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Bardsley

(10) **Patent No.: US 7,831,707 B2**
(45) **Date of Patent: Nov. 9, 2010**

(54) **METHODS, SYSTEMS, AND COMPUTER PROGRAM PRODUCTS FOR MANAGING ELECTRONIC SUBSCRIPTIONS**

(75) Inventor: **Jeffrey S. Bardsley**, Durham, NC (US)

(73) Assignee: **Scenera Technologies, LLC**, Portsmouth, NH (US)

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 1134 days.

(21) Appl. No.: **11/497,819**

(22) Filed: **Aug. 2, 2006**

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US 2008/0034045 A1 Feb. 7, 2008

(51) **Int. Cl.**
G06F 15/173 (2006.01)
G06F 15/16 (2006.01)

(52) **U.S. Cl.** **709/224**; 709/206

(58) **Field of Classification Search** 709/224, 709/206

See application file for complete search history.

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(Continued)

Primary Examiner—J Bret Dennison

(57) **ABSTRACT**

Methods, systems, and computer program products for managing electronic subscriptions are disclosed. According to one aspect, a method includes monitoring, at an electronic subscription client, receipt of one or more subscription messages associated with an electronic subscription. Interaction with the electronic subscription client by a client may be monitored to determine a viewing frequency of the one or more received subscription messages. Further, a prompt with a control configured for unsubscribing the user from receiving a future subscription message associated with the electronic subscription may be presented based on the determined viewing frequency.

23 Claims, 21 Drawing Sheets

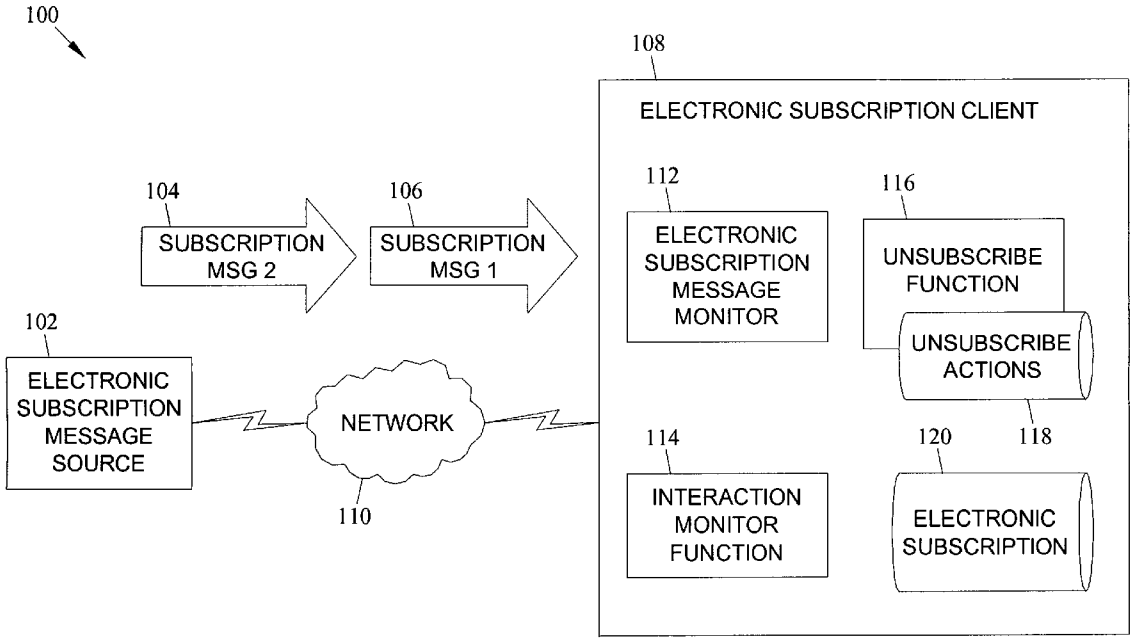

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EXHIBIT 1004

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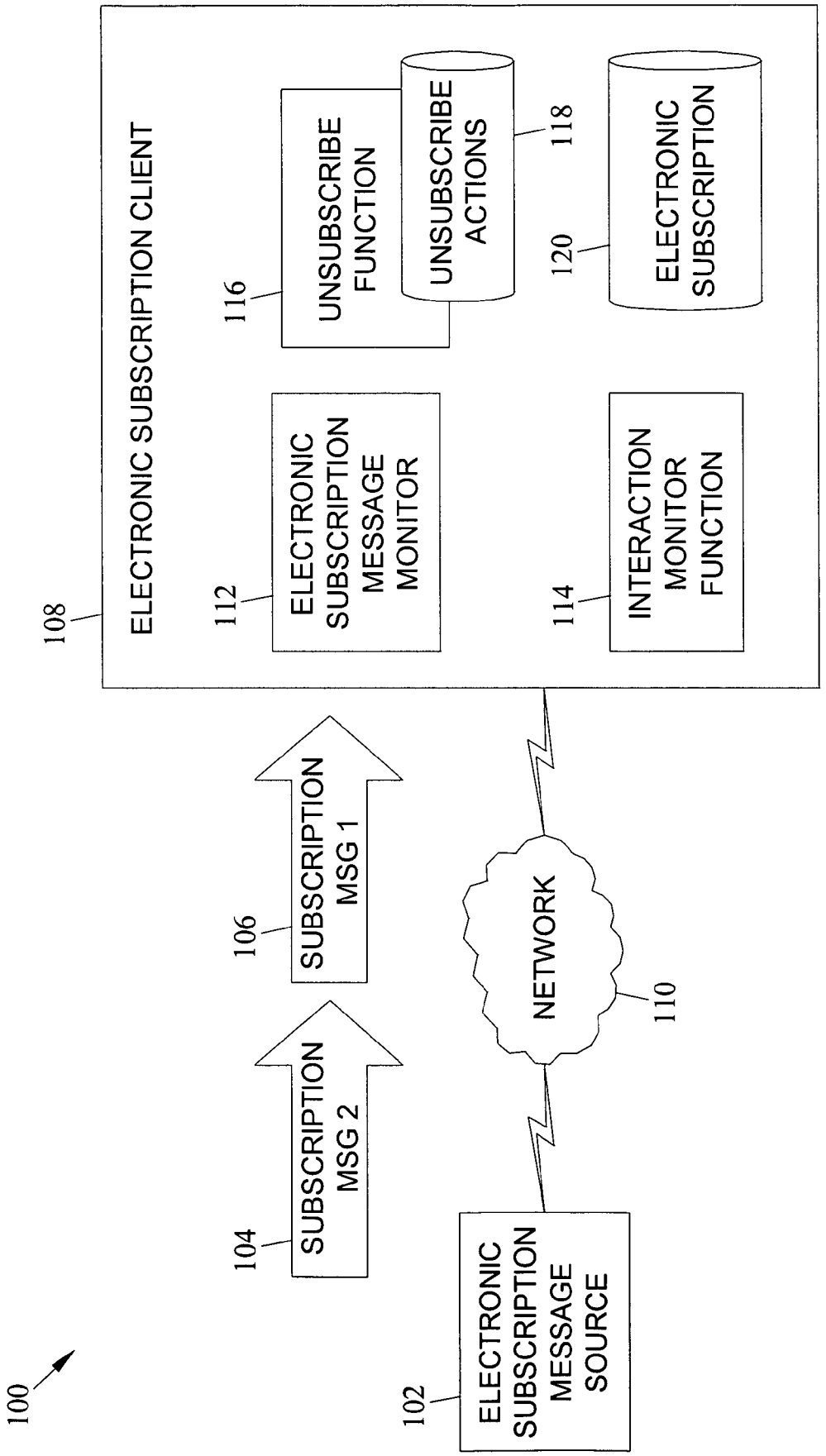
100
ELECTRONIC SUBSCRIPTION MESSAGE SOURCE
102
SUBSCRIPTION MSG 2
104
SUBSCRIPTION MSG 1
106
NETWORK
110
ELECTRONIC SUBSCRIPTION CLIENT
108
ELECTRONIC SUBSCRIPTION MESSAGE MONITOR
112
INTERACTION MONITOR FUNCTION
114
UNSUBSCRIBE FUNCTION
116
UNSUBSCRIBE ACTIONS
118
ELECTRONIC SUBSCRIPTION
120

FIG. 1

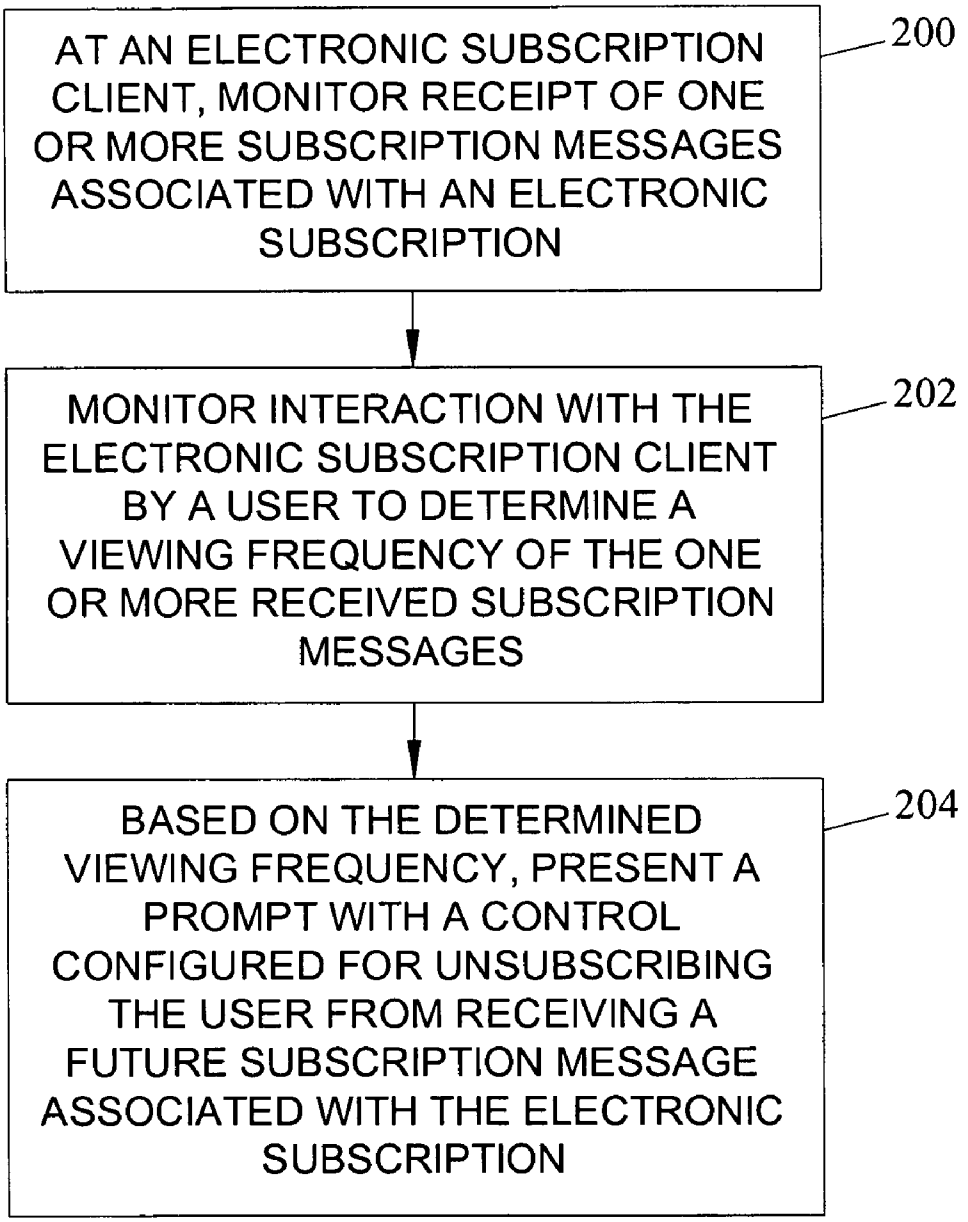
AT AN ELECTRONIC SUBSCRIPTION CLIENT, MONITOR RECEIPT OF ONE OR MORE SUBSCRIPTION MESSAGES ASSOCIATED WITH AN ELECTRONIC SUBSCRIPTION
200
MONITOR INTERACTION WITH THE ELECTRONIC SUBSCRIPTION CLIENT BY A USER TO DETERMINE A VIEWING FREQUENCY OF THE ONE OR MORE RECEIVED SUBSCRIPTION MESSAGES
202
BASED ON THE DETERMINED VIEWING FREQUENCY, PRESENT A PROMPT WITH A CONTROL CONFIGURED FOR UNSUBSCRIBING THE USER FROM RECEIVING A FUTURE SUBSCRIPTION MESSAGE ASSOCIATED WITH THE ELECTRONIC SUBSCRIPTION
204

