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(54) **SYSTEMS AND METHODS FOR RECONFIGURING ELECTRONIC MESSAGES**

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CPC ***H04L 51/24*** (2013.01); ***G06F 9/54*** (2013.01); ***G06F 9/542*** (2013.01); ***G06Q 10/10*** (2013.01); ***G06Q 30/02*** (2013.01); ***G06Q 30/08*** (2013.01); ***H04L 51/04*** (2013.01); ***H04L 51/043*** (2013.01); ***H04L 51/06*** (2013.01)

(58) **Field of Classification Search**

None

See application file for complete search history.

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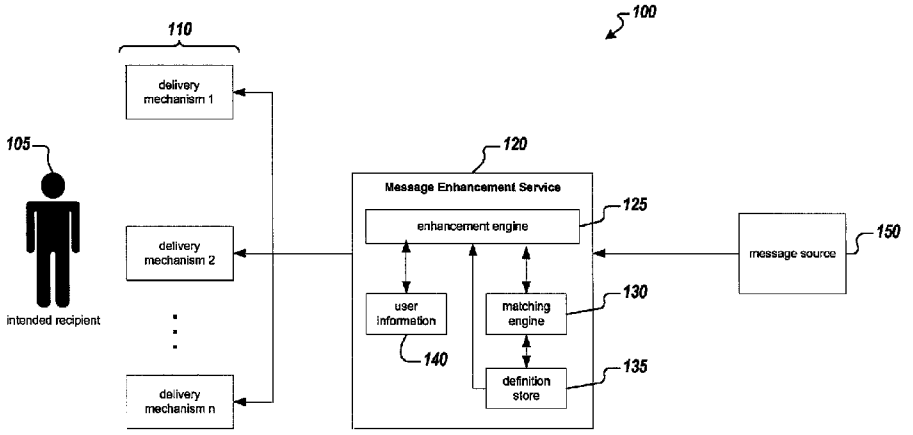
(57) **ABSTRACT**

An electronic message may be reconfigured to effect an enhanced notification using an input interface to receive at least one electronic message created by or on behalf of a message source for delivery to an intended recipient. A matching engine determines whether the electronic message corresponds to a predetermined definition of an enhanced notification. An enhancement engine reconfigures the electronic message to the enhanced notification if stored information related to the intended recipient indicates that the intended recipient is subscribed to receive the enhanced notification. Reconfiguring the electronic message may include reconfiguring the message to provide special handling, routing or presentation.

51 Claims, 10 Drawing Sheets



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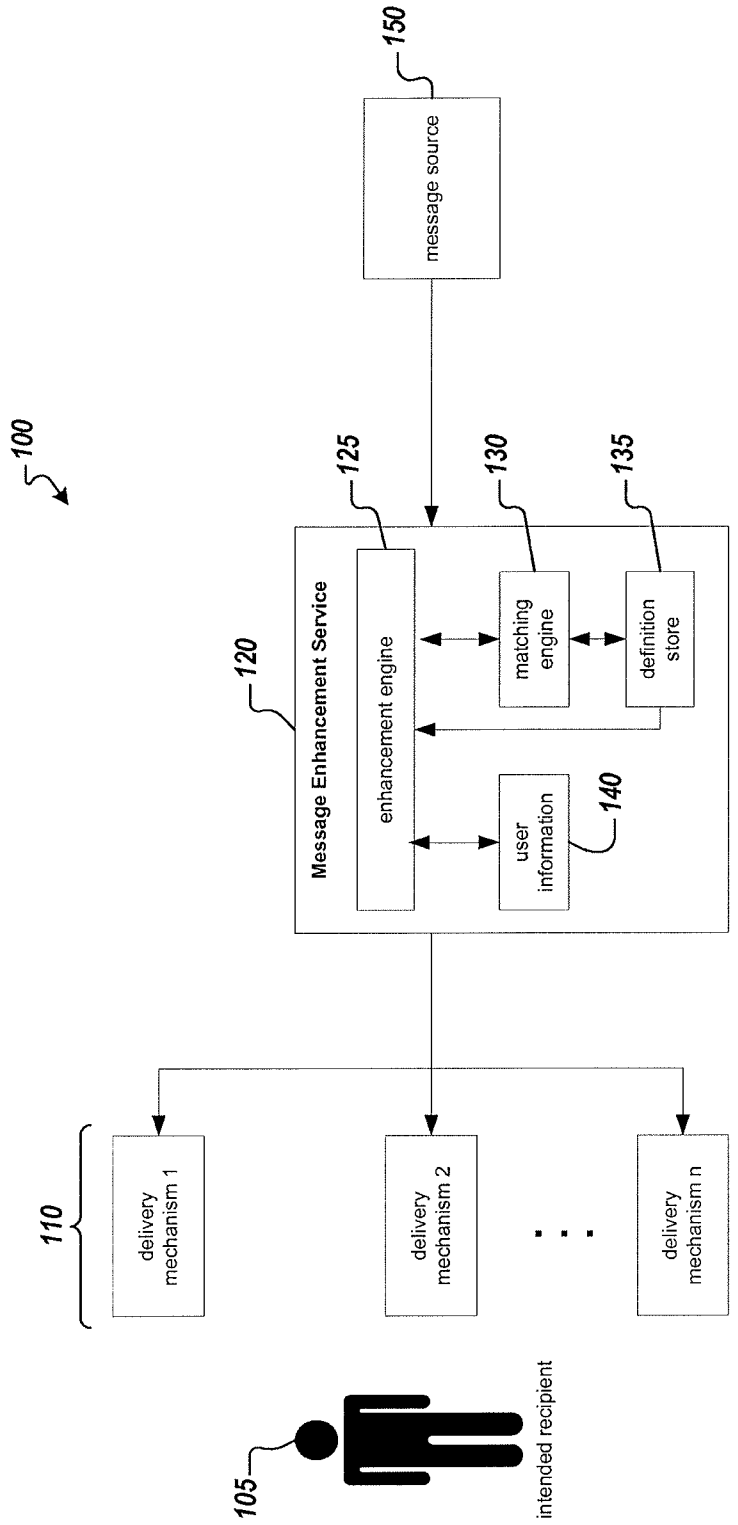
100
150
message source
125
130
135
Message Enhancement Service
120
enhancement engine
matching engine
definition store
user information
140
110
delivery mechanism 1
delivery mechanism 2
delivery mechanism n
105
intended recipient

FIG. 1

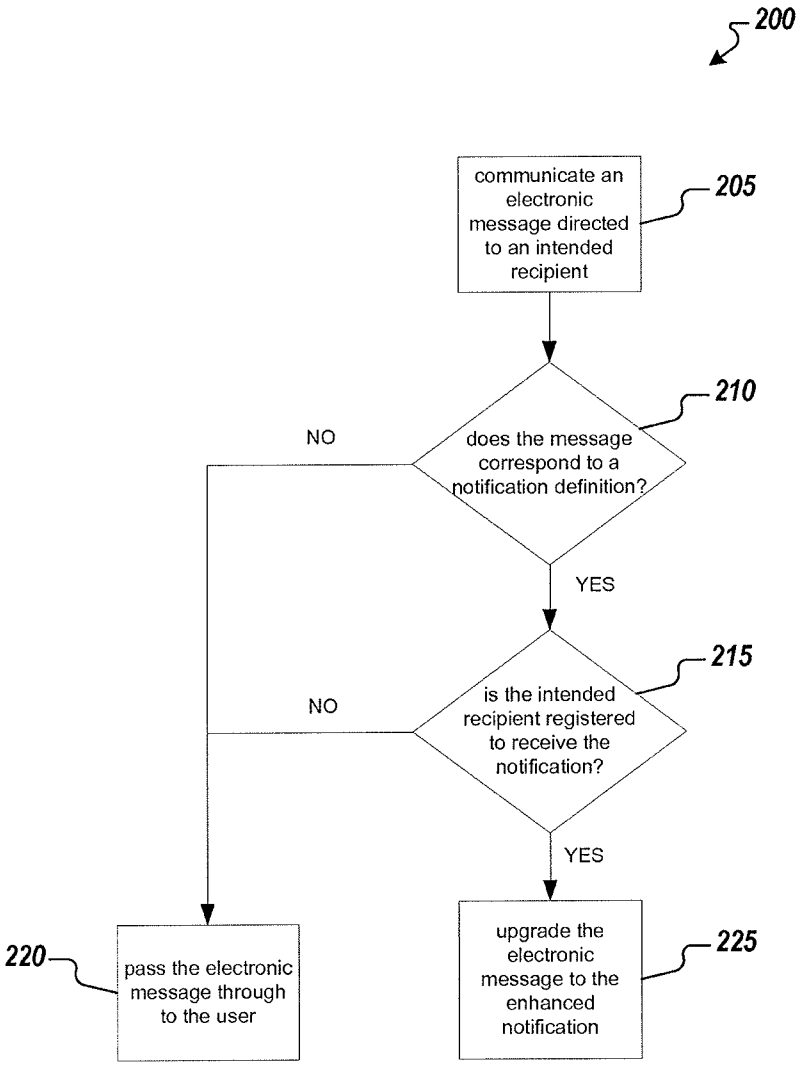
200
communicate an electronic message directed to an intended recipient
205
does the message correspond to a notification definition?
210
NO
YES
is the intended recipient registered to receive the notification?
215
NO
YES
pass the electronic message through to the user
220
upgrade the electronic message to the enhanced notification
225

