. A send button **989** is included. In this embodiment, it appears as a large button on a bottom row, instead of as an icon near the sharing button. Row select commands, such as mouse-click, shift mouse-click and control mouse-click can be used to select one or more rows prior to selecting the send button.

FIG. 10 is a user interface for viewing a so-called hits list, combined with a user interface for viewing activity. The interface illustrated applies as well to viewing of other item or location related data. The bottom part of this interface combines features found in FIGS. 3 and 9. Much of the two rows **1070** is taken from FIG. 3. The who filter **1081** is from FIG. 9. The item rows **1071** are generally as in FIG. 9, with an added column for send buttons **1082**. Next and previous buttons **1084**, **1085** are provided for scrolling through activities.

The top part of the FIG. 10 interface is a hits list. The title line **1051** identifies the category of hits, in this instance a Top 10 list. Filter buttons are provided for activity type **1052**, group of persons sampled **1053** and location of persons sampled **1054**. When the desired filters are selected, the submit button **1055** signals for the screen to be refreshed. Three columns of information about these 10 hits are provided in this embodiment: rank **1061**, what **1062** and where **1063**. These columns have been explained above, except the ranking, which is ordinal. The coincidence in this example between data lines in the top 10 list and in the activities is unlikely ever to occur at random in actual use; the repeat of the same lines twice in a top 10 list also is unlikely to occur in actual use.

FIG. 11 is a user interface for viewing details regarding particular items. This user interface is combined, like FIG. 10, with a user interface for viewing activity. The bottom part of this interface, **1070**, **1071**, is as in FIG. 10. The top part includes two windows: **1151** through **1154** and **1155** through **1167**. The larger frame in the top part displays search results, annotated with buddy-related information. The search string appears at the top **1155** along with summary search statistics **1158**. Both category results **1156** and individual items have been returned in this example. One category **1156** has been returned. Three items responsive to the search have been returned, each beginning with a title **1157**. Information for an item may include a buddies rating **1161**. The number of buddies of the user who have commented on the site is indicated parenthetically. A summary "thumbs up" is indicated and a percentage of favorable ratings appear. (In actual use, 78% would not be reported from a sample of three ratings.) In addition to user-buddy ratings, other group ratings can be reported. In this instance, ratings aggregated against all registered users **1162** are reported. The second group could be user selected. In an enterprise implementation, it could be a division, subsidiary, a whole enterprise or any other predefined group. The ratings **1161**, **1162** need not be up-to-the-moment ratings, they may be compiled periodically in a batch mode. The information for an item may include a site furnished text **1163**, a review furnished description **1164**, one or more categories applicable to the item **1165** and links for retrieving a cached copy **1166** or similar pages **1167**. The cached copy retrieval **1166** may be an alternative to retrieving a live copy of the item **1157**, which is useful when an item is deleted or moved after it is indexed.

The inset to FIG. 11, **1151**–**54**, is intended to provide detailed information related one or more of the items displayed. The columns of detailed information in this embodiment include who **1151**, when **1152**, rating **1153**, and comments or emoticons **1154**. If there are more users then can readily be displayed in a single inset, previous and next buttons can be used to scroll through a list. Alternatively, the list can be sized into a larger window. The list also could be filtered to select particular buddies or groups of buddies, date ranges, ratings or comments. The names of individual users and their comments can be linked to additional information or functions related to the individual and to the detailed free text comments.

FIGS. 12–14 are a flowchart illustrating the capture of URL related data from a user. The actions illustrated by this flowchart apply as well to capture of other item or location related data. FIGS. 12 and 13 are linked by the capture/track connector **1233**. FIGS. 13 and 14 are linked by the file & item connector **1355**. The flow in FIG. 12 begins with start **1201**. The user may visit a URL **1202** utilizing any browser, from a PC, telephone, PDA or other device. Others processes



11

described in the context of visiting or viewing a URL, it may be applied to other item types as well. The URL visited is captured **1203**. This capture may be accomplished via a browser plug-in, an independently running process, or in a variety of other ways. A page title or other descriptive text may be captured in addition to the URL address. The page title or other text is stored in a temporary variable, along with a timestamp and a user ID. In this embodiment, the capture process next has to determine whether in the user's sharing status is on **1204**. If the sharing status is off **1205**, the system sets the status of the item to private. In other embodiments, the system might all processing of the item. If the sharing status is on **1206**, the system sets the status of the item to public. After the status is been sent, the process tests to determine whether metadata associated with the URL provides a page title **1207**. If not **1208**, the system stores a null indicator in a temporary variable.