FIG. 2

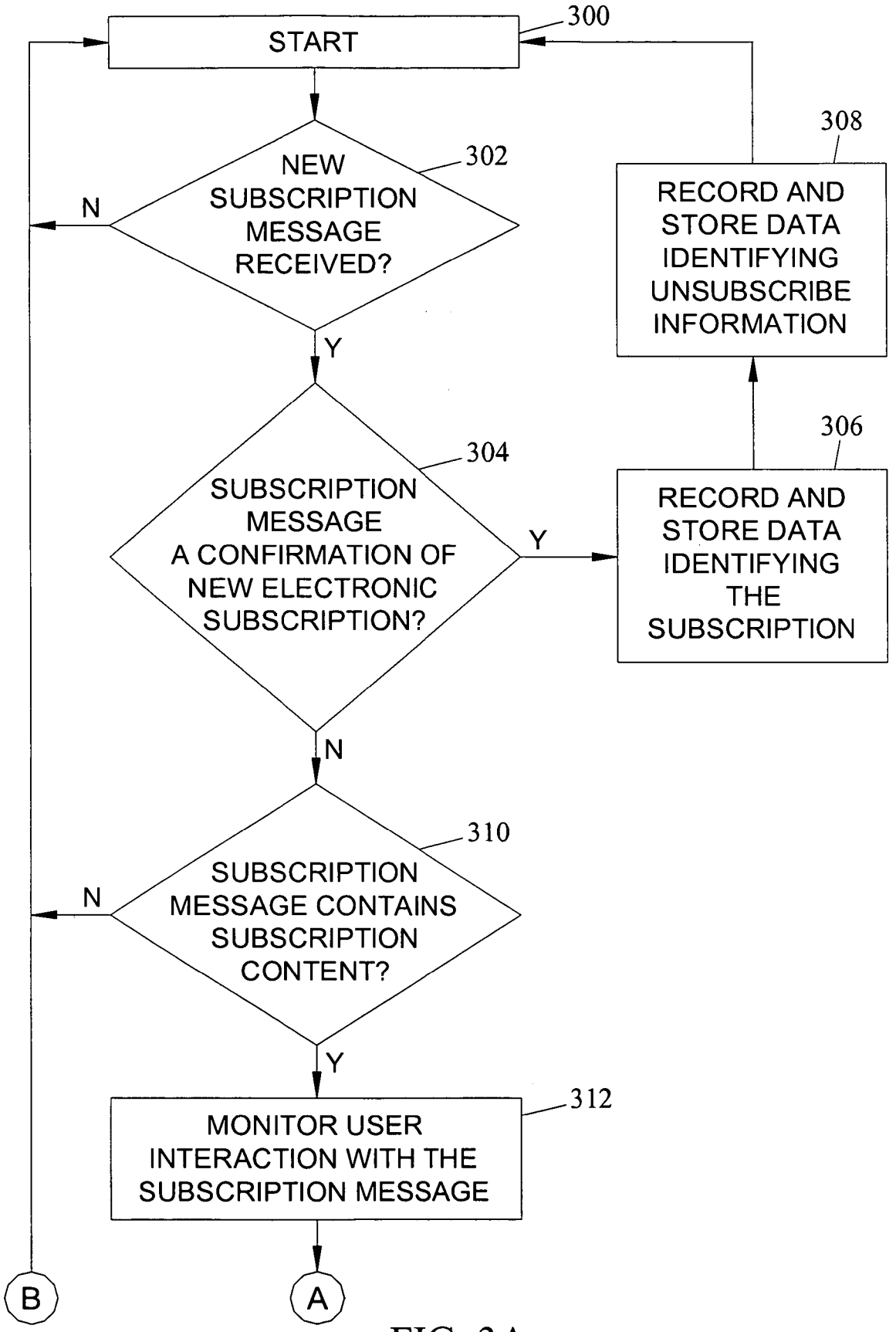
START
300
NEW SUBSCRIPTION MESSAGE RECEIVED?
302
N
Y
SUBSCRIPTION MESSAGE A CONFIRMATION OF NEW ELECTRONIC SUBSCRIPTION?
304
Y
N
RECORD AND STORE DATA IDENTIFYING THE SUBSCRIPTION
306
RECORD AND STORE DATA IDENTIFYING UNSUBSCRIBE INFORMATION
308
SUBSCRIPTION MESSAGE CONTAINS SUBSCRIPTION CONTENT?
310
N
Y
MONITOR USER INTERACTION WITH THE SUBSCRIPTION MESSAGE
312
B
A

FIG. 3A

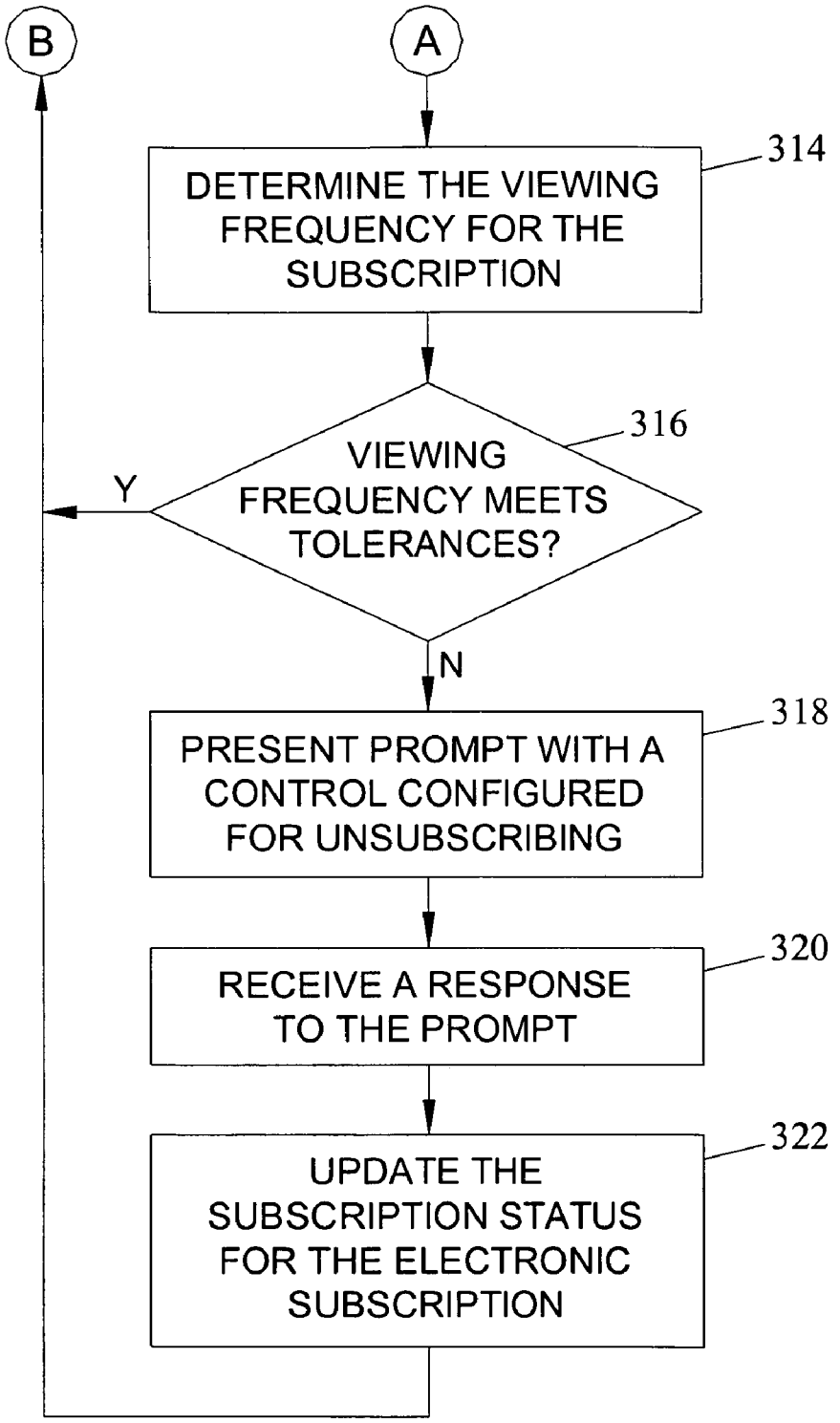
B
A
DETERMINE THE VIEWING FREQUENCY FOR THE SUBSCRIPTION
314
VIEWING FREQUENCY MEETS TOLERANCES?
316
Y
N
PRESENT PROMPT WITH A CONTROL CONFIGURED FOR UNSUBSCRIBING
318
RECEIVE A RESPONSE TO THE PROMPT
320
UPDATE THE SUBSCRIPTION STATUS FOR THE ELECTRONIC SUBSCRIPTION
322

FIG. 3B

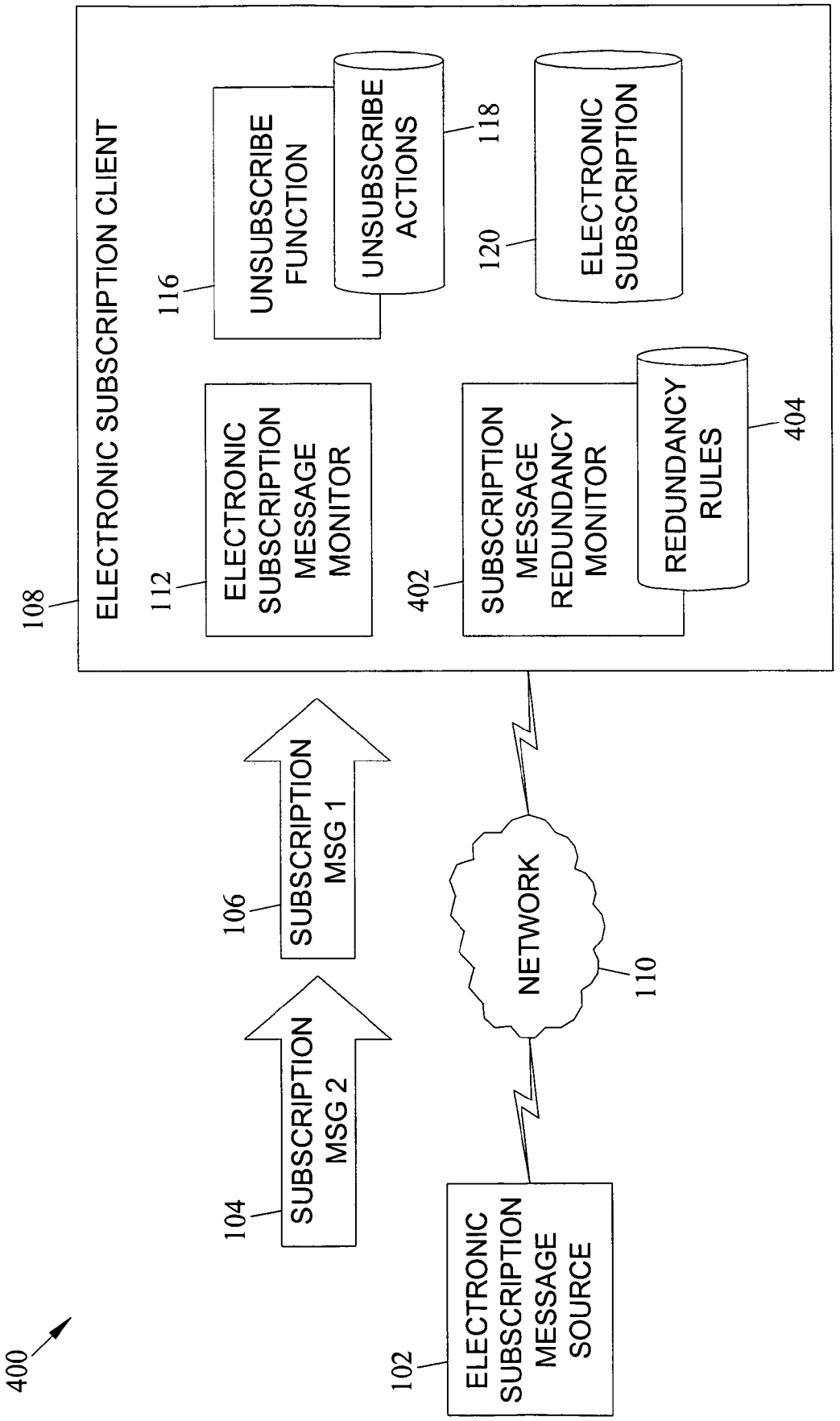
400
ELECTRONIC SUBSCRIPTION MESSAGE SOURCE
102
SUBSCRIPTION MSG 2
104
SUBSCRIPTION MSG 1
106
NETWORK
110
ELECTRONIC SUBSCRIPTION CLIENT
108
ELECTRONIC SUBSCRIPTION MESSAGE MONITOR
112
UNSUBSCRIBE FUNCTION
116
UNSUBSCRIBE ACTIONS
118
ELECTRONIC SUBSCRIPTION
120
SUBSCRIPTION MESSAGE REDUNDANCY MONITOR
402
REDUNDANCY RULES
404