FIG. 2

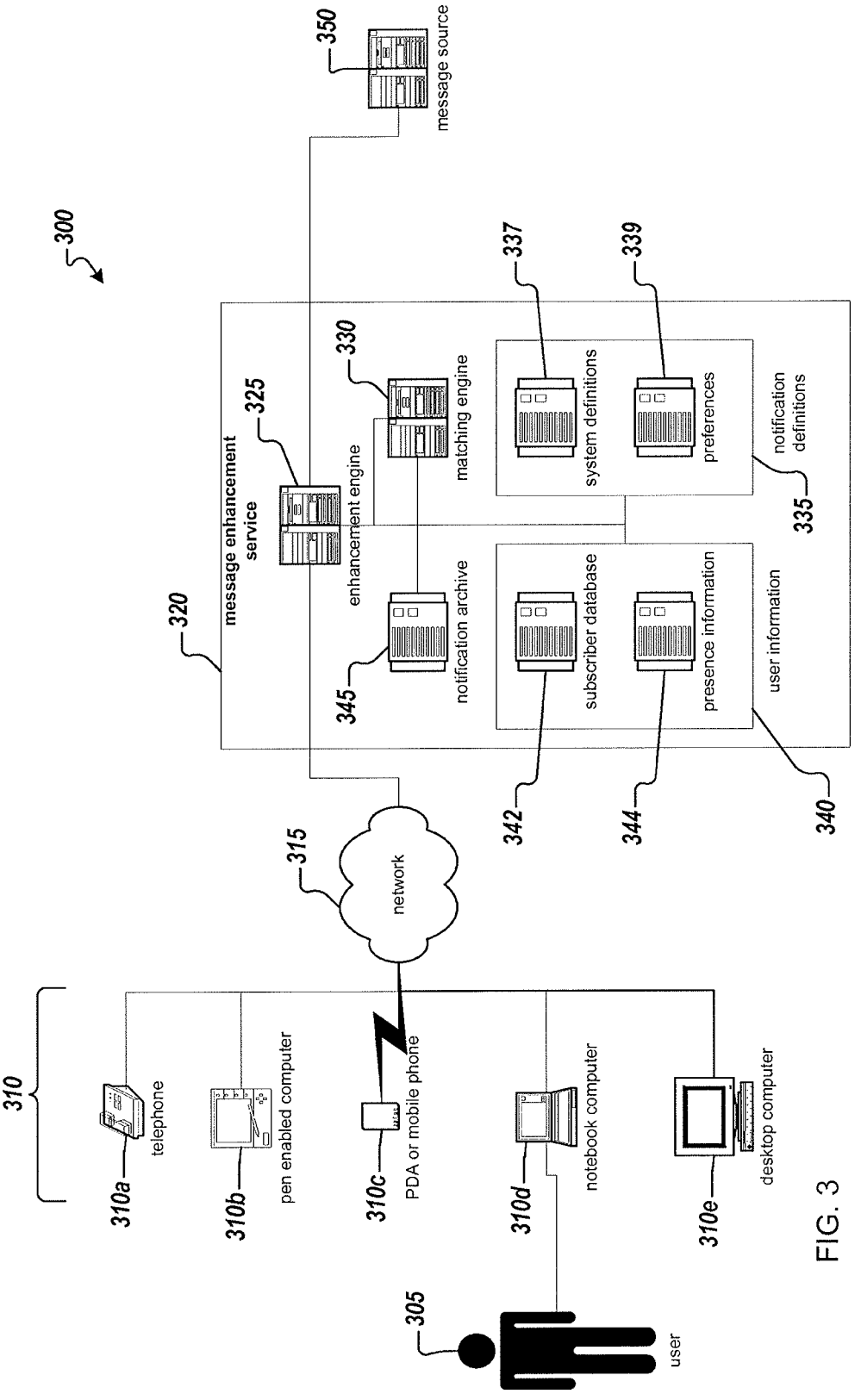
300
350
message source
337
339
330
325
message enhancement service
enhancement engine
matching engine
system definitions
preferences
notification definitions
335
320
345
notification archive
subscriber database
presence information
user information
342
344
340
315
network
310
telephone
pen enabled computer
PDA or mobile phone
notebook computer
desktop computer
310a
310b
310c
310d
310e
305
user

FIG. 3

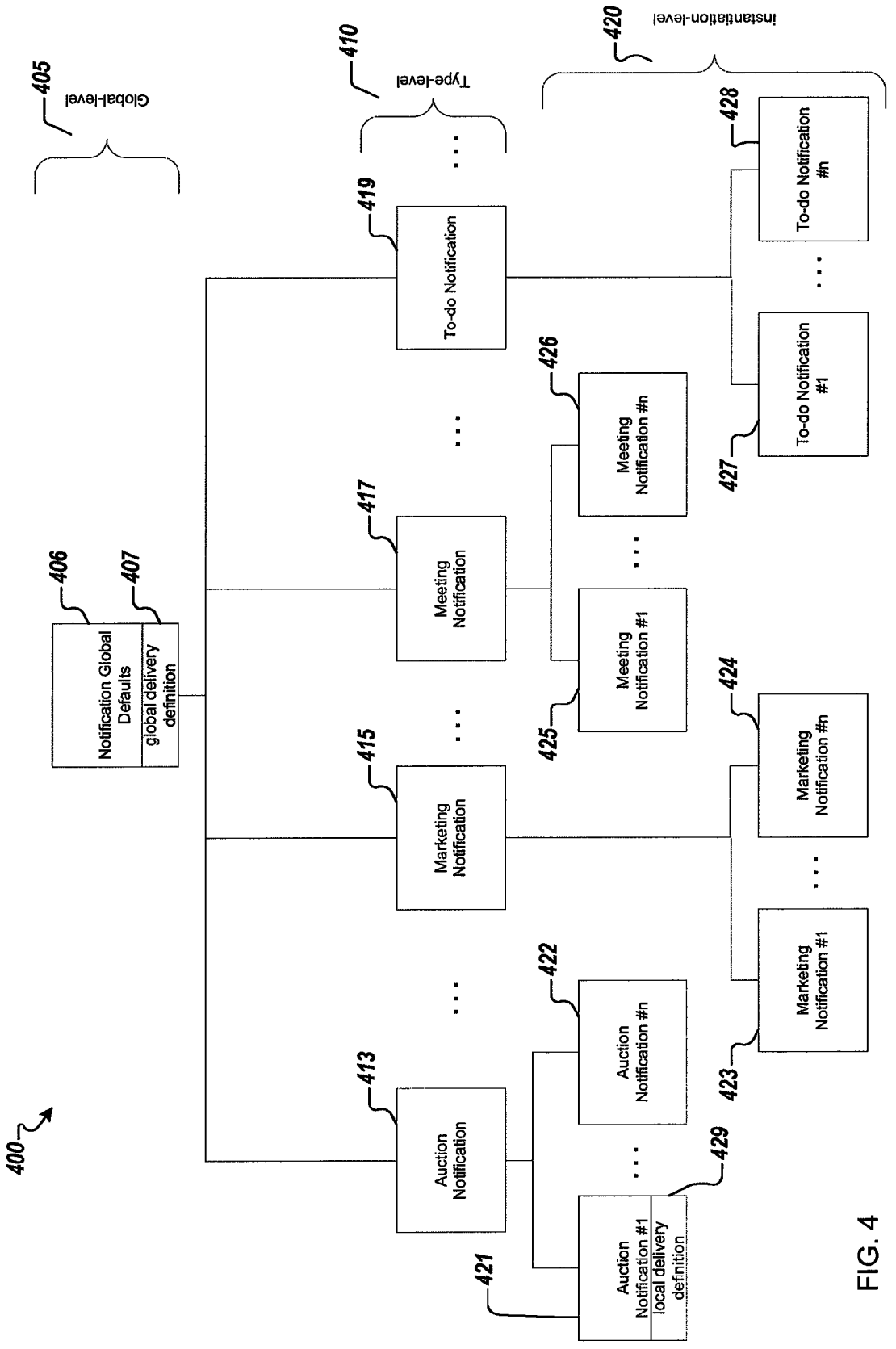
400
405
Global-level
410
Type-level
420
instantiation-level
406
Notification Global Defaults
407
global delivery definition
413
Auction Notification
415
Marketing Notification
417
Meeting Notification
419
To-do Notification
421
Auction Notification #1
local delivery definition
422
Auction Notification #n
423
Marketing Notification #1
424
Marketing Notification #n
425
Meeting Notification #1
426
Meeting Notification #n
427
To-do Notification #1
428
To-do Notification #n
429

FIG. 4

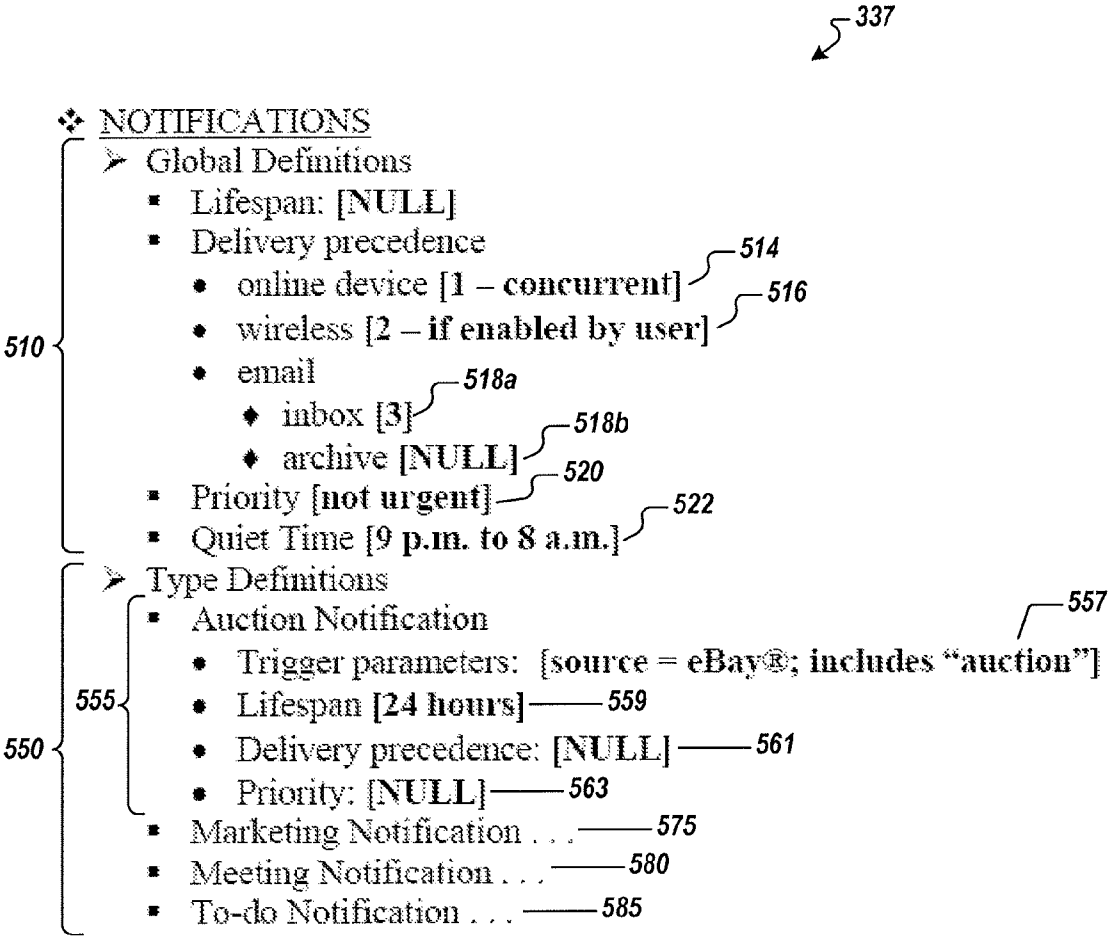
337
NOTIFICATIONS
Global Definitions
Lifespan: [NULL]
Delivery precedence
online device [1 – concurrent]
514
wireless [2 – if enabled by user]
516
email
inbox [3]
518a
archive [NULL]
518b
Priority [not urgent]
520
Quiet Time [9 p.m. to 8 a.m.]
522
510
Type Definitions
Auction Notification
557
Trigger parameters: [source = eBay®; includes "auction"]
Lifespan [24 hours]
559
Delivery precedence: [NULL]
561
Priority: [NULL]
563
555
550
Marketing Notification . . .
575
Meeting Notification . . .
580
To-do Notification . . .
585