If the metadata provides a page title **1209**, the system stores the page title in a temporary variable. The system next compares the URL to entries in the VUD **1210**. If the URL is found in VUD **1211**, the system has to determine whether a page title is stored on the VUD **1221**. If there is a page title on the VUD **1222**, the system action depends on whether the page title variable has been set to null. If not, the system overwrites the value on the VUD with the value of the temporary page title variable **1224**. If the temporary page title variable is null, the page title stored on the VUD is used **1223**. Next, the system determines whether the URL has been categorized on the VUD **1225**. If not, the system sets a temporary category variable to uncategorized **1227**. This is the same action that the system takes in the URL is not on the VUD **1211**. If the URL has been categorized on the VUD, the system sets a temporary category variable based on the contents of the VUD **1226**. The system checks to determine if the URL or a portion of the URL is logged in a logo database **1228**. The logo or ULD database **101** holds vendor logo images that correspond to the vendor's URLs. If the vendor has not arranged for its logo to be stored on the VUD **1229**, the system sets the temporary local variable to null **1231**. If there is a corresponding logo, the temporary variable is set to the corresponding logo image **1230**. The system sets a temporary activity variable to view **1232**, corresponding to viewing a URL. The flow continues in FIG. 13.

FIG. 13 depicts processing of URLs behind the interfaces presented above. The user has several options after viewing a URL. Viewing the URL triggers background activities depicted in FIG. 12. While the user is viewing the URL, system monitors for activity **1341**. If no activity is detected **1342**, monitoring continues. When activity is detected, the system determines the type of activity **1343**, **1345**, **1347**, **1349**, **1351**, **1353**. When the user moves to a new URL **1343**, the values stored in temporary variables for the old URL are added to the VUD **1344**. The new URL is processed in accordance with FIG. 12. When the user selects an emoticon **1345**, the system processes the user's selection **1346**. The system may associate either a predefined emoticon with the URL or it may associate a user-defined emoticon with the URL. These values may be stored in a temporary variable until the user moves to a new URL or another user activity triggers storing data to the VUD. When the user decides to enter a free text comment **1347**, the system processes the free text **1348**. It associates a text string with the URL at a temporary location, which can later be transferred to the VUD. The system then resumes monitoring for URL activity **1341**. The user selection of rating **1349** is processed **1350** in much the same way as an emoticon. In the embodiment described here, the rating is either thumbs up for thumbs

12

down, a binary rating. Multi-value ratings can also be processed, such as a scale of 1 to 5, 1 to 7, or 1 to 9. The system then resumes monitoring for URL activity **1341**. Choosing the send button **1351** causes two processing steps **1352**. One or more items in the current context are sent to a buddy and the activity of sending the items is reported to a tracking server to be recorded in the VUD. The system then resumes monitoring for URL activity **1341**. Processing that follows detection of a bookmark activity **1353** is similar to processing of a send activity. Either the instant messaging product or the system may process the actual creation of the bookmark. The activity of creating the bookmark is reported to a tracking server to be recorded in the VUD **1354**. Again, the system then resumes monitoring for I/O activity **1341**. Other activities, more often associated with an item other than a URL, are processed as depicted in FIG. 14.

A variety of activities may be associated with items other than URLs. Depending on the type of item involved, the user may listen to or watch the item **1461**, download the item **1463**, purchase the item **1465**, put the item on a wish list **1467**, transfer the item to a mobile device, such as a cell phone or PDA **1469**, or select some other process **1471**. In some circumstances, an unrecognized activity may occur **1473**, which the system may either ignore or treat as an error condition. A listen to or watch activity **1461** causes the system to invoke a player and to record the action and properties of the item listened to or watched **1462**. The recorded information is forwarded for addition to the VUD. A download activity invokes a process, which records the download action and properties of the item downloaded **1464**. The recorded information is forwarded for addition to the VUD. A purchase activity **1465** invokes a process **1466**, which records the purchase action and properties of the item purchased. The recorded information is forwarded for addition to the VUD. A wish list activity **1467** invokes a wish list process **1468** to maintain and add to the user's wish list. The wish list can be maintained as part of the VUD or in a separate database. The information can be maintained redundantly as part of the VUD and as the result of a batch query. When the activity is to transfer the item to a mobile device **1469**, the system invokes a process for sending the information to the mobile device, records the action and properties of the items sent to the mobile device, and forwards the recorded information for addition to the VUD **1470**. The processing of each of these activities in FIG. 14, with the possible exception of error processing **1473**, leads back to monitoring for activity **1341**.