FIG. 4

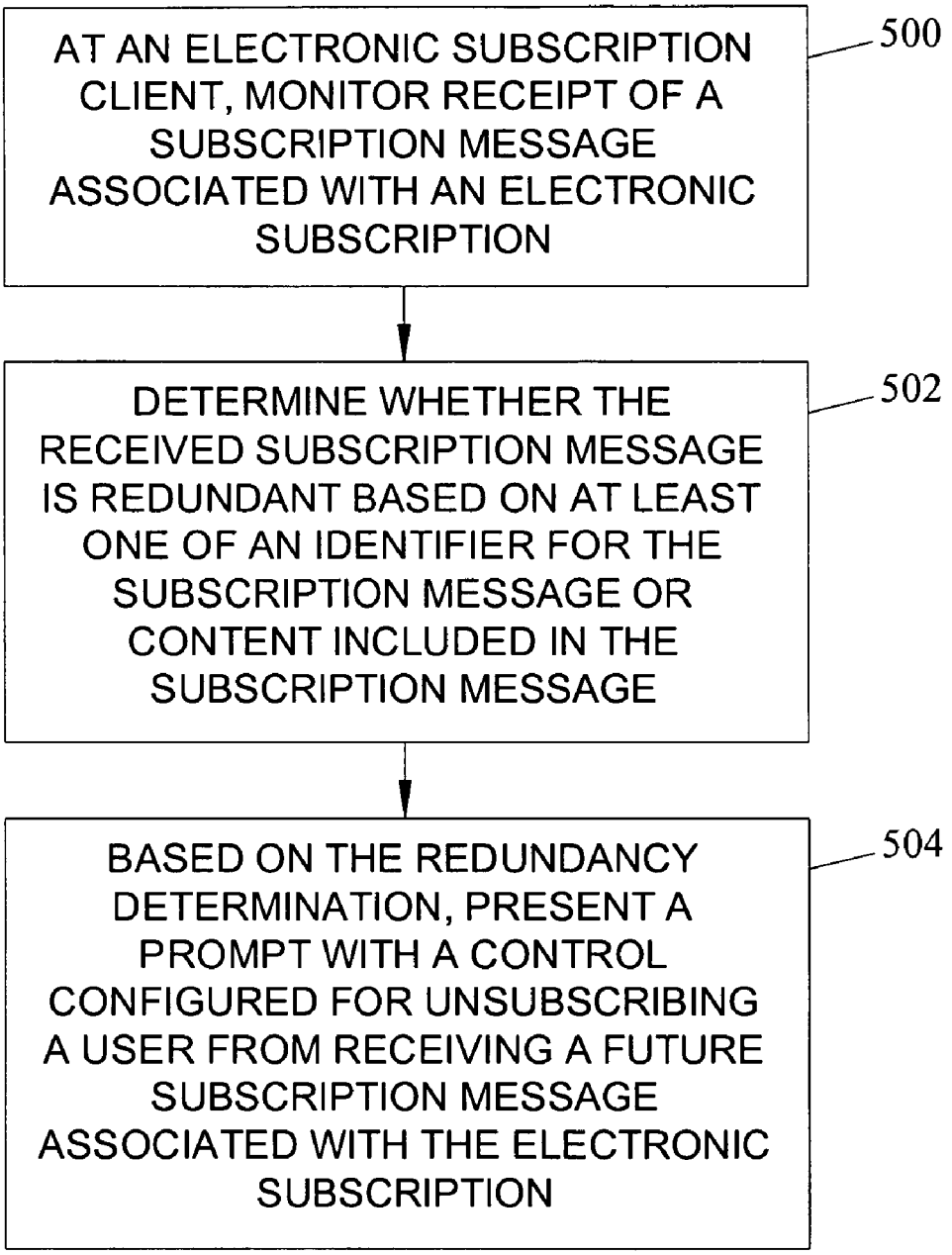
AT AN ELECTRONIC SUBSCRIPTION CLIENT, MONITOR RECEIPT OF A SUBSCRIPTION MESSAGE ASSOCIATED WITH AN ELECTRONIC SUBSCRIPTION
500
DETERMINE WHETHER THE RECEIVED SUBSCRIPTION MESSAGE IS REDUNDANT BASED ON AT LEAST ONE OF AN IDENTIFIER FOR THE SUBSCRIPTION MESSAGE OR CONTENT INCLUDED IN THE SUBSCRIPTION MESSAGE
502
BASED ON THE REDUNDANCY DETERMINATION, PRESENT A PROMPT WITH A CONTROL CONFIGURED FOR UNSUBSCRIBING A USER FROM RECEIVING A FUTURE SUBSCRIPTION MESSAGE ASSOCIATED WITH THE ELECTRONIC SUBSCRIPTION
504

FIG. 5

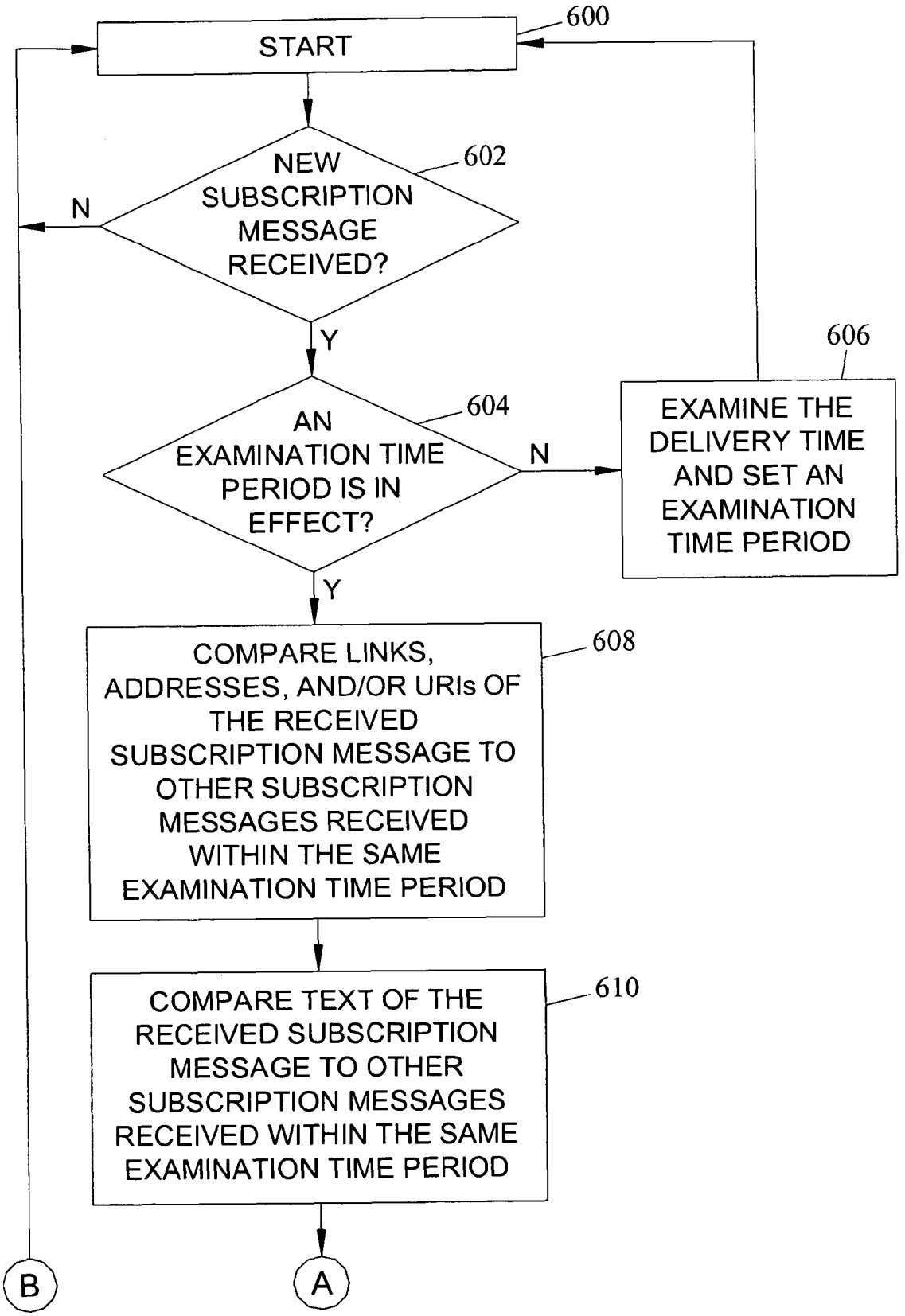
600
START
602
NEW SUBSCRIPTION MESSAGE RECEIVED?
N
Y
604
AN EXAMINATION TIME PERIOD IS IN EFFECT?
N
606
EXAMINE THE DELIVERY TIME AND SET AN EXAMINATION TIME PERIOD
Y
608
COMPARE LINKS, ADDRESSES, AND/OR URIs OF THE RECEIVED SUBSCRIPTION MESSAGE TO OTHER SUBSCRIPTION MESSAGES RECEIVED WITHIN THE SAME EXAMINATION TIME PERIOD
610
COMPARE TEXT OF THE RECEIVED SUBSCRIPTION MESSAGE TO OTHER SUBSCRIPTION MESSAGES RECEIVED WITHIN THE SAME EXAMINATION TIME PERIOD
B
A

FIG. 6A

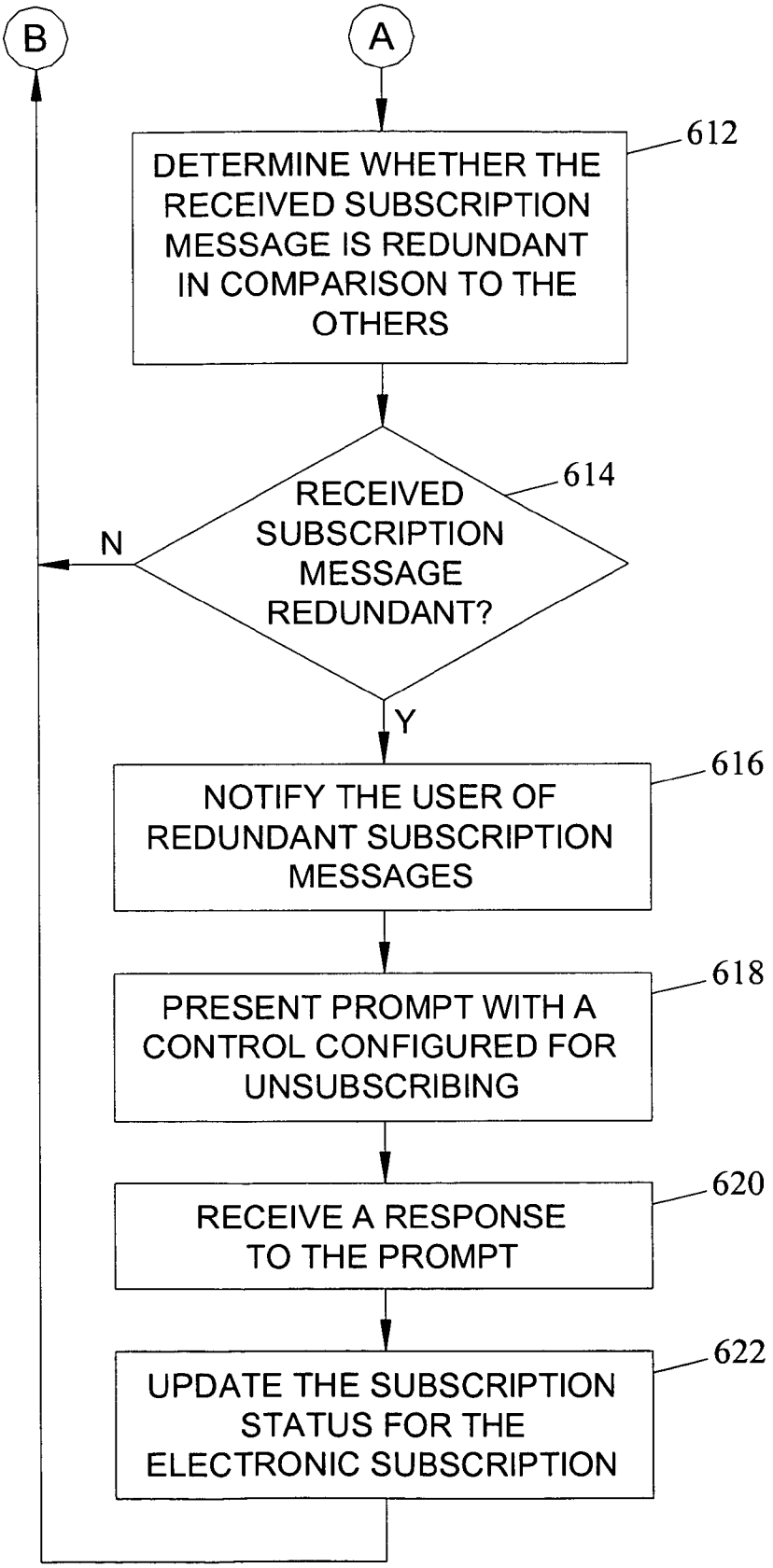
B
A
DETERMINE WHETHER THE RECEIVED SUBSCRIPTION MESSAGE IS REDUNDANT IN COMPARISON TO THE OTHERS
612
RECEIVED SUBSCRIPTION MESSAGE REDUNDANT?
614
N
Y
NOTIFY THE USER OF REDUNDANT SUBSCRIPTION MESSAGES
616
PRESENT PROMPT WITH A CONTROL CONFIGURED FOR UNSUBSCRIBING
618
RECEIVE A RESPONSE TO THE PROMPT
620
UPDATE THE SUBSCRIPTION STATUS FOR THE ELECTRONIC SUBSCRIPTION
622