FIG. 5

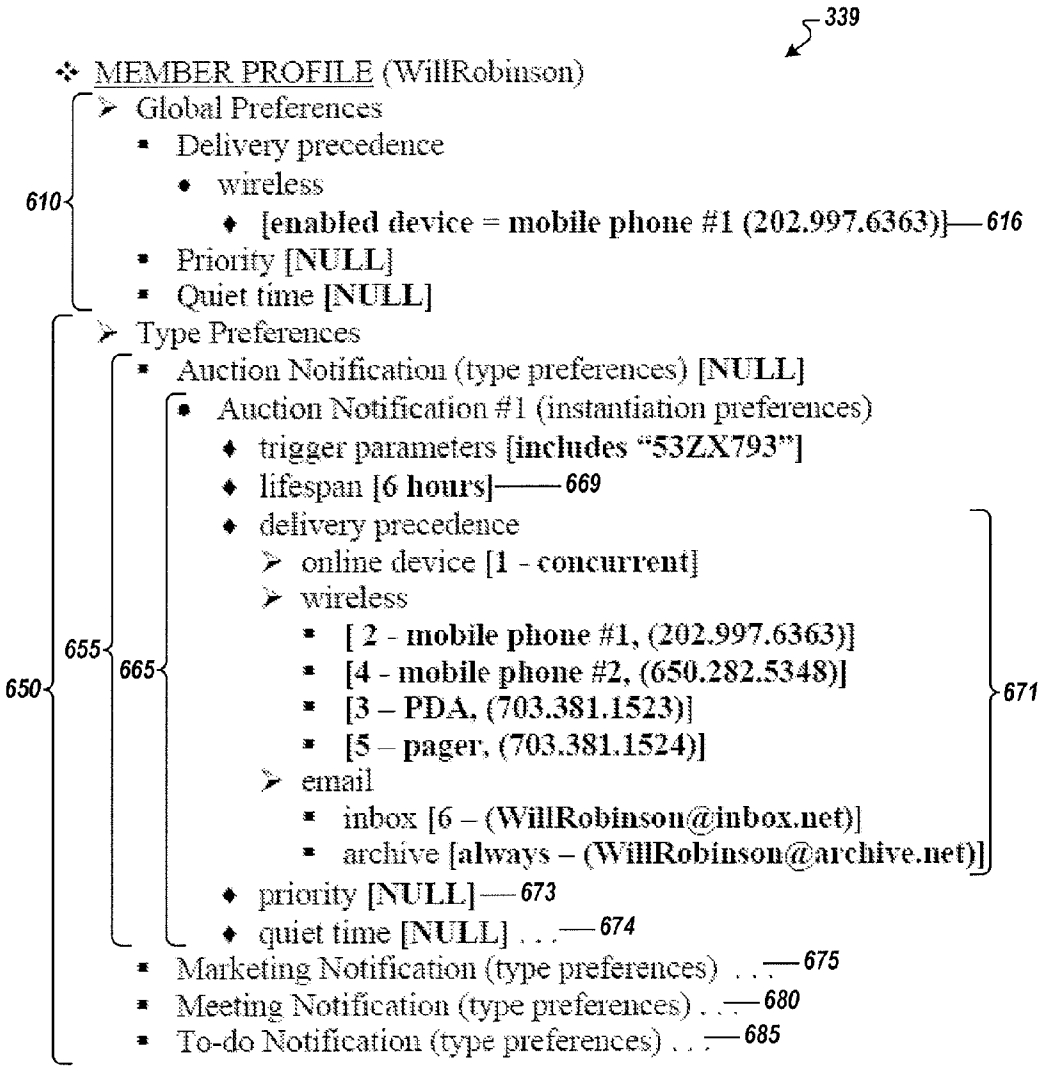
339
MEMBER PROFILE (WillRobinson)
Global Preferences
Delivery precedence
wireless
[enabled device = mobile phone #1 (202.997.6363)]
616
Priority [NULL]
Quiet time [NULL]
610
Type Preferences
Auction Notification (type preferences) [NULL]
Auction Notification #1 (instantiation preferences)
trigger parameters [includes "53ZX793"]
lifespan [6 hours]
669
delivery precedence
online device [1 - concurrent]
wireless
[2 - mobile phone #1, (202.997.6363)]
[4 - mobile phone #2, (650.282.5348)]
[3 – PDA, (703.381.1523)]
[5 – pager, (703.381.1524)]
email
inbox [6 – (WillRobinson@inbox.net)]
archive [always – (WillRobinson@archive.net)]
671
priority [NULL]
673
quiet time [NULL] . . .
674
Marketing Notification (type preferences) . . .
675
Meeting Notification (type preferences) . . .
680
To-do Notification (type preferences) . . .
685
650
655
665

FIG. 6

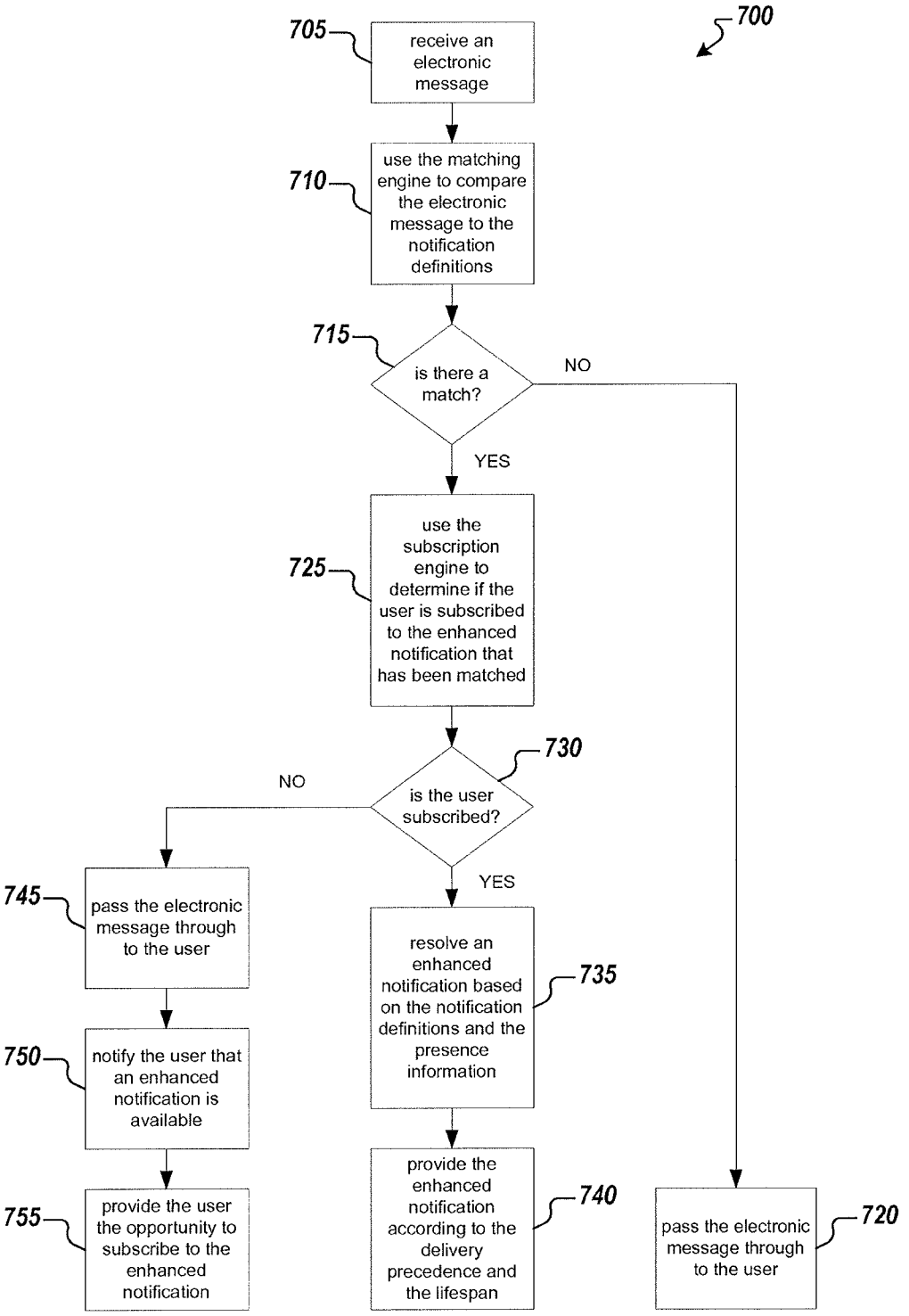
700
705
receive an electronic message
710
use the matching engine to compare the electronic message to the notification definitions
715
is there a match?
NO
YES
725
use the subscription engine to determine if the user is subscribed to the enhanced notification that has been matched
730
is the user subscribed?
NO
YES
745
pass the electronic message through to the user
750
notify the user that an enhanced notification is available
755
provide the user the opportunity to subscribe to the enhanced notification
735
resolve an enhanced notification based on the notification definitions and the presence information
740
provide the enhanced notification according to the delivery precedence and the lifespan
720
pass the electronic message through to the user