FIG. 15 is a flowchart of automated updating of a visited URL database or VUD, with exception processing. The actions illustrated by these flowcharts apply as well to updating of databases reflecting captures of other item or location related data. An automated VUD updating routine **1511** updates keywords and metadata **1512** and topics **1513**. The input for updating is a set of VUD update records from processing of user activity. Updating **1514** may take place and real-time or on a batch basis. The updating of keywords and metadata utilizes a URL spider and an external search engine index to gather URL indices, keywords and metadata for each VUD entry being updated from the Internet **1522**. Unmatched entries are stored in an exceptions database **1505** and an exception report **1521** is generated. Data in the exceptions database ("UMED") may be manually added to the VUD. These exceptions also can be reprocessed for instance, if Internet access is restored or improved. Additional processing takes place to update topics associated with VUD entries **1513**. During processing **1515**, the system compares VUD entries against one or more external URL



13

categorization databases, such as the database provided by the Open Source Directory Project (www.dmoz.org). Matches are processed for addition to the VUD. VUD entries that do not match are marked as on categorized and stored in an exceptions database 1507. Data in this topic exceptions database ("TMED") may be added manually to the VUD or reprocessed any time. Additional items to the exceptions database may cause an exceptions report 1523 to be generated.

FIG. 16 is a flow chart of an activity viewer. The actions illustrated by this flowchart apply as well to viewing of URL, other item or location related data. The activity display population routine 1621 supports the interface 1629, which previously has been discussed in the context of FIG. 9. The system keys 1622 on fields which provide access to the relevant database, such as the VUD, VLD 100 or VXD. For VUD entries, user ID and topic may be used as a key. Alternatively, the key may be fields which match filters available to or selected by the user. For a visited location, user ID and location or action may be used as a key. The system 1622 matches data from the relevant database 100 with the user ACL database 1609. This matching may run periodically on a schedule set by the system administrator or it may run on demand. Data "matches" when the ACL database authorizes the requester or a particular user to have access (e.g., by user ID and topic) to the VXD entry and the status flag is public (as opposed to private) for the VXD entry. Matched data items are buffered 1623. For each buffered entry 1624, the system checks for the existence of a logo on the location logo database ("LLD") 1608. Processing depends on whether or not a logo exists 1625. If it exists, the system sets a temporary variable corresponding to the logo image retrieved from the database 1626. Otherwise, the logo space is left blank. Each matched entry is added 1627 to the corresponding shared users file within the activity viewer database ("AVD") 1610. The system populates activity viewers of logged-in users by pulling entries from the AVD 1628. User ID, action, item, location, category, rating, emoticon, comment, time, or other relevant field may filter the displayed data from the AVD. The activity viewer of the user refreshes the activity display automatically. The frequency for this refresh may be set by a system administrator and may be modified by the user.

FIGS. 17-19 are flow charts of buddy list and access control list ("ACL") administration. The after the administration processes invoked 1721, the process tests to determine whether the user of the system is a new user 1722. A new user may either be invited or not 1725. An invited user is prompted to start their buddy list with the person who and issued the invitation 1731. If the new user adds the person who invited them 1732, the new user optionally defines access rights 1735. The system then sets flags for new and invited status to "no" 1736. The system adds the buddy and associated information in the user's buddy list to the ACL 1734 and loops back to the start 1721 with the user flagged as not new. In the processing of the new user, if the new user is not invited 1725 or declines to add the person who invited them to the new user's buddy list 1732, an error message is displayed indicating that at least one buddy must appear on a buddy list 1726. The user is routed to an add buddy screen 1733. This add buddy screen 1733 also may be reached by a non-new user who has an empty buddy list 1723 through the invite buddy error message 1726 or after the non-new user is shown their current buddy list 1724 and elects 1727 to add additional buddies. Processing of a non-new user who declines to add additional buddies proceeds to 1728, in FIG. 18. After the add buddy screen, the