FIG. 6B

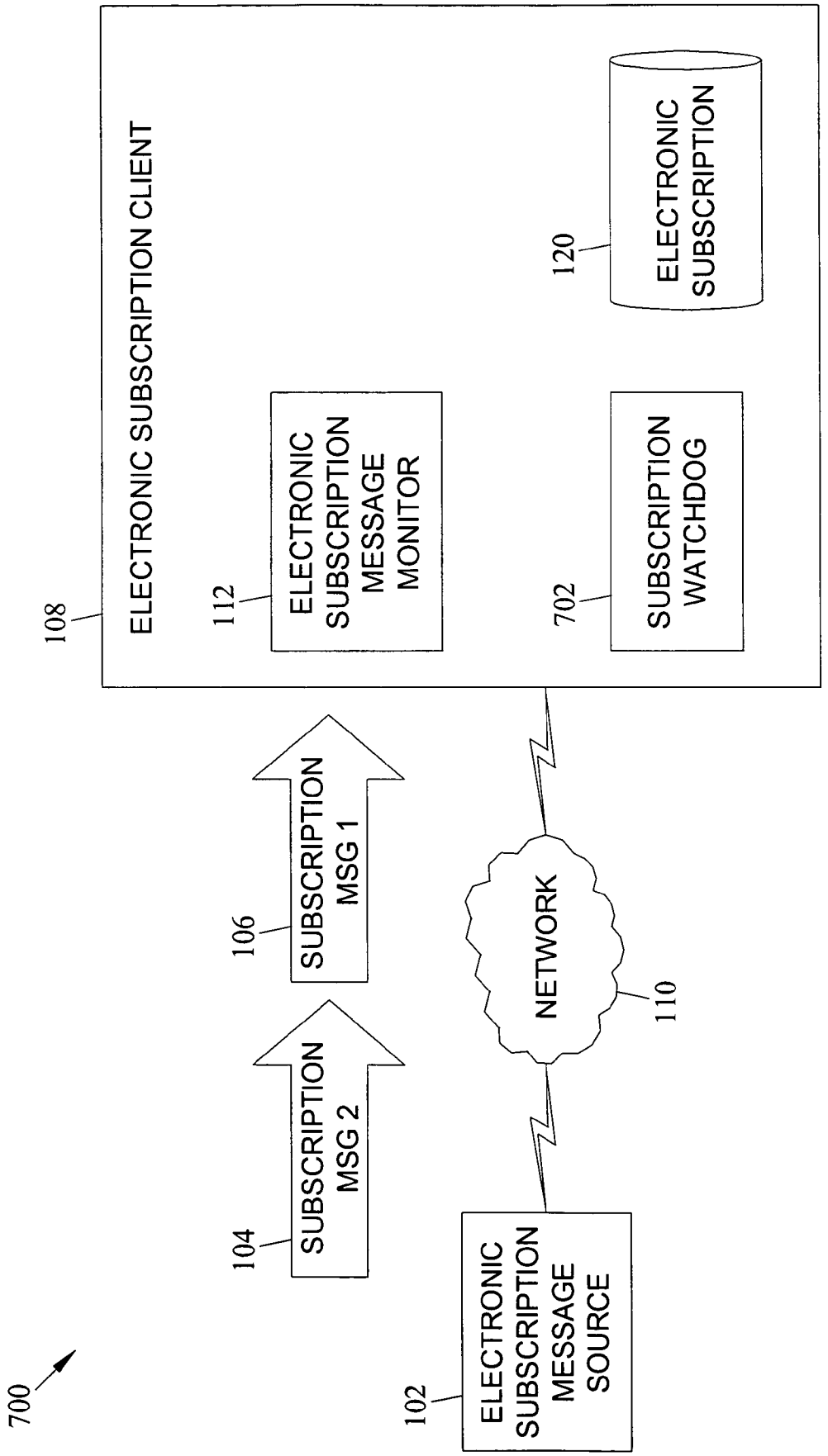
700
ELECTRONIC SUBSCRIPTION MESSAGE SOURCE
102
SUBSCRIPTION MSG 2
104
SUBSCRIPTION MSG 1
106
NETWORK
110
ELECTRONIC SUBSCRIPTION CLIENT
108
ELECTRONIC SUBSCRIPTION MESSAGE MONITOR
112
SUBSCRIPTION WATCHDOG
702
ELECTRONIC SUBSCRIPTION
120

FIG. 7

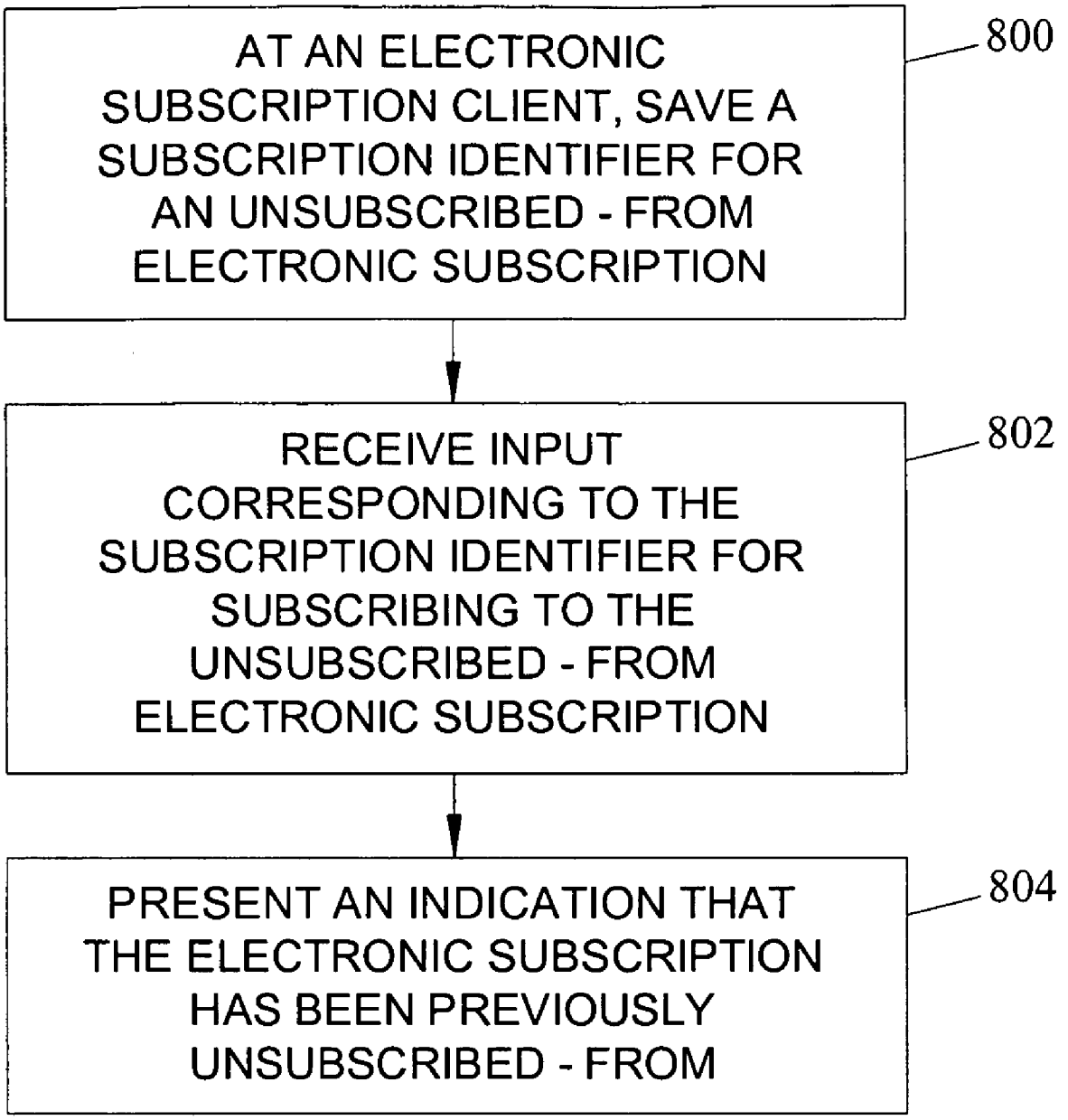
AT AN ELECTRONIC SUBSCRIPTION CLIENT, SAVE A SUBSCRIPTION IDENTIFIER FOR AN UNSUBSCRIBED - FROM ELECTRONIC SUBSCRIPTION
800
RECEIVE INPUT CORRESPONDING TO THE SUBSCRIPTION IDENTIFIER FOR SUBSCRIBING TO THE UNSUBSCRIBED - FROM ELECTRONIC SUBSCRIPTION
802
PRESENT AN INDICATION THAT THE ELECTRONIC SUBSCRIPTION HAS BEEN PREVIOUSLY UNSUBSCRIBED - FROM
804

FIG. 8

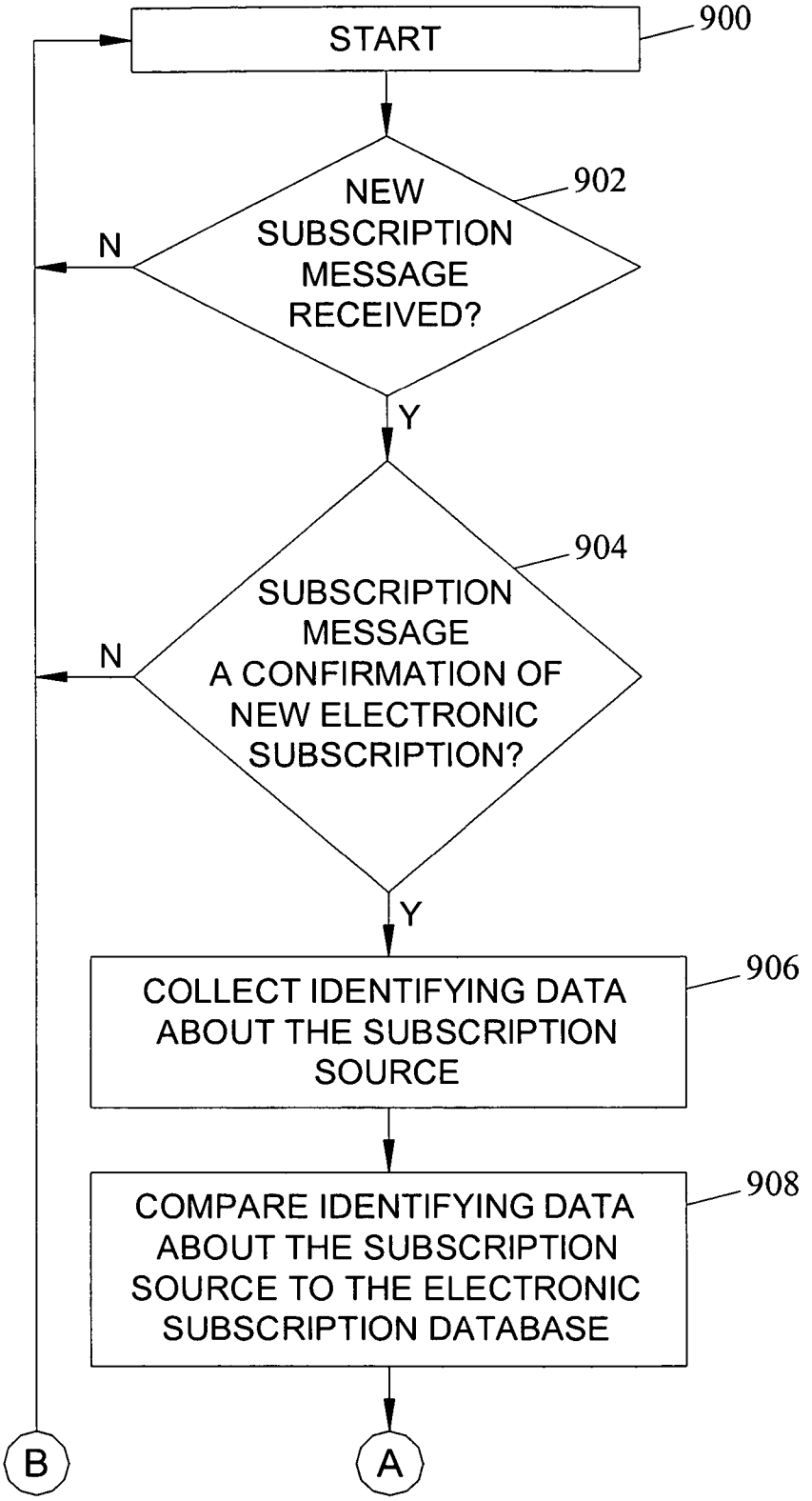
START
900
NEW SUBSCRIPTION MESSAGE RECEIVED?
902
N
Y
SUBSCRIPTION MESSAGE A CONFIRMATION OF NEW ELECTRONIC SUBSCRIPTION?
904
N
Y
COLLECT IDENTIFYING DATA ABOUT THE SUBSCRIPTION SOURCE
906
COMPARE IDENTIFYING DATA ABOUT THE SUBSCRIPTION SOURCE TO THE ELECTRONIC SUBSCRIPTION DATABASE
908
B
A