FIG. 7

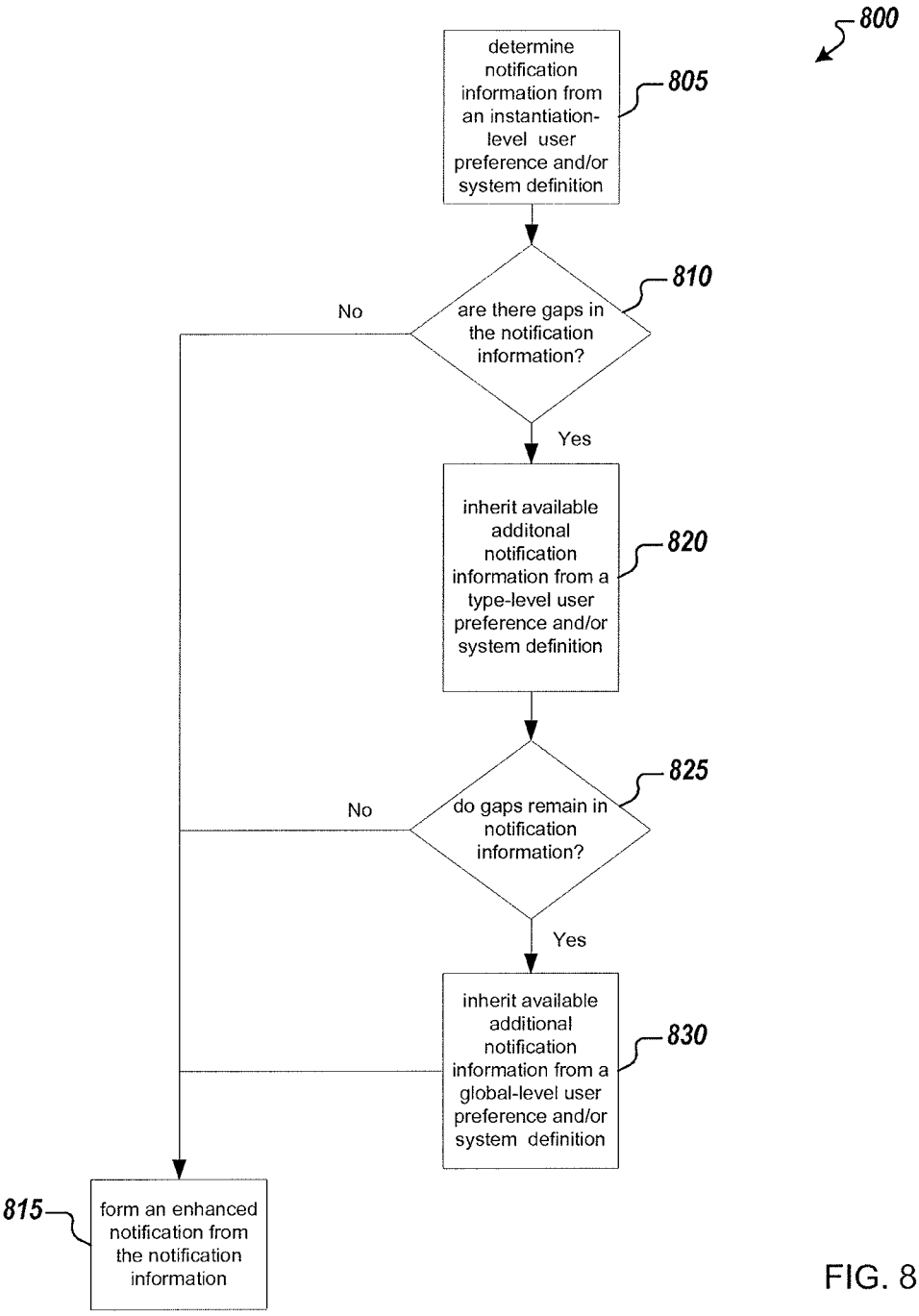
800
determine notification information from an instantiation-level user preference and/or system definition
805
are there gaps in the notification information?
810
No
Yes
inherit available additonal notification information from a type-level user preference and/or system definition
820
do gaps remain in notification information?
825
No
Yes
inherit available additional notification information from a global-level user preference and/or system definition
830
form an enhanced notification from the notification information
815

FIG. 8

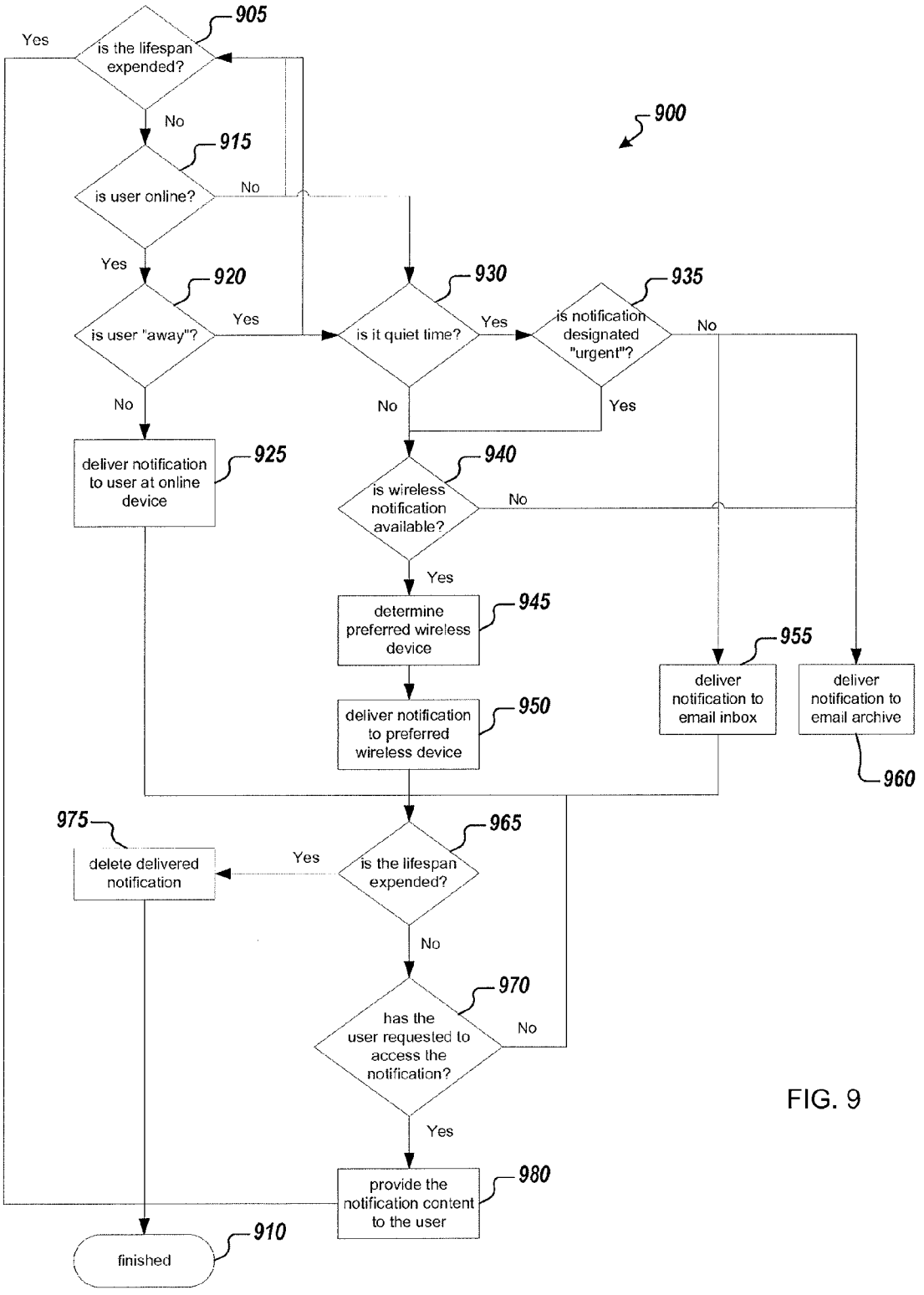
900
905
is the lifespan expended?
Yes
No
915
is user online?
No
Yes
920
is user "away"?
Yes
No
930
is it quiet time?
Yes
No
935
is notification designated "urgent"?
No
Yes
925
deliver notification to user at online device
940
is wireless notification available?
No
Yes
945
determine preferred wireless device
950
deliver notification to preferred wireless device
955
deliver notification to email inbox
deliver notification to email archive
960
975
delete delivered notification
Yes
965
is the lifespan expended?
No
970
has the user requested to access the notification?
No
Yes
980
provide the notification content to the user
910
finished

FIG. 9

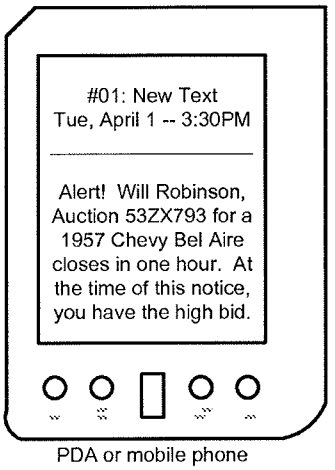
#01: New Text
Tue, April 1 -- 3:30PM
Alert! Will Robinson, Auction 53ZX793 for a 1957 Chevy Bel Aire closes in one hour. At the time of this notice, you have the high bid.
PDA or mobile phone

FIG. 10

SYSTEMS AND METHODS FOR RECONFIGURING ELECTRONIC MESSAGES

CROSS REFERENCE TO RELATED APPLICATIONS

This application is a continuation of U.S. application Ser. No. 13/189,972 filed on Jul. 25, 2011, which is a continuation of U.S. application Ser. No. 12/626,099 filed on Nov. 25, 2009 and now issued as U.S. Pat. No. 8,001,199, which is a continuation of U.S. application Ser. No. 10/715,206, filed Nov. 18, 2003, which claims the benefit of U.S. Provisional Application No. 60/428,234, filed Nov. 22, 2002; and U.S. Provisional Application No. 60/426,806, filed Nov. 18, 2002. The content of all of the prior applications is hereby incorporated by reference in its entirety for all purposes.

TECHNICAL FIELD

This disclosure generally relates to systems and methods of reconfiguring an electronic communication to effect an enhanced notification.

BACKGROUND

Online service providers may desire to inform their users of a wide range of information and services regarding, for example, news, weather, auctions, commercial offerings, stocks, banking, sports scores, and entertainment offerings. Many of these services and much of the information may be time sensitive or may benefit from special handling, routing or presentation. The online service providers may communicate their time sensitive offerings using emails or other basic electronic messages. For lack of individual expertise or infrastructure, the electronic messages of the online service providers may lack functionality desirable to communicate with the users in a timely and effective fashion.

SUMMARY

In one general aspect, a system reconfigures an electronic message to effect an enhanced notification using an input interface to receive at least one electronic message created by or on behalf of a message source for delivery to an intended recipient. A matching engine determines whether the electronic message corresponds to a predetermined definition of an enhanced notification. An enhancement engine reconfigures the electronic message to the enhanced notification if stored information related to the intended recipient indicates that the intended recipient is subscribed to receive the enhanced notification.

Implementations may include one or more of the following features. For example, the system may match the electronic message to the predetermined definition of the enhanced notification based on a source and a content of the electronic message. Moreover, the system may enable the intended recipient to access the electronic message by interacting with the enhanced notification.

The system may include a subscriber engine that stores subscriber information associated with the intended recipient. The subscriber engine also may subscribe the intended recipient to the enhanced notification if the intended recipient already is not subscribed.

The information related to the intended recipient may include presence information. The presence information may indicate an online presence, a device presence, and/or a physical presence of the intended recipient at a time at which the enhancement engine is preparing to provide the enhanced notification to the intended recipient. The presence information may indicate a delivery mechanism associated with the online presence of the intended recipient and that the intended recipient physically is present within a predefined distance of that or another delivery mechanism.

The definition of the enhanced notification may include a system definition and a preference of the intended user. The definition of the enhanced notification may include a data structure appropriate to accommodate the system definition and the preference of the intended recipient. The definition of the enhanced notification also may include a delivery definition and a lifespan.