14

system checks the user's IM tool flags to determine which instant messaging tools are available and to provide an adapted message to the user 1734. The user's options 1738 may include asking for more information, canceling the addition of users or selecting an instant messaging tool such as AIM user, ICQ user, Odigo user or Yahoo IM user. The user may be required to confirm my pressing an OK button after selection of an instant messaging tool. If the user presses OK 1741, instead of cancel, the system tests to determine whether the user requests more information 1742 and provides an information screen 1745 upon request. The system also tests to determine whether the user requests shared topics information 1743 and provides an information screen 1746 on request. After information has been provided the system tests determine whether the user has selected one of the instant messaging options 1744. If not, the system loops and waits 1741. If an instant messaging tool has been selected, the system determines which class of instant messaging tool has been selected 1752. For some instant messaging tools, the system displays a name field 1754 and prompts the user to enter a name 1756. For other instant messaging tools 1751, the system displays a user number field and prompts the user to enter a buddy number 1753. For both classes of instant messaging tools 1755, the user optionally defines access rights. Processing then continues to test for inviting a new buddy 1757, as described in FIG. 19.

FIG. 18 includes logic for editing entries in the buddy list, following other processing 1728. The system checks to determine whether one or more buddies have been selected 1861. If not, processing 1862 returns to a previous screen. If a buddy has been selected, processing depends on the number of buddies in the list 1863. If there are one or fewer buddies in the list 1864, the system activates only the end button. If there is more than one buddy in the list 1866, the system activates edit and remove buttons. The remove button is not activated for one or fewer buddies, as the system requires at least one buddy in a buddy list. The system checks to determine whether edit has been selected 1867. If not, it checks to determine whether remove has been selected 1868. If not, processing returns to the start 1865. If remove has been selected 1869, the system displays a confirmation screen and tests whether the remove command has been confirmed 1872. If not, the system loops again to test whether remove has been selected 1868. If confirmation is given 1874, the system removes one or more buddies from the user's buddy list and returns to the start 1865. Remove will not have been selected if edit is selected 1871. The system responds to selection of edit with an edit user screen 1871. The user responds to the screen by editing any the fields of the selected buddy and clicking submit or cancel. The system tests to determine whether submit has been selected 1875 and, if so, tests to determine whether mandatory fields have been completed 1877. Mandatory fields may include the identity of the instant messaging tool and a user ID, either a name or user number, as appropriate. If some of the mandatory fields are incomplete, an error screen 1876 is displayed and the user is given a further opportunity to add any of the fields 1873. If the mandatory fields are completed, the system updates the buddy and associated information in the buddy list 1878 and returns to the start 1865. If the user clicks cancel instead of submit or otherwise fails to submit 1875, processing proceeds to test whether remove has been selected 1868. The processing from this point proceeds as described above.

FIG. 19 depicts logic for sending invitations to new prospective buddies. This logic complements other interface



15

processing 1757. The system determines whether the user has selected the send invitation link 1982. If not, processing returns to the start 1981. If so, the system checks to determine whether the user being invited is already registered for services 1984. The system uses the prospective buddy's IM tool ID as a key. If the prospective buddy has more than one IM tool, the system may either use only a primary IM tool ID or may use all listed IM tool ID's to check for current registration status. If the prospective buddy is not registered 1985, the system invites the buddy by invoking the user's instant messaging tool and creating a message with standard text and a link to invoke a registration process 1983. The system queues the invited prospective buddy in a file of pending invitations 1986. The invited buddy's ACL and instant messaging ID will be stored against a temporary registration ID. When the invited buddy responds to the invitation, the system will use the temporary ID to match the invitee against the queue. After an invitation has been made, the system marks the user's buddy list as not empty 1989 and sets the user's new and invited flags to "no". For a the prospective buddy 1985 who is already registered, the system notifies the user of the prospective buddy's status 1987 and stores the buddy name with relevant information, such adds an identification of the instant messaging tool used by the buddy 1988. The system adds the buddy and associated information to the user's buddy list 1990. The system allows the user to send messages to the buddy, including a message regarding their ACL status 1991. Either the user's instant messaging tool with standard text and links or an e-mail message may be used for this purpose. The system sets the user's new and invited flags to "no" 1992 and returns to start 1981.