FIG. 9A

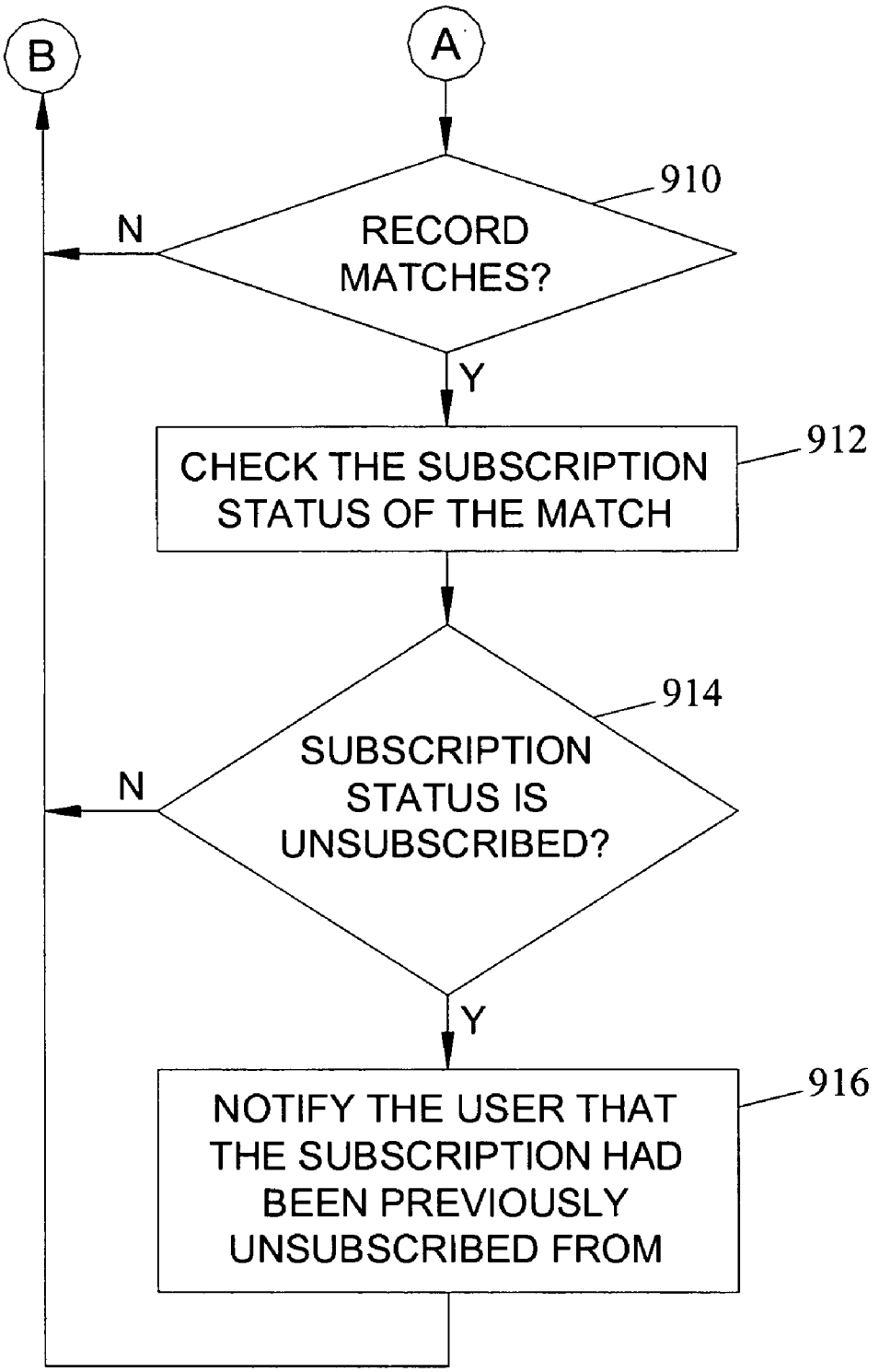
B
A
910
RECORD MATCHES?
N
Y
CHECK THE SUBSCRIPTION STATUS OF THE MATCH
912
914
SUBSCRIPTION STATUS IS UNSUBSCRIBED?
N
Y
NOTIFY THE USER THAT THE SUBSCRIPTION HAD BEEN PREVIOUSLY UNSUBSCRIBED FROM
916

FIG. 9B

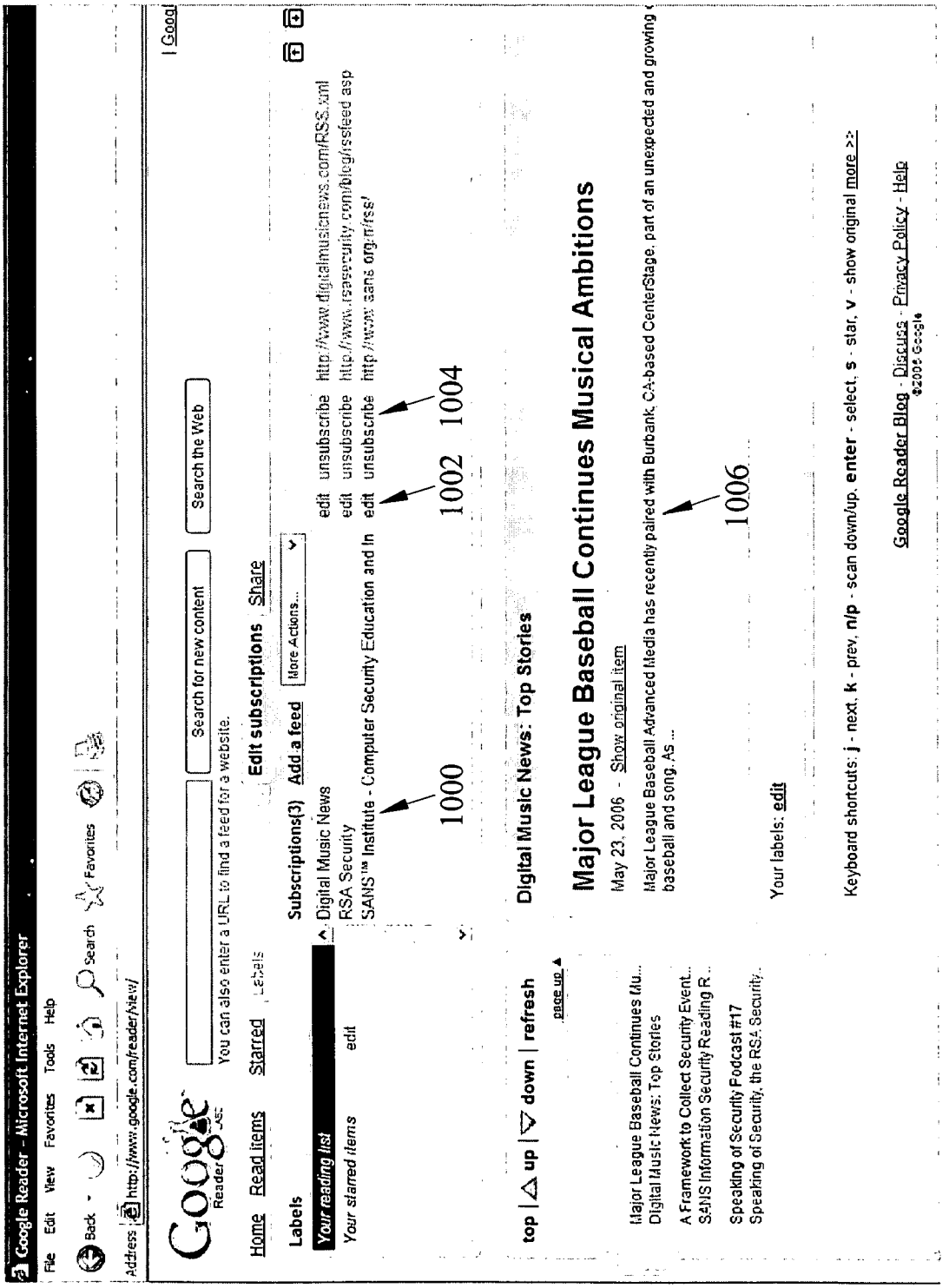
Google Reader - Microsoft Internet Explorer
File Edit View Favorites Tools Help
Back Search Favorites
Address http://www.google.com/reader/view/
Google Reader
Search for new content
Search the Web
You can also enter a URL to find a feed for a website.
Home Read items Starred Labels
Edit subscriptions Share
Labels
Your reading list
Your starred items edit
Subscriptions(3) Add a feed More Actions...
Digital Music News edit unsubscribe http://www.digitalmusicnews.com/RSS.xml
RSA Security edit unsubscribe http://www.rsasecurity.com/blog/rssfeed.asp
SANS™ Institute - Computer Security Education and In edit unsubscribe http://www.sans.org/rss/
1000
1002
1004
top | up | down | refresh
page up
Digital Music News: Top Stories
Major League Baseball Continues Musical Ambitions
May 23, 2006 - Show original item
Major League Baseball Advanced Media has recently paired with Burbank, CA-based CenterStage, part of an unexpected and growing baseball and song. As ...
1006
Major League Baseball Continues Mu...
Digital Music News: Top Stories
A Framework to Collect Security Event...
SANS Information Security Reading R...
Speaking of Security Podcast #17
Speaking of Security, the RSA Security...
Your labels: edit
Keyboard shortcuts: j - next, k - prev, n/p - scan down/up, enter - select, s - star, v - show original more >>
Google Reader Blog - Discuss - Privacy Policy - Help
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FIG. 10

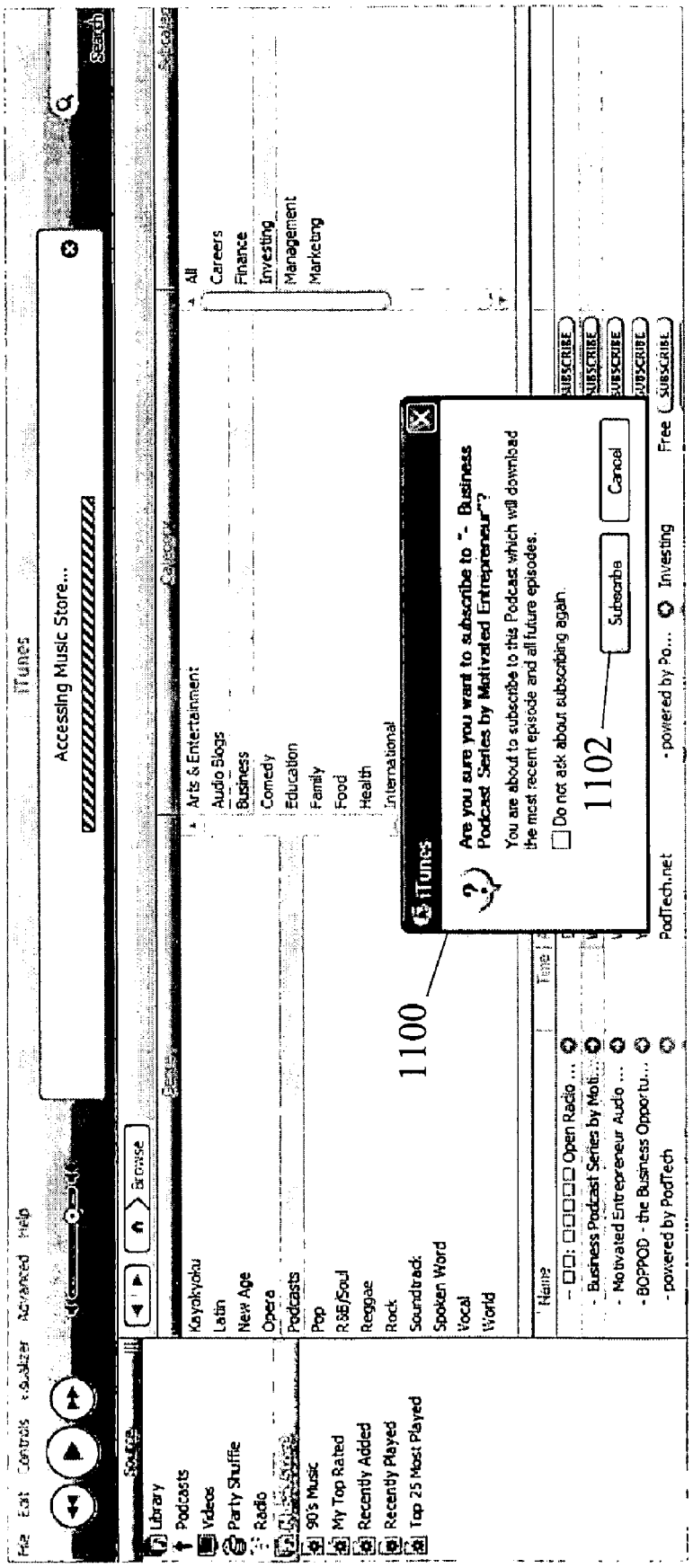
iTunes
File Edit Controls Visualizer Advanced Help
Accessing Music Store...
Search
Library
Podcasts
Videos
Party Shuffle
Radio
Podcasts
90's Music
My Top Rated
Recently Added
Recently Played
Top 25 Most Played
Browse
Genre
Kayakyoku
Latin
New Age
Opera
Podcasts
Pop
R&B/Soul
Reggae
Rock
Soundtrack
Spoken Word
Vocal
World
Category
Arts & Entertainment
Audio Blogs
Business
Comedy
Education
Family
Food
Health
International
All
Careers
Finance
Investing
Management
Marketing
Name
Time
Open Radio ...
Business Podcast Series by Moti...
Motivated Entrepreneur Audio ...
BOPPOD - the Business Opportu...
powered by PodTech
PodTech.net
powered by Po...
Investing
Free
SUBSCRIBE
1100
iTunes
Are you sure you want to subscribe to "- Business Podcast Series by Motivated Entrepreneur"?
You are about to subscribe to this Podcast which will download the most recent episode and all future episodes.
Do not ask about subscribing again.
1102
Subscribe
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FIG. 11