The delivery definition may include, for example, a cascaded delivery definition. The cascaded delivery definition may list several delivery mechanisms that are candidates for delivery (e.g., an email client, an instant messaging client, a mobile device, a desktop computer) and may be used in conjunction with presence information to determine a delivery mechanism that appears available to provide the enhanced notification to the intended recipient without significant delay.

The lifespan includes a time period during which information of the enhanced notification reasonably may be expected usefully to inform an action of the intended recipient. Based on the lifespan, the system may vacate, update, or modify an enhanced notification provided to the intended recipient but not accessed during the lifespan.

For example, the system may provide a plurality of instances of an enhanced notification to the intended recipient based on the lifespan. The system then may sense that an instance of the enhanced notification has been accessed by the intended recipient. In response, the system may vacate or modify other instances of the enhanced notification not yet accessed by the intended recipient.

The system also may include a notification archive to store enhanced notifications (e.g., delivered notifications and/or notifications for which delivery was attempted) and to record historical information related to at least one of the enhanced notifications.

These general and specific aspects may be implemented using a method, a system, or a computer program, or any combination of systems, methods, and computer programs.

Other features will be apparent from the description, the drawings, and the claims.

DESCRIPTION OF DRAWINGS

FIG. **1** is a schematic diagram of an electronic communication system capable of reconfiguring an electronic message to effect an enhanced notification.

FIG. **2** is a flow diagram of a process implementable by the electronic communication system of FIG. **1**.

FIG. **3** is a schematic diagram of a system to reconfigure an electronic message to effect an enhanced notification.

FIGS. **4-6** illustrate an exemplary data structure that may be associated with enhanced notifications achieved using the system of FIG. **3**.

FIGS. **7-9** are flow diagrams illustrating an exemplary process implementable by the system of FIG. **3**.

FIG. **10** illustrates an exemplary enhanced notification provided to a user at a mobile device.

Like reference symbols in the various drawings indicate like elements.

DETAILED DESCRIPTION

A message enhancement service enables a provider of enhanced notifications (e.g., notifications having a cascaded

delivery or an associated lifespan) to reconfigure an electronic message from a business or other source into an enhanced notification for the intended recipient. By way of illustration, certain businesses generate emails to notify their customers, e.g., an online retailer may send a customer an email to alert the customer that ordered merchandise is available. A notification provider may transform that business' primitive email notification into enhanced notifications (e.g. an alert notification deliverable in various forms to various types of clients). The notification provider may or may not partner with the business that generates the notification emails. In any event, a partner business can leverage the infrastructure of the notification provider to deliver more potent services to its own customers. Moreover, the notification provider independently may provide full-functioned notifications intelligently determined based on emails or other electronic messages received by the intended recipient.

FIG. **1** shows a generalized system **100** that reconfigures an electronic message directed to intended recipient **105** and provides an enhanced notification based on the electronic message at one or more candidate delivery mechanisms **110**. The candidate delivery mechanisms **110** generally may include any device, system, and/or piece of code that relies on another service to perform an operation. The candidate delivery mechanisms **110** may include, for example, a fixed or mobile communication device, whether wired or wireless, and/or a software application, such as, for example, a messaging application or a browser. The candidate delivery mechanisms **110** also may include any protocols (i.e., standards, formats, conventions, rules, and structures) or delivery channels A_1-A_N appropriate for corresponding devices or applications of the candidate delivery mechanisms **110**. The protocols or delivery channels A_1-A_N may include, for example, one or more other systems, such as for example, one or more wired networks and/or one or more wireless networks.

A message enhancement service **120** communicates with a message source **150** and receives the electronic message directed to the intended recipient **105**. The message enhancement service **120** includes an enhancement engine **125**, a matching engine **130**, a definition store **135**, and user information **140**.

The enhancement engine **125** may be configured to reconfigure the electronic message to the enhanced notification based on interaction with the matching engine **130**, the definition store **135**, and the user information **140**. The matching engine **130** may compare the electronic message to a notification definition of the notification store **135**, and may inform the enhancement engine **125** if a correspondence exists. If the electronic message corresponds to a notification definition of the definition store **135**, the enhancement engine **125** may access the user information **140** to determine whether the intended recipient **105** is subscribed to the notification. If the intended recipient **105** is subscribed, the enhancement engine **125** uses information of the definition store **135** to reconfigure the electronic message to the enhanced notification. The enhancement engine **125** provides the enhanced notification to the intended recipient **105** at one or more of the candidate delivery mechanisms **110**. In any event, the definition store **135** and the user information **140** may be used for either of determining whether to reconfigure, or determining how to reconfigure the electronic message. Moreover, certain implementations may segregate, physically or conceptually, the functions of determining whether to reconfigure and of determining how to reconfigure the electronic message.

The enhancement engine **125** provides the enhanced notification based on an applicable notification definition within the definition store **135** and/or applicable user information **140**. An applicable notification definition and/or applicable user information may be identified and accessed based on the identify of the message source or intended recipient or based on attributes of the message. The notification definition may include a delivery definition, for example, a delivery precedence, a hierarchical delivery rule, or any other logical rule or definition that may be used to control delivery of the enhanced notification. The user information, on the other hand, may include information indicating an online presence of the intended recipient **105**. The enhancement engine **125** may be configured to determine one or more preferred delivery options based on the delivery definition, the presence information, and/or other information. That is, in general, the enhancement engine **125** may select from among the candidate delivery mechanisms **110** an actual delivery mechanism that is expected to provide the message to the intended recipient **105** without significant delay.

The notification definition also may include a notification lifespan. The lifespan may represent a period during which the enhanced notification is expected to be relevant to the intended recipient **105**. Delivery of the notification based on the lifespan enhances the likelihood that the enhanced notification will be provided to the intended recipient **105** at a time at which the notification will be useful. The lifespan may be used to avoid untimely delivery of the notification that may cause the intended recipient to view the notification as not useful and/or as an annoyance. That is, in general, the enhancement engine **125** provides the enhanced notification to the intended recipient **105** only while the enhanced notification is expected to be relevant based on the notification lifespan included in an applicable notification definition.

The message source **150** typically may include any source of an electronic message. The message source **150** may employ one or more protocols to transfer information internally or to communicate the electronic message to the message enhancement service **120**.

Both the message enhancement service **120** and the message source **150** further may include various mechanisms for delivering voice and/or non-voice data. The various mechanisms may include, for example, any applications, protocols, devices, or networks used to facilitate communication of electronic data. Both the message enhancement service **120** and the message source **150** also may include or be included in a general-purpose or a special-purpose computer, a local area network, and/or a wide area network. The response to and execution of instructions received by the message enhancement service **120**, the message source **150**, or any of their components (collectively the system services), may be controlled by, for example, a program, a piece of code, an instruction, a device, a computer system, or a combination thereof, for independently or collectively instructing the system services to interact and operate as described herein.

FIG. **2** illustrates a flow diagram of a process **200** implementable by, for example, the system **100** of FIG. **1** to deliver an enhanced notification to the intended recipient of the electronic message. The message source **150** communicates to the message enhancement service **120** an electronic message to be directed to the intended recipient **105** (step **205**). The message enhancement service **120** may use the matching engine **130** and the notification definition **135** to determine whether the electronic message corresponds to the notification definition (step **210**). If there is correspondence, the message enhancement service **120** uses the user information **140** to determine whether the intended recipient **105** is registered to receive the enhanced notification (step **215**). If these conditions are not satisfied, the electronic message is not

reconfigured and is communicated through to the intended recipient **105** (step **220**). Otherwise, the message enhancement service **220** reconfigures the electronic message to an enhanced notification and provides the enhanced notification to the intended recipient **105** according to the notification definition (step **225**).

Referring to FIG. **3**, a generalized notification system **300** reconfigures an electronic message intended for user **305** to provide user **305** with an enhanced notification at one or more candidate delivery mechanisms **310**. The notification includes enhanced features, such as, for example, cascaded delivery, an associated lifespan, or an enhanced presentation. The notification system **300** provides the notification to the delivery mechanisms **310** using a network **315** and a message enhancement service **320**. Exemplary components of the notification system **300** are described in greater detail below.

The delivery mechanisms **310** generally are analogous to the candidate delivery mechanisms **110** of FIG. **1**. Each delivery mechanism **310** may include any device, system, and/or piece of code that relies on another service to perform an operation. For example, a delivery mechanism **310** may include a device such as a telephone **310***a*, a pen-enabled computer **310***b*, a personal digital assistant (PDA) or mobile telephone **310***c*, a notebook computer **310***d*, and/or a desktop computer **310***e*. The delivery mechanisms **310** also or alternatively may include, for example, a Web browser, an email client, a synchronization client (e.g., a calendar synchronization client, or a task list synchronization client), an instant messaging (IM) client, a short message service (SMS) client, a business productivity application (e.g., a word processing program, or a spreadsheet program), and/or an operating system or operating system kernel residing on a device. The delivery mechanisms **310** may be arranged to operate within or in concert with one or more other systems, such as, for example, one or more LANs (local area networks) and/or one or more WANs (wide area networks).

Each of the delivery mechanisms **310** may be accessible to the message enhancement service **320**, and the user **305** may access the message enhancement service **320** or another online service using one or more of the delivery mechanisms **310**. For example, the user **305** may use the notebook computer **310***d* to access the message enhancement service **320**.

A delivery mechanism **310** may format an enhanced notification received from message enhancement service **320** using a standard protocol, such as, for example, the standard generalized markup language (SGML), the extensible markup language (XML), the hypertext markup language (HTML), the extensible hypertext markup language (XHTML), the compact hypertext markup language (cHTML), the virtual reality markup language (VRML), the wireless markup language (WML), the voice extensible markup language (VXML), a document object model (DOM), or the dynamic hypertext markup language (DHTML). Properly formatted, the enhanced notification may enable the user **305** to interact with or to respond to the enhanced notification.

The notification system **300** also includes a message source **350**. The message source **350** typically includes different services and sources of electronic messages, such as, for example, a third party service, an email, a discussion group, a chat room, a news service, a broker service, a banking service, a shopping service, a weather service, the World Wide Web, or an Internet service.

The message source **350** may provide an electronic message as a simple email intended to notify the user **305** of an event or of information. Numerous examples of possible subject matter exist, but, for brevity, only a few of those examples are described here. The electronic message may be based, for example, on a promotional advertisement, an account balance, a portfolio status, a credit status, an online status, information that an order and/or a service is complete, or a message regarding confirmation, cancellation, and/or rescheduling of an appointment. Other examples include, but are not limited to, a weather forecast and/or adverse weather conditions of a particular geographic region; a particular date, holiday and/or other special occasion; an online status of another user; a change to a predetermined web page; or entertainment programming and/or ticket information.