FIGS. 20–21 are a flowchart for access control list administration. In FIG. 20, ACL administration begins with a start screen 2051. One sensible default organization is by topic 2052. In the "by topic" view, the system checks 2053 to determine whether a "by buddy" view has been selected. If so, logic for displaying and processing the "by buddy" view is invoked 2054. If not, the system checks to determine whether the administration session has been canceled 2055. If "cancel" has been selected, the system determines whether the page has been marked as amended 2056. If the page has not been amended, the system returns to a previous screen 2050. If it has been marked as amended, the system prompts the user to save changes 2057 and tests whether the user wants to save changes. If not, the system simply the reverts to a previous screen 2050. If so, the system updates various access flags and related data 2066 before reverting to the previous screen 2050. When "cancel" has not been selected, the system checks whether a topic folder has been selected 2059. If so, the system shows the corresponding buddy list access level in a pane of the view screen 2060. The system then determines whether tick boxes adjacent to any buddy name have been checked 2061. If so, the display format of the buddy name may be altered to reinforce the tick mark and the page is marked as amended 2062. Processing continues to determine whether a buddy name has been de-selected 2063. If so, the display format of the buddy name may be altered to reinforce to the de-selection and page is marked as amended 2064. Processing continues to determine whether "submit" has been selected 2065. If not, processing loops to before 2053. If so, the update path 2066 is followed.

In FIG. 21, ACL administration proceeds from selection of the "by buddy" view 2054. This view is displayed 2172. The system determines whether the user has selected a change of view to "by topic", for instance. If so, the display

16

is changed 2171. If not, the system determines whether the user has selected "cancel" 2175. If "cancel" has been selected, the system determines whether the page has been marked as amended 2176. If the page has not been amended, the system returns to a previous screen 2174. If it has been marked as amended, the system prompts the user to save changes 2177 and tests whether the user wants to save changes 2178. If not, the system simply the reverts to a previous screen 2174. If so, the system updates various access flags and related data 2186 before reverting to the previous screen 2174. When "cancel" has not been selected, the system checks whether a buddy folder has been selected 2179. If so, the system shows the corresponding topic list access level in a pane of the view screen 2180. The system then determines whether tick boxes adjacent to any topic name have been checked 2181. If so, the display format of the topic name may be altered to reinforce the tick mark, and the page is marked as amended 2182. Processing continues to determine whether a topic name has been de-selected 2183. If so, the display format of the topic name may be altered to reinforce the de-selection and the page is marked as amended 2184. Processing continues to determine whether "submit" has been selected 2185. If not, processing loops to before 2173. If so, the update path 2186 is followed.

FIG. 22 is a flow chart of the batch and custom query processes. Batch processing of requests 2251 may be useful to reduce response time for certain processing-intensive queries. For instance, scoring the top 10 or top 100 hits in a category may require a substantial amount of processing which the user would be unlikely to endure. The selection of a hit list may be from a menu, which means that the number of processing-intensive queries is limited and manageable. The system performs predefined queries 2252 against the VUD 100A and the VLD 100B or any similar database on a batch basis. The results are sent to a database of batch query results ("BQD") 2211. These predefined queries are accessible immediately to both Internet and wireless network queries. FIG. 22 distinguishes between Internet queries 2253 and wireless queries 2255. Internet queries may include both predefined queries and custom-built queries 2254. To the extent that wireless queries are hampered by limited bandwidth, wireless queries may be limited to predefined queries 2256. The processing of both types of queries is essentially the same 2257. The user submits a query to the system and the system either performs or real-time query 2258 or retrieves a predefined query from the batch query database 2259. The system returns results of the query to the user 2260.

FIG. 23 extends aspects of the present invention to wireless devices, such as cellular telephones and pagers. Processing of wireless location and action data begins at 2351. The user's wireless communication device and location detection service is first activated 2352. It is necessary for the user to have a wireless device 2354, which supports a location detection service. This support may be by Bluetooth, GPS or any other location detection technology. Then, the link between location detection and activity sharing is activated 2353. A login process may be automated to execute whenever the wireless device 2354 is activated. Given the activation of a wireless device, the system periodically receives information regarding the location of the wireless device 2356. As described above, this may be on an interrupt, polling or periodic batch transfer basis. A location network directory 2312 is accessible, which reflects location of wireless devices 2354 and contains information such as the devices' location address, location description, a timestamp, and user ID 2358. With this information, the system