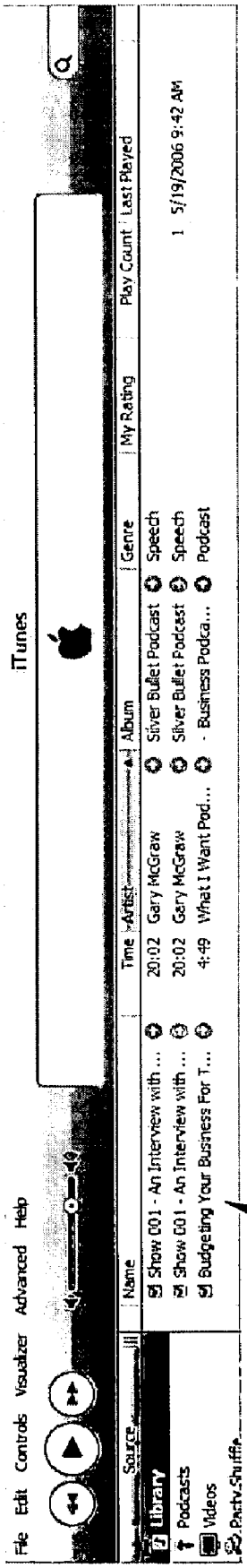
File Edit Controls Visualizer Advanced Help
iTunes
Source
Library
Podcasts
Videos
Party Shuffle
Name
Time
Artist
Album
Genre
My Rating
Play Count
Last Played
Show 001 - An Interview with ... 20:02 Gary McGraw Silver Bullet Podcast Speech
Show 001 - An Interview with ... 20:02 Gary McGraw Silver Bullet Podcast Speech 1 5/19/2006 9:42 AM
Budgeting Your Business For T... 4:49 What I Want Pod... - Business Podca... Podcast
1200

FIG. 12

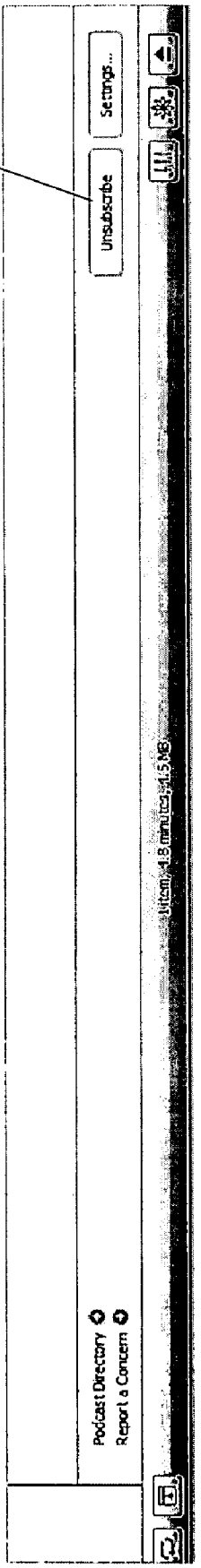
1300
Podcast Directory
Report a Concern
Unsubscribe
Settings...

FIG. 13

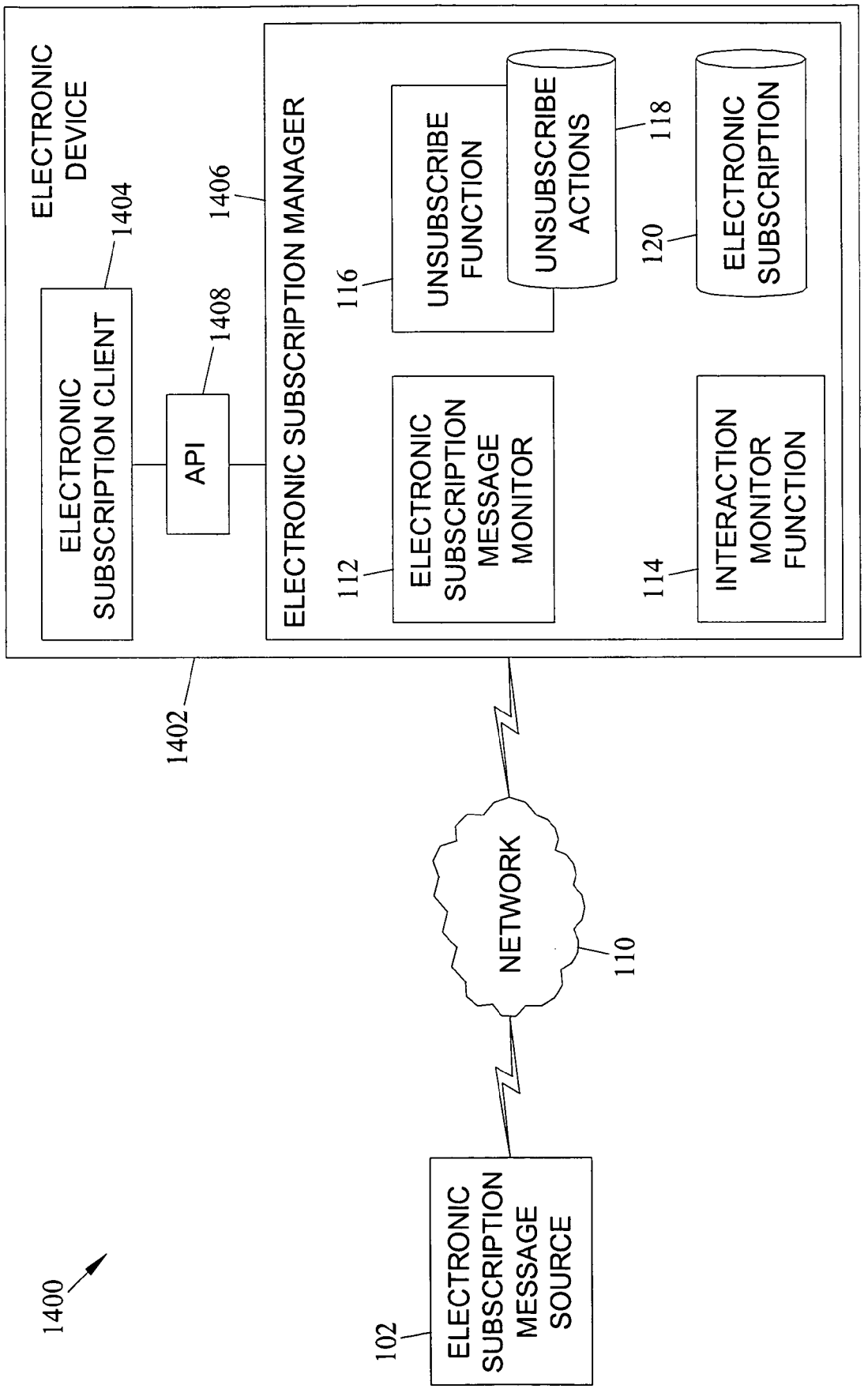
1400
ELECTRONIC DEVICE
1402
ELECTRONIC SUBSCRIPTION CLIENT
1404
API
1408
ELECTRONIC SUBSCRIPTION MANAGER
1406
ELECTRONIC SUBSCRIPTION MESSAGE MONITOR
112
UNSUBSCRIBE FUNCTION
116
UNSUBSCRIBE ACTIONS
118
INTERACTION MONITOR FUNCTION
114
ELECTRONIC SUBSCRIPTION
120
NETWORK
110
ELECTRONIC SUBSCRIPTION MESSAGE SOURCE
102

FIG. 14

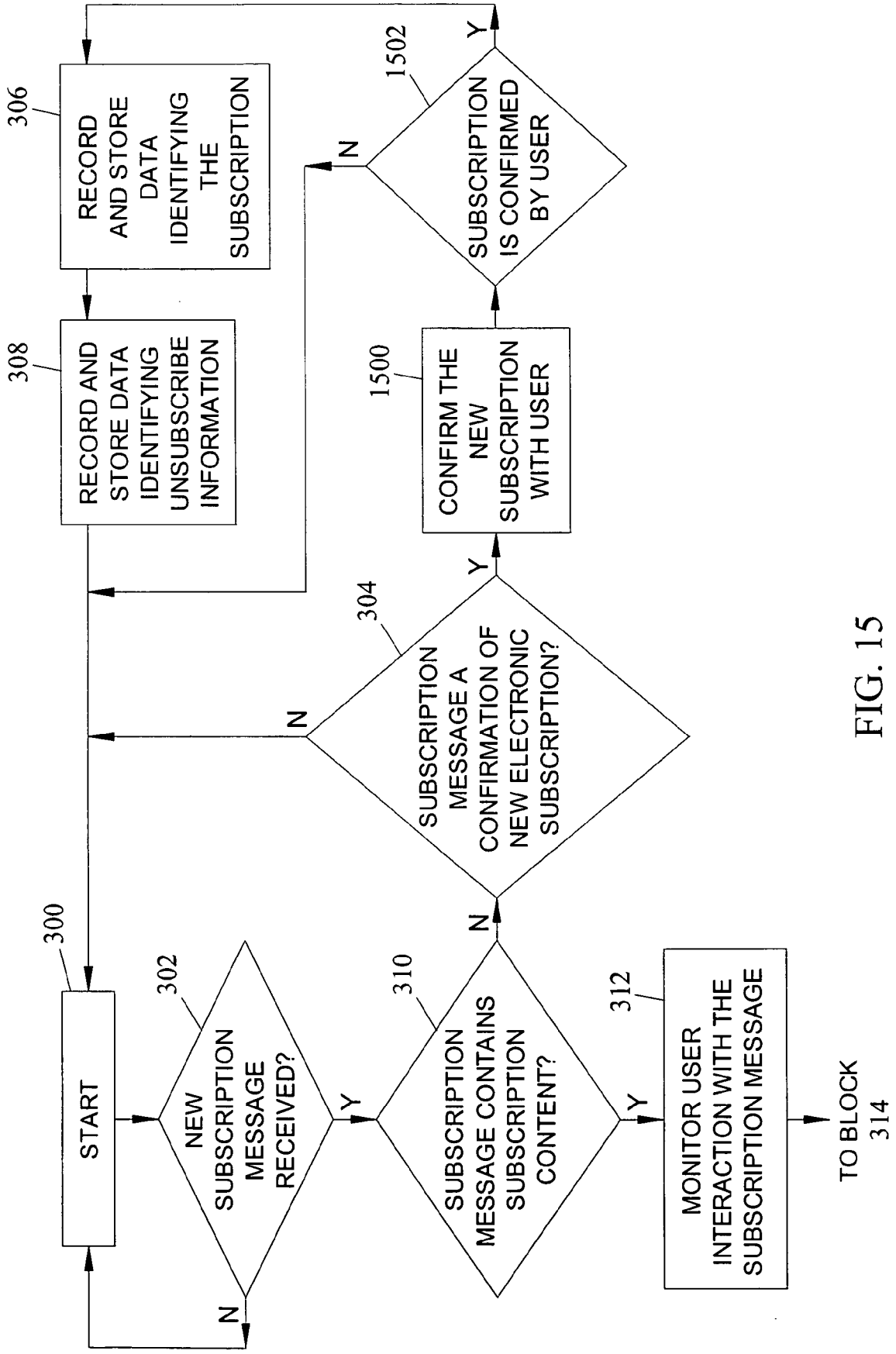
300
START
302
NEW SUBSCRIPTION MESSAGE RECEIVED?
Y
N
304
SUBSCRIPTION MESSAGE A CONFIRMATION OF NEW ELECTRONIC SUBSCRIPTION?
Y
N
306
RECORD AND STORE DATA IDENTIFYING THE SUBSCRIPTION
308
RECORD AND STORE DATA IDENTIFYING UNSUBSCRIBE INFORMATION
1500
CONFIRM THE NEW SUBSCRIPTION WITH USER
1502
SUBSCRIPTION IS CONFIRMED BY USER
Y
N
310
SUBSCRIPTION MESSAGE CONTAINS SUBSCRIPTION CONTENT?
Y
N
312
MONITOR USER INTERACTION WITH THE SUBSCRIPTION MESSAGE
TO BLOCK 314