The message source **350** may employ one or more protocols (i.e., standards, formats, conventions, rules, and structures) to transfer information internally or to deliver electronic messages to a user. Protocols employed by the information service **330** may include, for example, the Internet protocol (IP), the transfer connection protocol (TCP), the hypertext transfer protocol (HTTP), the file transfer protocol (FTP), the user datagram protocol (UDP), the layer two tunneling protocol (L2TP) and/or the simple mail transfer protocol (SMTP).

In general, the message enhancement service **320** receives an electronic message from the message source **350** and reconfigures the electronic message to an enhanced notification. Reconfiguring the electronic message may include leaving the source electronic message unchanged while providing additional or alternative delivery options or other features. Reconfiguring the electronic message also may include providing a completely different message that is based on or references the source message. More particularly, the message enhancement service **320** monitors for electronic messages that match enhanced notifications to which the intended recipient is subscribed. The message enhancement service **320** may present the intended recipient with a subscription request when an electronic message matches an enhanced notification to which the intended recipient is not subscribed. If the user **305** desires, the user **305** may use the subscription request to instigate subscription to the enhanced notification, for example, by selecting the subscription request and receiving options responsive thereto.

When an electronic message is reconfigured to an enhanced notification, the message enhancement service **320** may provide the notification to the user **305** based on the lifespan, delivery precedence, or user information. For example, the message enhancement service **320** may deliver the enhanced notification to an email account of the user **305** based on a preference indicated when the user subscribed to the notification. Later, the message enhancement service **320** may detect that the user **305** is online during the lifespan period and may deliver an associated notification to the user **305** using a protocol and/or communication method appropriate for the user **305**, for example, a pop-up window. If the user **305** first accesses the notification delivered to the email account (e.g., because the user **305** was reading email when the pop-up window was delivered), the associated redundant pop-up window notification may be automatically vacated, updated or removed. Alternatively, the email alert may be vacated, removed or updated in response to access by the user to the pop-up window. Similarly, messages of other types can be vacated, removed or updated based on user interaction with different messages or with other message types. If the user **305** fails to access a notification during the lifespan period, that notification and/or any related notification may be vacated, removed or updated. In this manner, the message enhancement service **320** may provide the notification to the user **305** with a minimum of delay while not burdening the user with redundant notifications.

The message enhancement service **320** may provide notifications in a certain order based on a delivery urgency. The delivery urgency may be related to notification subject matter and/or time sensitivity (e.g., as measured by lifespan). For example, a delivery urgency may define that a notification for a severe weather alert has a higher delivery urgency than a notification of a baseball score. Similarly, the delivery urgency may define that a notification with only thirty minutes of remaining lifespan has a higher urgency than a notification having 36 hours of remaining lifespan.

The message enhancement service **320** includes an enhancement engine **325** that receives the electronic message from the message source **350** and reconfigures the electronic message to the enhanced notification. The enhancement engine **325**, alone or in conjunction with other services, may perform sorting, prioritizing, or other types of organizational processing on the enhanced notification so that the notification is delivered appropriately to the user **305**.

More specifically, the enhancement engine **325** reconfigures the electronic message to the enhanced notification based on interaction with the matching engine **330**, the notification definitions **335**, and the user information **340**. The matching engine **330** may compare the electronic message to the notification definitions **335**, and may inform the enhancement engine **325** if a correspondence exists. If the electronic message corresponds to a notification definition **335**, the enhancement engine **325** accesses the user information **340** to determine whether the user **305** is subscribed to the notification. If the user **305** is subscribed, the enhancement engine **325** uses the notification definition **335** to reconfigure the electronic message to the enhanced notification. The enhancement engine **325** provides the enhanced notification to the user **305** at one or more of the candidate delivery mechanisms **310** (e.g., using a cascaded delivery, or a simultaneous broadcast delivery to a plurality of the delivery mechanisms **310**). In general, the enhancement engine **325** uses the user information **340** and the notification definitions **335** to select from among the candidate delivery mechanisms **310** one or more actual delivery mechanisms that are expected to provide the message to the user **305** without significant delay and/or with appropriate emphasis and formatting.

The notification definitions **335** may include system definitions **337** and user preferences **339**. The system definitions **337** may be generated by the system or by an administrator of the system. The system definitions **337** may include, for example, definitions of classes of notifications, and/or definitions of each available notification. More specifically, the system definitions **337** may define, in whole, or in pail, one or more conditions to be satisfied by the source and/or content of an electronic message before the corresponding enhanced notification will be provided—contingent upon subscription by the user **105**. For example, before an electronic message will be reconfigured, the system definitions **337** may require that the electronic message derive from a specific source and/or include specific content.

The system definitions **337** also may define the range of functionality of the enhanced notifications and, hence, the scope of accommodation to user preferences (e.g., a user preference for a function not defined for the system cannot be accommodated). The system definitions also may provide a cascaded delivery definition and/or a lifespan (e.g., by forecasting a time period during which the notification is expected to be useful to a user). The system definitions **337** may make a variety of delivery and/or presentation methods available for selection by the user **305**. For example, the system definitions **337** may enable user **305** to select to receive the notification as an instant message, an icon, a pop-up window, a video, a flashing indicator, and/or an audio or tactile alarm. The system definitions **337** also may provide for the enhanced notification to be provided to the user **305** conditioned on presence (online versus offline), and/or conditioned on use by the user **305** or intended delivery to a particular device or device type, for example, a wireless device (e.g., a mobile phone, a PDA, or a pager), a standard telephone, voicemail, and/or email if the user **305** so desires. The system definitions **337** may provide the user with flexibility to be notified in a manner that the user anticipates will most likely provide the notification to the user without significant delay.

The user preferences **339** generally include preferences of the user **305** regarding optional or selectable aspects of the system definitions **337**. For example, the user preferences **339** may include a delivery preference of the user **305**, a presentation preference of the user **305**, or a lifespan preference of the user. The user preferences **339** may also include information to define, in finer detail, the conditions to be satisfied by the source and/or content of an electronic message before the corresponding enhanced notification will be provided.

For example, the user **305** may register for an auction alert. The subscriber engine **342** may record that the user **305** has registered for the auction alert. At registration, the user **305** also may provide notification preferences that will be added to the preferences **339** of the notification definitions **335**. The user **305** may indicate that the enhanced auction notification will reconfigure simple email alerts sent to the user **305** by eBay® that relate to online auctions in which the user **305** participates. The auction notification will be delivered according to the cascaded delivery definition but will not be delivered after passage of the lifespan. Moreover, even if delivered, the auction notification may be deleted automatically if the user **305** does not access the auction notification (e.g., by viewing an associated pop-up window, and/or by accessing an associated email or voicemail message) prior to passage of the lifespan.

As another example, the user **305** may subscribe to reconfigure birthday email reminders to enhanced notifications. The message source **350** may provide the email reminders one week prior to the specified birthday and, again, the day before. Having properly subscribed, the email reminders are reconfigured to notifications having enhanced functionality. For example, the subsequent enhanced notification may replace the initial notification if the initial notification has not been accessed already.

Moreover, the user **305** may consider two weeks an upper bound for an acceptable belated birthday wish. As a result, the user **305** may configure the enhanced notifications with appropriate lifetimes. Using the lifespans, the enhanced notifications of the birthday may be removed automatically two weeks following the birthday if the user **305** has not accessed the notifications by that time.

In yet another example, the user **305** may subscribe to reconfigure marketing or sales messages (e.g., SPAM) to enhanced notifications. The enhanced notifications may have an associated short duration lifespan of hours or, perhaps, of a day. The enhanced notifications may provide the user **305** with the opportunity to examine the marketing or sales messages received for subject matter of interest. At the same time, the short lifespan relieves the user **305** of the need to attend to the sales or marketing notifications because each corresponding enhanced notification automatically will be deleted as its short lifespan is expended.

The user information **340** may include a subscriber engine **342** and presence information **344**. The subscriber engine **342** may include a record of the enhanced notifications that the

user **305** has subscribed to receive. Upon registration to receive an enhanced notification, the user **305** may inform the message enhancement service **320** of preferences regarding that enhanced notification. The message enhancement service **320** may include those preferences in the preferences **339** of the notification definitions **335**.

The presence information **344** may include, for example, information indicating an online presence of the user **305** (e.g., information indicating that the user **305** is browsing the web, the user **305** has an active instant messaging session, the user **305** is online using a television, the user **305** is online using a game console, the user **305** is online using a networked radio, or the user **305** currently is active in a chat room discussion). The presence information **344** also may include information indicating a presence of the user at a particular device or a physical presence of the user. The physical presence information may be determined, for example, from a global positioning system associated with the user **305** and may be used to select a delivery mechanism within a predefined range of the intended recipient's physical presence.

The network **315** typically allows direct or indirect communication between the delivery mechanism **310** and the online service **320**, irrespective of physical or logical separation. Examples of a network **315** include the Internet, the World Wide Web, WANs, LANs, analog or digital wired and wireless telephone networks (e.g., PSTN, ISDN or xDSL), radio, television, cable, satellite, and/or any other delivery mechanism for carrying data. The network **315** may be secured or unsecured.

Each of the delivery mechanism **310**, the network **315**, and the message enhancement service **320** may further include various mechanisms for delivering voice and/or non-voice data, such as, for example, the short message service, the wireless application protocol (WAP), the transport connection protocol (TCP), the Internet protocol (IP), the World Wide Web, one or more local area networks, and/or one or more wide area networks. The delivery mechanism **310**, the network **315**, and the message enhancement service **320** also may include analog or digital wired and wireless telephone networks, such as, for example, public switched telephone networks (PSTN), integrated services digital networks (ISDN), various types of digital subscriber lines (xDSL), advance mobile telephone service (AMPS), global system for mobile communications (GSM), general packet radio service (GPRS), code division multiple access (CDMA), radio, cable, satellite, and/or other delivery mechanisms for carrying voice or non-voice data.

The message enhancement service **320** also may include a notification archive **345**. The notification archive **345** may be used to retain versions of each enhanced notification actually provided or for which delivery was attempted but failed. The notification archive **345** also may record with respect to each notification the device or devices to which the notification was delivered or for which delivery failed, and the dates and times of those occurrences. In instances of failed delivery, the notification archive **345** may store information indicative of the cause of failed delivery, such as, for example, that a mailbox full message was received in association with an attempted email notification. The notification archive **345** may enable users, for example, to access a history of notifications for which they were an intended recipient (e.g., notifications of the last week or month) and/or to access archived versions of any past notification provided to them.

The notification archive **345** may include one or more databases that may reside at any appropriate location (e.g., local location, remote location, third party location), and also may reside on any appropriate storage medium **180** such as, for example, a magnetic disc array, or an optical disk array. These databases may be included in a single physical or logical structure, or they may be physically or logically distinct.