17

sets the action or activity type to "visit" a location and logs an entry into a visited location database 2358. The system also monitors 2355 for activity related to a location, such as bookmarking a location, rating a location, adding an emoticon or comments about the location. Activity monitoring 2355 continues when no input/output activity is detected 2357. When input/output activity is detected, the system determines the type of activity. Typical activities include bookmarking 2359, rating, or adding an emoticon 2363 or free text comment to a location reference. When a location is bookmarked 2359, the system adds a bookmark flag, location address, location description, a timestamp and a user ID to the VLD or a buffer for later addition to the VLD. When a location is rated 2361, the system adds the rating, location address, location description, a timestamp and the user ID to the VLD or a buffer for later addition to the VLD. When a location is flagged with an emoticon 2363, the system adds the emoticon, location address, location description, a timestamp and the user ID to the VLD or to a buffer for later addition to the VLD. Similarly, when a user makes a comment on a location 2365, the system adds the comment, location address, location description, a timestamp and the user ID to the VLD or to a buffer for later addition to the VLD. For each of these activities, fewer or more fields may be utilized in various embodiments.

FIG. 24 is a flow chart of populating the visited location database ("VLD"). The process for updating topics and descriptions begins at 2451. The system compares 2452 all VLD entries or buffer entries for addition to the VLD against location category and location description database entries 2413. It updates the matching entries and records to categorization and descriptions to the VLD. Unmatched entries are recorded in an exceptions database 2414. This location-topic and location-description match exceptions database ("LIMED") may be used to generate an exceptions report 2453. Matched entries are written to the VLD 100B.

#### APPLICATION EXAMPLES

The interfaces and software described above support many methods and devices for sharing communication device and computer usage experiences. One type of sharing communication device user experiences is sharing computer usage experiences, including Internet browsing experiences. Whichever communication device is used, sharing may depend on registration by a user with a registration server. Registration may involve downloading client software to run on the user's system. For enterprise applications, registration may be handled by a system administrator and integrated or coordinated with registration for network login, e-mail or other messaging. In some embodiments, registration may include contractual terms which limit the use of information collected from the user. In other embodiments, registration may be designed to exclude collection of certain user information, such as the user's e-mail address, actual name or physical address. Some users may feel more comfortable registering with the system if registration excludes collection of any information that identifies the user in a manner adapted to direct marketing. Even if registration excludes initial collection of user identifying information, the user may be given the option of entering additional personal information for general use by the providers of the system or for restricted use, in accordance with contractual terms. The registration process may make the user aware that at least a portion of the user's experiences with a communication device, computer or Internet browser will be collected and

18

shared. It also may make the user aware that information collected from the user will be aggregated with information collected from other users.

Sharing communication device experiences also may include accessing one or more messaging buddy lists associated with the user. Accessing pre-existing buddy lists provides a base for linking the user and buddies with whom tracking data may be shared. Buddy lists may be maintained by AOL's Instant Messenger software, MSN's Messenger software, Yahoo! Messenger software, America Online's ICQ software, Indigo's instant messenger software or Jabber's instant messenger software. More generally, message recipient lists maintained in e-mail systems, such as Microsoft's Outlook products or AOL's Netscape products may maintain the lists that are accessed. Messaging systems such as Lotus Notes also may maintain message recipient lists that the system can access to identify persons with whom tracking data may be shared.

Buddies or groups of buddies are given defined rights to access tracking data collected from the user. Defined rights of buddies to access tracking data may be based on content categories of material accessed. Examples of content categories or topics can be found in FIG. 8D. Defined rights of buddies also could be based on keywords. Definition of rights to access tracking data collected from the user may have multiple aspects. Access may be restricted by the type of activity involved, such as viewing, listening, rating, commenting, assigning an emoticon, sending, watching, downloading, bookmarking or visiting. Access may be further restricted by when the activity potentially accessed took place. It may be restricted based on a value assigned to a rating or emoticon. It can also be restricted based on its original source. Activities marked private, instead of public, may never be shared, based on a user's decision to turn sharing off. There are many useful combinations of these approaches to define the rights of buddies or groups of buddies to access tracking data.