FIG. 15

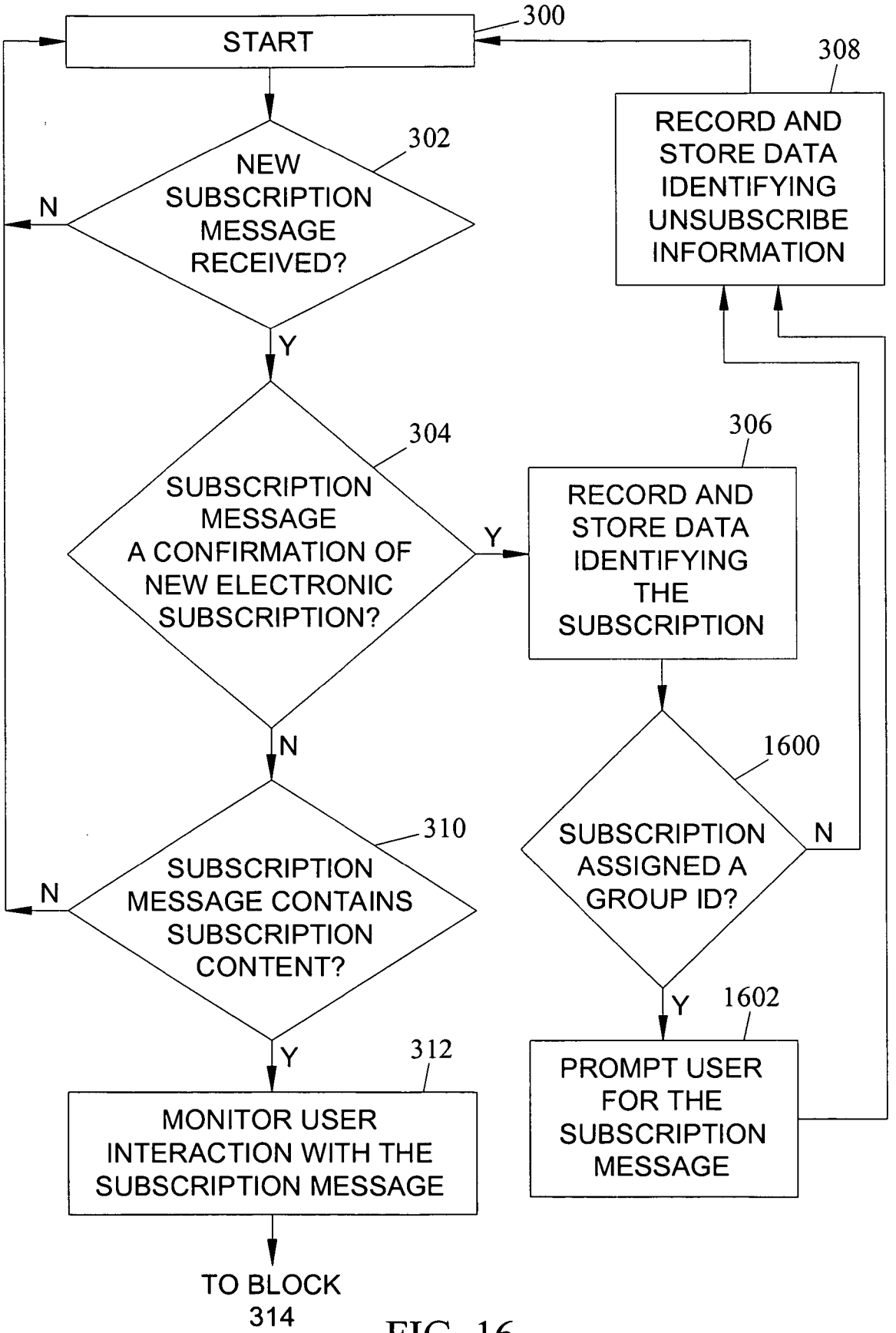
START
300
NEW SUBSCRIPTION MESSAGE RECEIVED?
302
N
Y
SUBSCRIPTION MESSAGE A CONFIRMATION OF NEW ELECTRONIC SUBSCRIPTION?
304
Y
N
RECORD AND STORE DATA IDENTIFYING THE SUBSCRIPTION
306
SUBSCRIPTION ASSIGNED A GROUP ID?
1600
N
Y
PROMPT USER FOR THE SUBSCRIPTION MESSAGE
1602
RECORD AND STORE DATA IDENTIFYING UNSUBSCRIBE INFORMATION
308
SUBSCRIPTION MESSAGE CONTAINS SUBSCRIPTION CONTENT?
310
N
Y
MONITOR USER INTERACTION WITH THE SUBSCRIPTION MESSAGE
312
TO BLOCK 314

FIG. 16

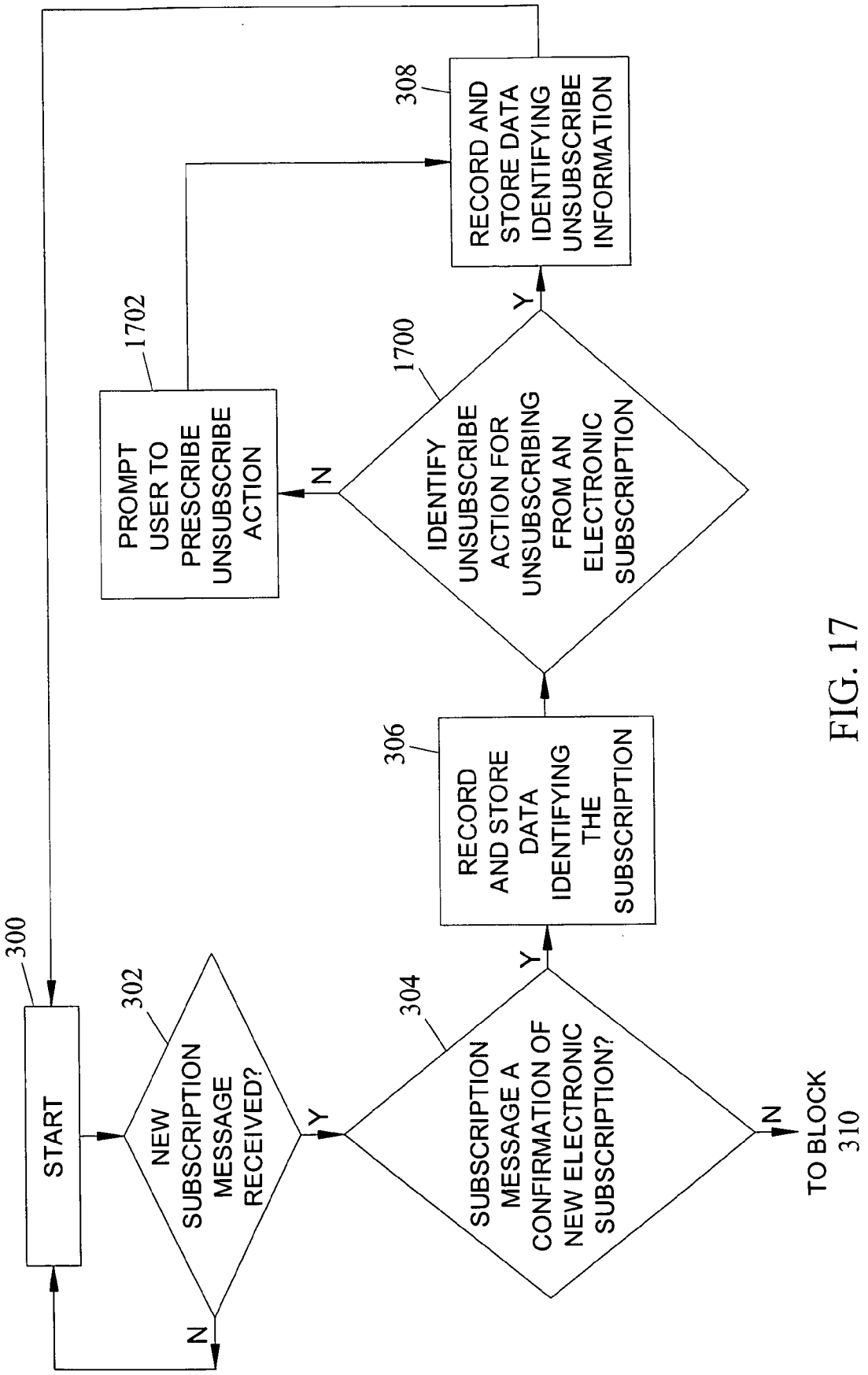
300
START
302
NEW SUBSCRIPTION MESSAGE RECEIVED?
Y
N
304
SUBSCRIPTION MESSAGE A CONFIRMATION OF NEW ELECTRONIC SUBSCRIPTION?
Y
N
TO BLOCK 310
306
RECORD AND STORE DATA IDENTIFYING THE SUBSCRIPTION
1700
IDENTIFY UNSUBSCRIBE ACTION FOR UNSUBSCRIBING FROM AN ELECTRONIC SUBSCRIPTION
Y
N
308
RECORD AND STORE DATA IDENTIFYING UNSUBSCRIBE INFORMATION
1702
PROMPT USER TO PRESCRIBE UNSUBSCRIBE ACTION

FIG. 17

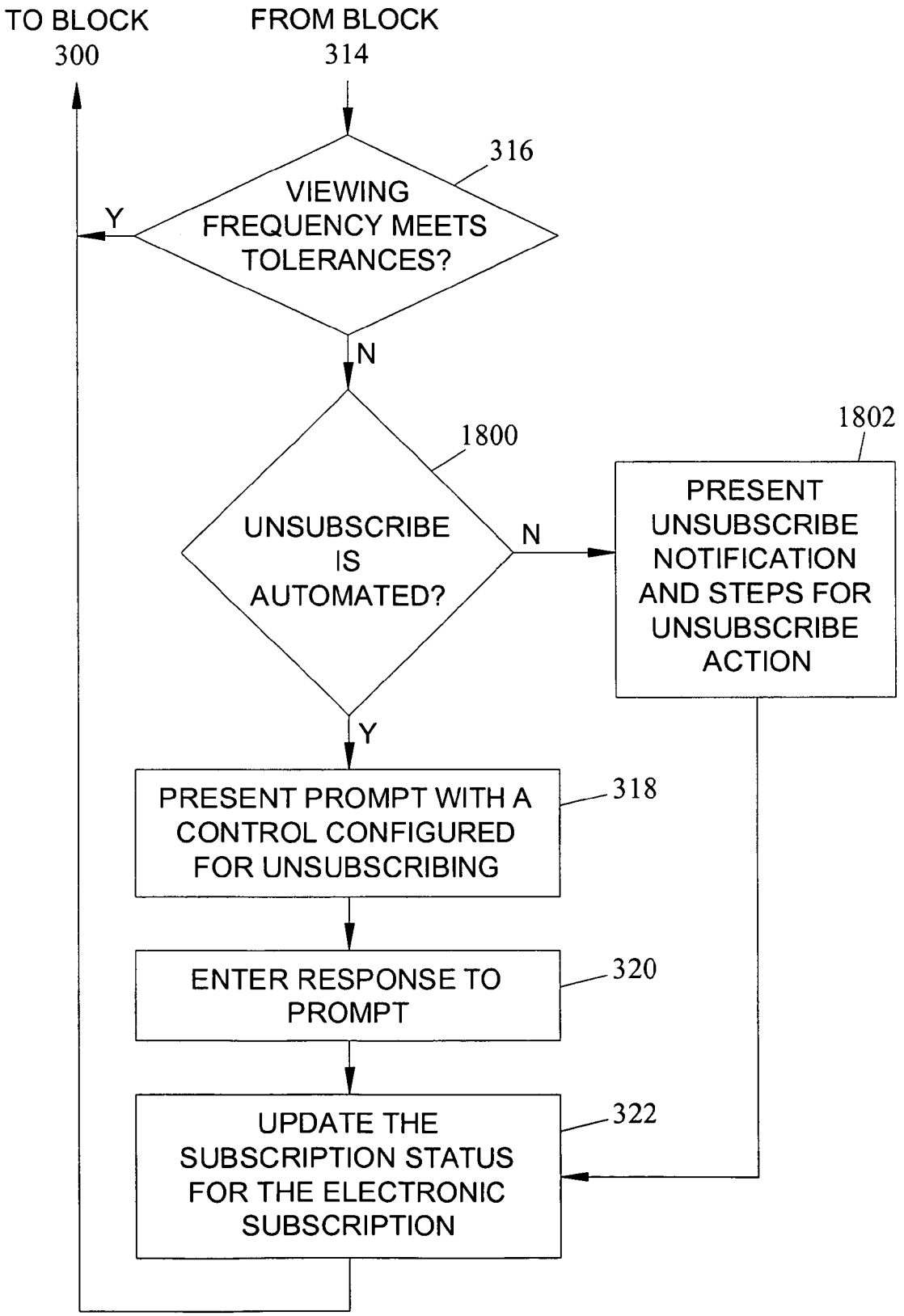
TO BLOCK
300
FROM BLOCK
314
316
VIEWING FREQUENCY MEETS TOLERANCES?
Y
N
1800
UNSUBSCRIBE IS AUTOMATED?
N
1802
PRESENT UNSUBSCRIBE NOTIFICATION AND STEPS FOR UNSUBSCRIBE ACTION
Y
PRESENT PROMPT WITH A CONTROL CONFIGURED FOR UNSUBSCRIBING
318
ENTER RESPONSE TO PROMPT
320
UPDATE THE SUBSCRIPTION STATUS FOR THE ELECTRONIC SUBSCRIPTION
322