One or more other services may be included in the components of notification system **300** and/or these components (hereinafter the system services) may be included as part of one or more other services. For example, the system services may include or be included in a general-purpose or a special-purpose computer (e.g., a personal computer, a PDA, or a device specifically programmed to perform certain tasks), a database, a local area network, and/or a wide area network. In any event, the response to and execution of instructions received by any or all of the system services may be controlled by, for example, a program, a piece of code, an instruction, a device, a computer system, or a combination thereof, for independently or collectively instructing the services to interact and operate as described herein.

FIG. **4**. illustrates a notification data structure **400** that may be used by the message enhancement service **320** of FIG. **3** to maintain the notification definitions **335**. The notification data structure **400** is structured as a hierarchical tree and provides a logical representation of the notification definitions **335**. For example, a highest hierarchical level of the notification data structure **400** includes a global-level **405** having a notification global defaults node **406** representative of a generalized notification.

A lower type-level **410** of the notification data structure **400** further defines notifications according to notification types. For example, as shown, the notifications may include an auction notification type **413**, a marketing notification type **415**, a meeting notification type **417**, and a to-do notification type **419**, among others. Still further, the notification data structure **400** includes an instantiation-level **420** to identify and define activated instantiations of each notification type (e.g., the auction notification type **413**). For example, the auction notification type **413** may include instantiations of that notification activated by user subscription (e.g., auction notification #**1 421** through auction notification #n **422**). Other instantiations include marketing notification #**1 423** through marketing notification #n **424**, meeting notification #**1 425** through meeting notification #n **426**, and to-do notification #**1 427** through to-do notification #n **428**.

Each level of the notification data structure **400** may include both system definition information (e.g., system definitions **337**) and user preference information (e.g., preferences **339**) for the notification definitions **335**. For example, the notifications global-level **405** may include system-defined delivery information and user-defined delivery information. To the extent that there is contradiction, the user preference information may preempt the system definition information for a given hierarchical level of the notification data structure **400**. Moreover, each node of the notification data structure **400** may be configured to inherit notification definitions **335** from a node of a higher hierarchical level from which the node depends. Stated differently, notification definitions **335** may pass from a higher hierarchical level of the notification data structure **400** to a lower level to provide information missing at the lower level.

For example, the notifications global node **406** includes a global delivery definition **407**. Since the auction notification type **413** lacks its own delivery definition, the auction notification type **413** inherits the global delivery definition **407** from the notification global defaults **406**. However, auction notification #**1 421**, an instantiation of the auction notification type **413**, includes a local delivery definition **429**. To the extent that the local delivery definition **429** is complete, that

definition overrides the global delivery definition **406** that it would inherit otherwise. On the other hand, auction notification #n **422**, a further instantiation of the auction notification type **413**, does not include a delivery definition and inherits the global delivery definition **407** from the auction notification type **413**.

FIGS. **5** and **6** illustrate an implementation of the notification data structure **400** that includes data structures for structuring the system definitions **337** and the user preferences **339**, respectively. The exemplary data structures of FIGS. **5** and **6** are similar and parallel each other.

Referring to FIG. **5**, the notification data structure **400** includes system definitions **337**. The system definitions **337** include global definitions **510** and type definitions **550**. The global definitions **510**, for example, provide that a notification may include a lifespan. As indicated by the null value, however, the global definitions **510** do not provide a global default lifespan value. The global definitions **510** also indicate a global delivery precedence that controls whether and/or when the enhancement engine **325** provides an enhanced notification to a particular delivery mechanism. More specifically, the global definitions **510** instruct the enhancement engine **325** to select the following delivery mechanisms as delivery recipients in the order of preference shown: (1) an online device **514**, if the user is online, (2) a wireless client **516**, if wireless delivery is enabled for the user, and (3) an email inbox **518***a*. Lastly, an email archive **518***b* is provided for, but is not activated as a delivery option in this configuration.

Delivery to the online device **514** is designated as "concurrent." Concurrent delivery indicates that the notification will be delivered online if the presence information **344** indicates that the user **305** currently is online, even if the notification already had been or will also be delivered to the user **305** offline. The global definitions also define notification priority **520** to be "not urgent," and that a "quiet time" **522** applies between 9:00 PM and 8:00 AM during which only urgent notifications are delivered to attract the immediate attention of the user **305**.

Additionally, the system definitions **500** include type definitions **550** that define, for example, an auction notification type **555**, a marketing notification type **575**, a meeting notification type **580**, and a to-do reminder alert **585**. For brevity, only the auction notification type **555** is described in detail as the other notification types are similar in most relevant aspects. The auction notification type **555** defines, for example, trigger parameters **557**, which, if satisfied by the electronic message, will cause the electronic message to be reconfigured to an auction notification type **555**. In this case, the trigger parameters **557** require that the electronic message be provided by eBay®, and that the content of the electronic message include the term "auction." The auction notification type **555** also defines a twenty-four hour lifespan **559**. In addition, although it does not do so here, the auction notification type **555** may define an associated delivery precedence **561** and notification priority **563**.

Referring to FIG. **6**, the notification data structure **400** also may include a user profile with user preferences **339**. Like the system definitions **337**, the user preferences **339** include global preferences **610**, and type preferences **650**. In the illustration of FIG. **6**, all of the global preferences are null valued except for wireless delivery preference **616**. That preference indicates that mobile phone #**1** is enabled generally to receive notifications for WillRobinson. To enable mobile phone #**1** to receive notifications, WillRobinson may identify mobile phone #**1** as a preferred delivery mechanism and may identify contact information related to mobile phone #**1**, such as, for example, an associated phone number (202) 997-6363. Although mobile phone #**1** is enabled, no associated delivery precedence is provided.

The type preferences **650** may include preferences for various notification types for which WillRobinson has subscribed, such as, for example, the auction notification type **655**, the marketing notification type **675**, the meeting notification type **680**, and/or the to-do notification type **685**. For brevity, FIG. **6** provides detail only for the auction notification type **655**. The auction notification type **655** includes type-level preferences and a single auction notification instantiation (i.e., auction notification #**1 665**) having associated instantiation preferences. The type preferences for the auction notification type **655** are null valued.

Nevertheless, at the instantiation level, auction notification #**1 665** defines the lifespan as 6 hours, based, for example, on an expectation of the user that the auction will proceed quickly. The auction notification #**1 665** also defines the following delivery precedence **671**: (1) an online device (if the user is online), (2) a mobile phone #**1**, (3) a PDA, (4) a mobile phone #**2**, (5) a pager, and (6) an email inbox. Lastly, an email archive is identified to always receive notification. In addition, the auction notification #**1 665** defines the notification priority **673** as "urgent," while leaving "quiet time" **674** undefined as a null value.

FIG. **7** illustrates a flow diagram of a process **700** implementable by, for example, the system of FIG. **3** to reconfigure an electronic message to an enhanced notification. Initially, the message enhancement service receives an electronic message from a message source (step **705**). The enhancement engine uses the matching engine to compare the electronic message to the notification definitions including, for example, the trigger parameters. (step **710**). If there is a match (step **715**), the enhancement engine uses the subscriber engine to determine whether the user is subscribed to the enhanced notification that has been matched (step **725**); otherwise the electronic message is not reconfigured but is passed through to the user (step **720**).

If there is a match (step **715**) and the user is subscribed to the enhanced notification (step **730**), the enhancement engine resolves the enhanced notification (step **735**). The enhanced notification is resolved based on the notification definitions, such as, for example, the system definitions and the user preferences, and the presence information (step **735**). The enhancement engine provides the enhanced notification to the user at a selected delivery device, for instance, according to a delivery precedence and/or a lifespan of the enhanced notification (step **740**).

If the user, however, is not subscribed to the enhanced notification (step **730**), the electronic message is not reconfigured but is passed through to the user (step **745**). The message enhancement service notifies the user that the enhanced notification is available (step **750**), and uses the subscriber engine to provide the opportunity to the user to subscribe to the enhanced notification (step **755**).

Referring to FIG. **8**, an enhanced notification, in whole or in part, may be resolved (step **735** of FIG. **7**) using process **800**. Resolving the enhanced notification includes determining notification information from an instantiation-level user preference and/or system definition (step **805**). If no gaps are identified in the notification information (step **810**), the enhanced notification is formed based on the notification information (step **815**). Otherwise, if gaps are identified (step **810**), additional notification information is inherited from a type-level user preference and/or system definition (step **820**). The supplemented notification information is evaluated for completeness again (step **825**). If the supplemented noti-

fication information is complete, the enhancement engine **325** forms the enhanced notification based on that information (step **815**). Otherwise, the enhancement engine **325** forms the enhanced notification (step **815**) after the notification information is supplemented further through inheritance based on a global-level user preference and/or system definition (step **840**). The enhanced notification may be formed, for example, by converting the relevant notification information into a format or protocol required for delivery.

FIG. **9** illustrates a flow diagram of a process **900** implementable by, for example, the system of FIG. **3** to provide to the user an enhanced notification. By way of illustration, the enhanced notification may include a lifespan and a delivery precedence that seeks to notify the user first online, second at a wireless device, and third via email. Providing the enhanced notification includes determining whether the lifespan of the enhanced notification has been expended (step **905**). If the lifespan is expended, the message enhancement service **320** does not provide the enhanced notification and the process is finished (step **910**).

If the lifespan is not expended (step **905**), then the message enhancement service **320** uses the presence information to determine whether the user **305** is online (step **915**). If the user **305** is online, the message enhancement service **320** determines further whether the user **305** is away temporarily (e.g., although having an established an online session, the user **305** has marked himself as "away," or the user **305** has engaged in no online activity for a predetermined period of time) (step **920**). If the message enhancement service **320** determines that the user **305** is online and is not away from the online delivery mechanism, the message enhancement service **320** delivers the notification to that online delivery mechanism (step **925**).

If the message enhancement service **320** determines, however, that the user **305** is not online (step **915**), or is away from the online delivery mechanism (step **920**), then the message enhancement service **320** determines again if the lifespan is expended (step **905**) and continues to monitor for an online presence of the user **305** (steps **915** and **920**).

Concurrently with online delivery, the message enhancement service **320** determine whether it presently is "quiet time" for the user **305** (step **930**). The message enhancement service **320** also determines whether the enhanced notification is designated as "urgent" (e.g., an enhanced notification might be marked "urgent" when the notification provides an alert that a tornado has been spotted near the user's home address) (step **935**). Where the message enhancement service **320** determines that it is not "quiet time" or that the notification is "urgent" (i.e., "urgency" overrides "quiet time"), the message enhancement service **320** determines whether wireless notification is available for the user **305** (e.g., through notification to a mobile phone, a PDA, a pager) (step **940**). If wireless notification is available, the message enhancement service **320** determines a wireless delivery mechanism at which the user **305** prefers to receive the notification (step **945**) and delivers the notification to that wireless delivery mechanism (step **950**).