At least a portion of the user's computer usage experiences are tracked and reported to a tracking server. This tracking may be carried out by a module resident on the user's computer or by a device placed between the user's computer and an access point to the Internet. In an enterprise implementation, tracking can be carried out by a server or proxy server. The tracking data can be filtered before it is reported to the tracking server. Data may be filtered based on a sharing on/off option exercised by the user. It also may be filtered based on content categories. In some implementations, only those activities that fit content categories which the user agreed to share would be reported to the tracking server. Alternatively, activity could be reported to the tracking server that was never intended to be posted for access by buddies. The tracking server or a posting server could filter the information before posting it for buddies to access. The computer user experiences tracked could include viewing URLs, downloading files, listening to songs, viewing videos, making purchases, sending items from a user to their buddies, or general messaging between the user and buddies.

In addition to computer user experiences, mobile communication device locations can be tracked, using any of the technologies described above. Activities related to location may include visiting the location, rating, commenting on it, assigning an emoticon, or connecting with another buddy or buddy of a buddy at the location. Proximity to a location may be variation on visiting the location.

It further may be useful to categorize at least a portion of the tracking data by content. The categorized tracking data would be subject to filtering and sorting. Categorized track-



ing data also could be searchable by content category and date range. For instance, a particular buddy's viewing of stock-related sites containing the name "Cisco" during a one or two-month period could be located.

Tracking data can be posted, after filtering, for buddies to access according to their defined access rights. The interface for viewing activity reflected by the tracking data may include a send button, which allows a user to forward an item to a buddy, either with or without comment. Interface also may include rating an emoticon buttons. It may facilitate free text comments on an item. These functions may apply to selected groups of items, in addition to applying to individual items. The buttons for free text comments and the feature for adding notes to items sent to buddies allow annotation of items.

The tracking process further may include generating a full text index of items viewed. This indexing may be performed in the context to viewing URLs or, in an enterprise implementation, in the context of the viewing internal work product or summaries of internal work product. Automated some regeneration may be combined with indexing, so that summaries are indexed.

Additional functionality of the system, which passively tracks activities of registered users may include tracing the flow of information or data among registered users. Information which is sent from a user to a buddy may be annotated with a history of users who forwarded the information. Alternatively, it may include a first user who forward the information and the immediately previous forwarding user. Or, it could identify a limited number of previous forwarding users. If less than a will history of users who forwarded the information is included with information sent from a user to a buddy, an analysis server may use a combination of timestamps and forwarding information to determine the dissemination or diffusion information and the velocity at which it is disseminated. Social network theory provides a number of metrics for evaluating the dissemination or diffusion of information. The tracking capabilities which are an aspect of the present invention can readily be adapted to quantifying the relative influence of one or another user on their buddies, including the strength, frequency, extent and relative value of their influence. Certain users may be selected for introduction to information or new product releases. Certain users may be selected and rewarded as a result of efficient dissemination of information through their social network.

A system practicing aspects of the present invention can readily collect, collate and present user generated lists of superlatives regarding activities, products and services. List may be generated by time period, utilizing date stamps and activities, number of top items (10 or 50 or 100 top items) or other filtering criteria.

The availability of location information for mobile communication devices allows the system practicing aspects of the present invention to present information regarding buddies and buddies of buddies who may be present at the user's physical location. Based on tracking visits to locations, information can be generated such as a particular user's list of favorite restaurants or favorite boutiques. Patterns of visits to physical locations can be reported. Information can be presented to users based on locations recently visited.

Information associated with particular locations can be offered up to users of mobile communication devices, in a context sensitive mode. Categories of information such as buddies' ratings of nearby restaurants can be provided, utilizing location information generated from the mobile communication device and established buddy lists.

While the preceding example applications are cast in terms of a method, devices and systems employing this method are easily understood. A magnetic memory containing a program capable of practicing the claimed method is one such device. A computer system having memory loaded with a program practicing the claimed method is another such device. A system including a registration server and a tracking server practicing the methods described above is another such device.

While the present invention is disclosed by reference to the embodiments and examples detailed above, it is understood that these examples are intended in an illustrative rather than in a limiting sense. It is contemplated that modifications and combinations will readily occur to those skilled in the art, which modifications and combinations will be within the spirit of the invention and the scope of the following claims.