However, should the message enhancement service **320** determine that it is "quiet time" (step **930**) and that the notification is not "urgent" (step **935**), or that wireless notification is unavailable (step **940**), the message enhancement service **320** delivers the notification to an email inbox (step **955**). Irrespective of delivery or lack of delivery to other delivery mechanisms, the message enhancement service **320** also delivers the notification to an email archive (step **960**).

Whether the enhanced notification is provided online, to a wireless device, or to an email inbox, the lifespan of the enhanced notification is monitored until the lifespan is expended or the user **305** accesses the notification (steps **965** and **970**). If the lifespan of the notification becomes expended before the user accesses the notification (step **965**), the notification may be vacated (e.g., the notification may be deleted from a notification delivery mechanism to which the notification was delivered) (step **975**) and the delivery process may be concluded (step **910**). Otherwise, if the notification is accessed by the user before the notification lifespan becomes expended (step **970**), the content of the notification is provided to the user (step **980**), and the delivery process may be concluded (step **910**).

Alternatively, or in addition, after the user accesses the provided notification (step **970**), the message enhancement service **320** may cause to be vacated redundant instances of the same notification that were delivered to other delivery mechanisms. For example, those redundant instances of the notification might be vacated as the lifespan period becomes expended. In another implementation, accessing of the enhanced notification by the user **305** may trigger the message enhancement service **320** to cause the redundant instances of the notification to be vacated. For example, access by the user of an online notification may cause the message enhancement service to transmit a secured (e.g., authenticated and encrypted) recall message to an email inbox to which a now redundant notification concurrently was delivered. The secured recall message may act to remove the redundant notification from the inbox before the redundant notification becomes a source of inconvenience to the user.

FIG. **10** illustrates an auction notification that may be delivered to a PDA or mobile phone of a user. The PDA or mobile phone notifies the user "Alert! Will Robinson. Auction 53ZX793 for a 1957 Chevy Bel Aire closes in one hour. At the time of this notice, you have the high bid." In general, the auction notification may include any type of instant message, pop-up window, icon, and or audible or tactile alarm capable of gaining the attention of the user. The auction notification may present information derived from the electronic message of the message source. In addition, or in the alternative, the auction notification may include the contents of the electronic message. In another aspect, the auction notification may include an edit button for editing the presentation of the notification, and a respond/more information button for accessing the auction using the online service to update a bid and/or to obtain more detailed information regarding the auction.

The following scenario serves to illustrate exemplary implementations involving the processes and systems described.

A business may generate notification content but may partner with a notification provider for delivery of that content reconfigured according to parameters provided by the business. For example, a partner business may agree to notify a customer of customer account information each month. The business may communicate a message to the notification provider that includes text appropriate for such a reminder. The business also communicates a configuration instruction that is used by the notification provider to effect the desired message reconfiguration. The configuration instruction may be included as part of the original message text (to be recognized and removed by the notification provider during reconfiguration), in a header, or in an out-of-band communication with the notification provider.

The business also may enable the notification provider to supplement the notification content in an appropriate manner. For example, the configuration instruction may include schedule information indicating requested timing for the

user's monthly reminder and access information for authenticated access to the user's account. In receipt of this information, the notification provider establishes a notification to be delivered to the user on the monthly schedule and based on the provided text and information to be gleaned through access to the user's account. Thereafter, when the monthly notification is triggered, access to the account information is obtained, an attachment is generated based on a screenshot or other representation of the account info, and a notification is delivered that integrates the notification text and the account information attachment.

Other implementations are within the scope of the following claims.

What is claimed is:

1. A system comprising:

at least one processor; and

at least one non-transitory computer readable storage medium storing instructions thereon that, when executed by the at least one processor, cause the system to:

receive an electronic message for an intended recipient;

access, upon receipt of the electronic message, one or more logical rules;

send, based on the one or more logical rules, a first notification of the electronic message to a first delivery mechanism and a second notification of the electronic message to a second delivery mechanism;

detect that the intended recipient accessed the first notification on the first delivery mechanism; and

remove the second notification from the second delivery mechanism based on detecting the intended recipient accessed the first notification on the first delivery mechanism;

wherein, the one or more logical rules dictate the first delivery mechanism and the second delivery mechanism for the electronic message based on one or more attributes of the electronic message, one or more attributes of a sender of the electronic message, or one or more attributes of the intended recipient of the electronic message.

2. The system as recited in claim **1**, wherein the one or more attributes of the intended recipient of the electronic message comprise whether the intended recipient is online or offline.

3. The system as recited in claim **2**, wherein the one or more logical rules cause the system to send the first notification to the first delivery mechanism based on the intended recipient being online on the first delivery mechanism.

4. The system as recited in claim **3**, wherein the first delivery mechanism comprises a web browser.

5. The system as recited in claim **3**, wherein the first notification comprises an icon.

6. The system as recited in claim **3**, wherein the first notification comprises a pop-up window.

7. The system as recited in claim **3**, wherein the one or more logical rules cause the system to send the second notification to the second delivery mechanism based on the intended recipient being online on the second delivery mechanism.

8. The system as recited in claim **3**, wherein the second delivery mechanism comprises a messaging application.

9. The system as recited in claim **3**, wherein the second delivery mechanism comprises a mobile telephone.

10. The system as recited in claim **1**, wherein the one or more logical rules cause the system to send the electronic message unchanged.

11. The system as recited in claim **1**, wherein the one or more logical rules cause the system to reference content of the electronic message in the first notification.

12. The system as recited **11**, wherein the first notification comprises an icon.

13. The system as recited in claim **12**, wherein the one or more logical rules cause the system to send the second notification in the format of an audio alert.

14. The system as recited in claim **11**, wherein the first notification comprises a pop-up window.

15. The system as recited in claim **1**, wherein the one or more attributes of the electronic message comprise a software application that originated the electronic message.

16. The system as recited in claim **15**, wherein the one or more logical rules cause the system to send the first notification to the first delivery mechanism and the second notification to the second delivery mechanism based on the software application.

17. The system as recited in claim **16**, wherein the first delivery mechanism comprises a desktop computer.

18. The system as recited in claim **17**, wherein the first notification comprises an icon.

19. The system as recited in claim **17**, wherein the first notification comprises a pop-up window.

20. The system as recited in claim **16**, wherein the one or more logical rules cause the system to send the first notification to the first delivery mechanism and the second notification to the second delivery mechanism based on the type of electronic message.

21. The system as recited in claim **20**, wherein the first delivery mechanism comprises a computer.

22. The system as recited in claim **20**, wherein the second delivery mechanism comprises a mobile telephone.

23. A system comprising:

at least one processor; and

at least one non-transitory computer readable storage medium storing instructions thereon that, when executed by the at least one processor, cause the system to:

identify an electronic message and an intended recipient of the electronic message;

access one or more logical rules;

send a first notification to a first delivery mechanism and a second notification to a second delivery mechanism based on the one or more logical rules;

detecting that the intended recipient accessed the first notification on the first delivery mechanism; and

remove the second notification from the second delivery mechanism based on detecting the intended recipient accessed the first notification on the first delivery mechanism;

wherein, the one or more logical rules dictate whether to send the one or more notifications for the electronic message based on one or more attributes of the intended recipient of the electronic message and one or more preferences set by the intended recipient.

24. The system as recited in claim **23**, wherein the one or more attributes of the intended recipient comprise presence information of the intended recipient.

25. The system as recited in claim **24**, wherein the presence information comprises at least one of an online presence, a device presence, or a physical presence.

26. The system as recited in claim **25**, wherein the one or more logical rules cause the system to send the first notification to the first delivery mechanism based on the intended recipient having an online presence.

27. The system as recited in claim **26**, wherein the one or more logical rules cause the system to send the second notification to the second delivery mechanism based on the

intended recipient having a device presence on a device associated with the intended recipient.

28. The system as recited in claim **27**, wherein the one or more logical rules cause the system to send the first notification to the first delivery mechanism and the second notification to the second delivery mechanism in different notification formats.

29. The system as recited in claim **28**, wherein the device is a mobile device.

30. The system as recited in claim **29**, wherein the mobile device is a mobile phone.

31. The system as recited in claim **29**, wherein the second delivery mechanism is a messaging application.

32. The system as recited in claim **29**, wherein the first delivery mechanism is a web browser.

33. The system as recited in claim **32**, wherein the first notification comprises an icon.

34. The system as recited in claim **33**, wherein the first notification additionally comprises an audible alert.

35. The system as recited in claim **32**, wherein the first notification comprises a pop-up window.

36. The system as recited in claim **23**, wherein the one or more preferences set by the intended recipient require one or more conditions to be satisfied by the content of the electronic message prior to sending the first notification and the second notification.

37. The system as recited in claim **23**, wherein the one or more preferences set by the intended recipient specify to send the first notification and the second notification as one or more of icons or pop-up windows.

38. A method comprising:

identifying, using at least one processor, an electronic message and an intended recipient of the electronic message;

sending a first notification of the electronic message to a first delivery mechanism and a second notification of the electronic message to a second delivery mechanism;

detecting that the intended recipient accessed the first notification on the first delivery mechanism; and

removing the second notification from the second delivery mechanism based on detecting the intended recipient accessed the first notification on the first delivery mechanism.

39. The method as recited in claim **38**, further comprising:

determining, using the at least one processor, at least one of the first delivery mechanism or the second delivery mechanism based on one or more attributes of the intended recipient of the electronic message and one or more preferences set by the intended recipient; and

wherein the one or more one or more attributes of the intended recipient comprise presence information of the intended recipient.

40. The method as recited in claim **39**, wherein the presence information comprises at least one of an online presence, a device presence, or a physical presence.

41. The method as recited in claim **40**, wherein sending the first notification to the first delivery mechanism is based on the intended recipient having an online presence.

42. The method as recited in claim **41**, wherein sending the second notification to the second delivery mechanism is based on the intended recipient having a device presence on a device associated with the intended recipient.

43. The method as recited in claim **42**, further comprising sending the first notification to the first delivery mechanism and the second notification to the second delivery mechanism in different notification formats.

44. The method as recited in claim **43**, wherein the device is a mobile device.

45. The method as recited in claim **44**, wherein the mobile device is a mobile phone.

46. The method as recited in claim **44**, wherein the second delivery mechanism is a messaging application.

47. The method as recited in claim **46**, wherein the second notification comprises an icon.

48. The method as recited in claim **47**, wherein the second notification additionally comprises an audible alert.

49. The method as recited in claim **46**, wherein the second notification comprises a pop-up window.

50. The method as recited in claim **39**, wherein the one or more preferences set by the intended recipient require one or more conditions to be satisfied by the content of the electronic message prior to sending the first notification and the second notification.

51. The method as recited in claim **39**, wherein the one or more preferences set by the intended recipient specify to deliver the first notification as one or more of icons or pop-up windows.

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