We claim:

1. A method of sharing computer user experiences, including:
  - communicating with a registration server to register a user, for automatic client-side collection of computer usage experiences for future sharing, wherein the computer usage experiences include one or more of browsing URLs or visiting a location with a location-aware device that records the visited location;
  - accessing one or more of the user's messaging buddy lists and selecting one or more buddies with whom to share the automatically collected computer usage experiences;
  - defining categories of computer usage experiences to be shared with particular selected buddies;
  - tracking automatically on the client-side at least a portion of the user's computer usage experiences and reporting the user's computer usage experiences to a tracking server to be published to the particular buddies in accordance with their defined categories of sharing.
2. The method of claim 1, wherein the registration server and the tracking server are a single server.
3. The method of claim 1, wherein the registration server and the tracking server are distinct servers.
4. The method of claim 1, wherein registering the user excludes collection of the user's e-mail address.
5. The method of claim 1, wherein registering the user excludes collection of the user's actual name.
6. The method of claim 1, wherein registering the user excludes collection of the user's physical address.
7. The method of claim 1, wherein registering the user excludes collection of any information that identifies a user in a manner adapted to direct marketing.
8. The method of claim 1, wherein registering the user further includes establishing an anonymous unique identifier for the user.
9. The method of claim 8, wherein reporting the tracking data includes reporting the anonymous unique identifier.
10. The method of claim 1, wherein the messaging buddy list is maintained by AOL's Instant Messenger software.
11. The method of claim 1, wherein the messaging buddy list is maintained by MSN Messenger software.
12. The method of claim 1, wherein the messaging buddy list is maintained by Yahoo! Messenger software.
13. The method of claim 1, wherein the messaging buddy list is maintained by America Online's ICQ software.
14. The method of claim 1, wherein the messaging buddy list is maintained by Odigo's instant messenger software.
15. The method of claim 1, wherein the messaging buddy list is maintained by Jabber's instant messenger software.



## 21

16. The method of claim 1, wherein the rights of the buddies are defined by content category of the user's computer usage.

17. The method of claim 1, wherein the rights of the buddies are defined by appearance of one or more keywords on pages corresponding to URLs viewed.

18. The method of claim 1, wherein the rights of the buddies are defined by activity type of the user's computer usage.

19. The method of claim 1, wherein the user utilizes a computer and tracking is carried out by a module resident on the computer.

20. The method of claim 1, wherein the tracking is carried out by a device placed between a computer utilized by the user and an access point to the Internet.

21. The method of claim 1, wherein the computer usage experience tracked is filtered before it is reported to the tracking server.

22. The method of claim 1, wherein the computer usage reported is filtered after it is reported to the tracking server and before it is posted for the buddies to access.

23. The method of claim 1, wherein the messaging buddy list is maintained by an instant messenger software.

24. The method of claim 1, further including sending tracking data regarding one of a user's computer usage experiences to one or more buddies.

25. The method of claim 1, further including categorizing at least a portion of the tracking data by content and sorting the tracking data by content category.

26. The method of claim 1, further including categorizing at least a portion of the tracking data by content and making the tracking data searchable by content category and date range.

27. The method of claim 1, wherein posting further includes providing annotation tools for associating notes with individual tracking data entries.

28. The method of claim 1, wherein posting further includes providing annotation tools for associating ratings with individual tracking data entries.

## 22

29. The method of claim 1, wherein posting further includes indexing text portions of at least a portion of pages reported from tracking the user's Internet usage.

30. The method of claim 29, wherein text indexing is limited to pages reported from tracking as having been annotated or forwarded by the user.

31. A method of sharing Internet browsing experiences, including:

tracking automatically with a client-side application at least a portion of a user's Internet usage and reporting the tracking data to a server;

categorizing at least a portion of the reported tracking data by content category;

presenting to the user a history of the reported tracking data, with tools for searching and forwarding the tracking data;

receiving from the user data identifying of one or more persons on the user's buddy lists and authorizing the persons to receive tracking data;

responsive to a user request, sending one or more entries from the history of the reported tracking data to the authorized persons.

32. A method of sharing computer user experiences, including:

registering a user with a registration server to collect and share visited location data using a client-side application collected while visiting a location with a location-aware device that records the visited location;

accessing one or more of the user's messaging buddy lists to identify one or more buddies with whom the tracking data may be shared;

defining rights of the buddies to access the visited location data;

posting at least a portion of the user's visited location data for the buddies to access according to their defined rights.

\* \* \* \* \*