FIG. 18

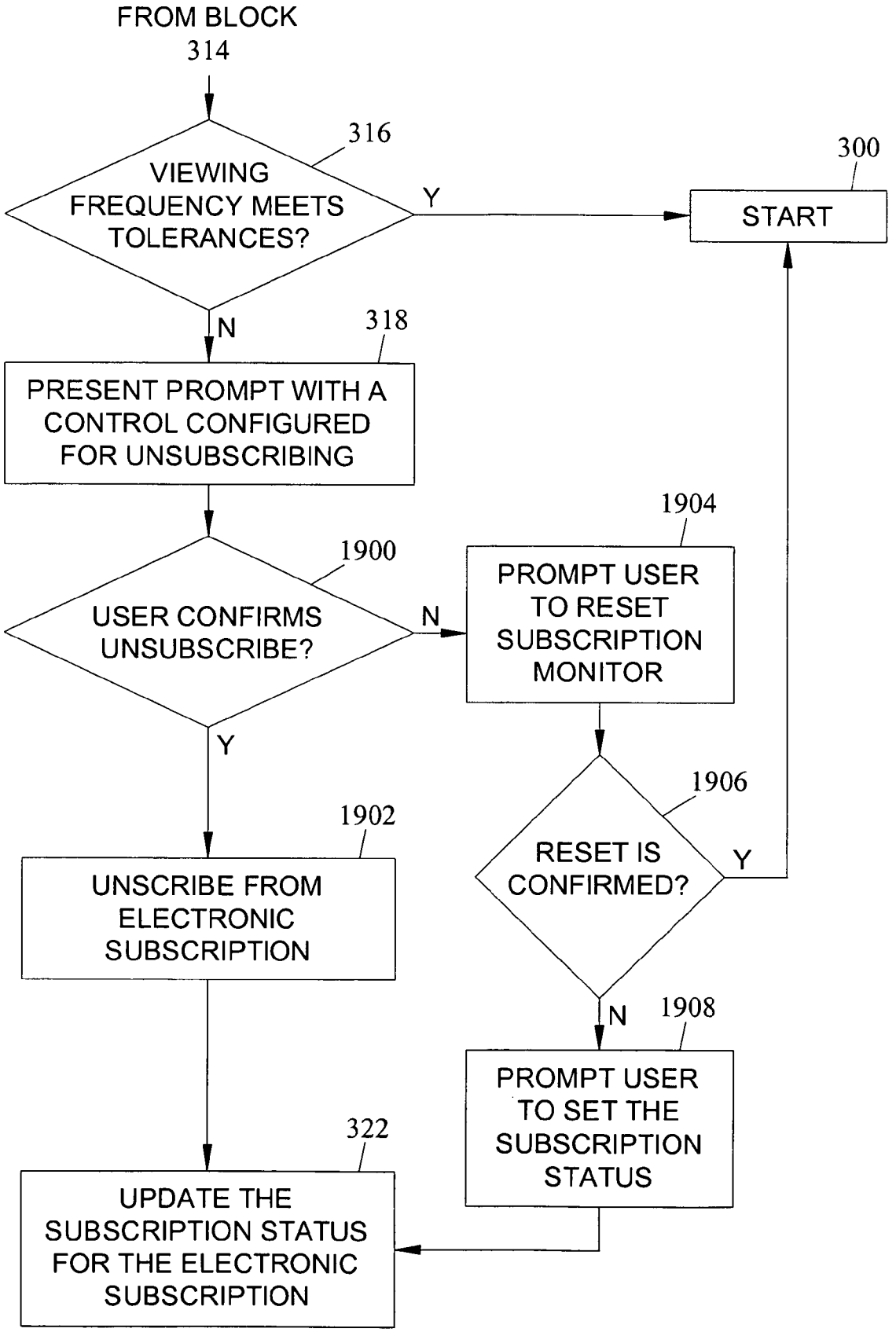
FROM BLOCK 314
316
VIEWING FREQUENCY MEETS TOLERANCES?
Y
300
START
N
318
PRESENT PROMPT WITH A CONTROL CONFIGURED FOR UNSUBSCRIBING
1904
1900
USER CONFIRMS UNSUBSCRIBE?
N
PROMPT USER TO RESET SUBSCRIPTION MONITOR
Y
1906
1902
RESET IS CONFIRMED?
Y
UNSCRIBE FROM ELECTRONIC SUBSCRIPTION
N
1908
PROMPT USER TO SET THE SUBSCRIPTION STATUS
322
UPDATE THE SUBSCRIPTION STATUS FOR THE ELECTRONIC SUBSCRIPTION

FIG. 19

METHODS, SYSTEMS, AND COMPUTER PROGRAM PRODUCTS FOR MANAGING ELECTRONIC SUBSCRIPTIONS

TECHNICAL FIELD

The subject matter described herein relates to electronic subscriptions. More particularly, the subject matter described herein relates to methods, systems, and computer program products for managing electronic subscriptions.

BACKGROUND

An electronic subscription is a service by which a user receives content of interest to the user, such as news, technical information, or sports information, via an electronic device. The electronic device subscribing to an electronic subscription may include an electronic subscription client for managing received subscription messages. The subscription messages may be provided by an electronic subscription message source. The electronic subscription message source may store information about a client, such as a client's name and address. Further, the electronic subscription message source may generate subscription messages containing information content, such as news and weather, and media content, such as music, television shows, and movies. Exemplary subscription messages include e-mail messages, real simple syndication (RSS) messages, and podcasts.

One problem with electronic subscriptions is that a user may receive many subscription messages that are never opened or read by the user. For example, the user may subscribe to more electronic content than the user has time to read. The user may delete the unread or unopened subscription messages. Alternatively, the user may allow the unread or unopened subscription message to be stored on an electronic device. Thus, over time, unread or unopened subscription messages can consume a significant portion of the memory of electronic device. Further, when a significant amount of the subscription messages are acquired, the subscription messages can result in a disorganized user interface with the electronic device. It would be beneficial to provide for the management of electronic subscriptions to reduce the receipt and storage of messages that are not opened, read, or otherwise used by a user.

Further, when a user is subscribed to several electronic subscription services, subscription messages received from the electronic subscriptions may contain redundant content. As a result, a user may access subscription messages having the same content or substantially similar content. The user may either read the redundant or cumulative content twice or may ignore the redundant or cumulative content. Either result is undesirable. Accordingly, it would be beneficial to provide for management of electronic subscriptions that addresses redundant or cumulative content.

Another problem associated with electronic subscriptions occurs when a user subscribes to a subscription that the user has previously canceled. At the time of the second subscription, the user may not remember that he has previously canceled the original subscription, for example, because the user learned that the content was not interesting. If the user is allowed, without notification, to subscribe to the uninteresting content the second time, the user may receive the uninteresting content, later learn that the content is not interesting, and then may be required to cancel the subscription again. This process is inefficient from the standpoint of the user and utilization of the electronic device used to receive the electronic content. It would be beneficial to provide for management of electronic subscriptions that addresses these problems associated with previously canceled subscriptions.

Accordingly, in light of the above described difficulties and needs associated with electronic subscriptions, there exists a need for improved methods, systems, and computer program products for managing electronic subscriptions.

SUMMARY

According to one aspect, the subject matter described herein includes methods, systems, and computer program products for managing electronic subscriptions. One method includes monitoring, at an electronic subscription client, receipt of one or more subscription messages associated with an electronic subscription. Interaction with the electronic subscription client by a user is monitored to determine a viewing frequency of the received subscription messages. Based on the determined viewing frequency, a prompt is presented with a control configured for unsubscribing the user from receiving a future subscription message associated with the electronic subscription.

According to another aspect, one method includes monitoring, at an electronic subscription client, receipt of a subscription message associated with an electronic subscription. It is determined whether the received subscription message is redundant based on at least one of an identifier for the subscription message or content included in the subscription message. Based on the redundancy determination, a prompt is presented with a control configured for unsubscribing a user from receiving a future subscription message associated with the electronic subscription.

According to yet another aspect, one method includes saving, at an electronic subscription client, a subscription identifier for an unsubscribed-from electronic subscription. Input is received that corresponds to the subscription identifier for subscribing to the unsubscribed-from electronic subscription. An indication that the electronic subscription has been previously unsubscribed-from is presented.

As used herein, the term "electronic subscription" refers to a service in which an electronic content source provides content to a subscriber via an electronic device. For example, a content source may be an organization such as the Wall Street Journal or Security Focus. In this example, the organization may communicate e-mail subscription messages to the subscriber's computer or mobile phone over the Internet. Exemplary content delivered via an electronic subscription may include newsletter e-mails, music files, pictures, daily horoscopes, weather, daily jokes, ring tones, television shows, movies, or any other digital media or data that may be delivered electronically to a device.

As used herein, the term "electronic subscription client" refers to functionality for receiving and accessing subscription content. An electronic subscription client may reside on an electronic device, such as a mobile phone, a laptop computer, a desktop computer, a mobile game player, a music player, or any combination thereof. Exemplary electronic subscription clients include an e-mail client (e.g., MICROSOFT OUTLOOK®, EUDORA®, and LOTUS NOTES®), a web-based e-mail client (e.g., YAHOO!® mail, GOOGLE GMAIL®, and EARTHLINK® mail), a real simple syndication (RSS) reader (e.g., NEWSGATOR™ aggregator and RSS READER™), an RSS aggregator (e.g., FEEDDEMON™ RSS aggregator and NEWZIE™ RSS aggregator), a media player (e.g., RHAPSODY®, ITUNES®, and WINDOWS MEDIAPLAYER®), a photoshare client (e.g., FLICKR™ photoshare and SNAPFISH® photoshare), and a personalized web page (e.g., MYYA-

HOO!® web service, GOOGLE® Homepage, MYSPACE.COM® web service, and FACEBOOK™ web service).

The subject matter described herein may be implemented using a computer program product comprising computer executable instructions embodied in a computer-readable medium. Exemplary computer-readable media suitable for implementing the subject matter described herein include chip memory devices, disk memory devices, programmable logic devices, application specific integrated circuits, and downloadable electrical signals. In addition, a computer-readable medium that implements the subject matter described herein may be located on a single device or computing platform or may be distributed across multiple devices or computing platforms.

BRIEF DESCRIPTION OF THE DRAWINGS

Preferred embodiments of the subject matter described herein will now be explained with reference to the accompanying drawings of which:

FIG. **1** is a block diagram of an exemplary system for managing electronic subscriptions according to the subject matter described herein;

FIG. **2** is a flow chart of an exemplary process for managing electronic subscriptions according to an embodiment of the subject matter described herein;

FIGS. **3**A and **3**B are a flow chart of an exemplary process for use by the system shown in FIG. **1** for managing electronic subscriptions according to an embodiment of the subject matter described herein;

FIG. **4** is a block diagram of an exemplary system for managing electronic subscriptions according to the subject matter described herein;

FIG. **5** is a flow chart illustrating an exemplary process for managing electronic subscriptions according to an embodiment of the subject matter described herein;

FIGS. **6**A and **6**B are a flow chart of an exemplary process for use by the system shown in FIG. **4** for managing electronic subscriptions according to an embodiment of the subject matter described herein;

FIG. **7** is a block diagram of an exemplary system for managing electronic subscriptions according to the subject matter described herein;

FIG. **8** is a flow chart of an exemplary process for managing electronic subscriptions according to an embodiment of the subject matter described herein;

FIGS. **9**A and **9**B are a flow chart of an exemplary process for use by the system shown in FIG. **7** for managing electronic subscriptions according to an embodiment of the subject matter described herein;

FIG. **10** is a computer screenshot displayed by a display of an RSS electronic client device of an exemplary RSS feed web page for subscribing and unsubscribing to electronic subscriptions according to an embodiment of the subject matter described herein;

FIG. **11** is a computer screenshot of a window including a subscribe button, a subscription list, and an unsubscribe icon according to an embodiment of the subject matter described herein;

FIG. **12** is a computer screenshot of a window including a list of electronic subscriptions according to an embodiment of the subject matter described herein;

FIG. **13** is a computer screenshot of a window including an unsubscribe button that may be selected for unsubscribing to a corresponding electronic subscription according to an embodiment of the subject matter described herein;

FIG. **14** is a block diagram of an exemplary system for managing electronic subscriptions according to the subject matter described herein;

FIG. **15** is a flow chart illustrating an exemplary process for use by the system shown in FIG. **1** for confirmation by a user of a new electronic subscription according to an embodiment of the subject matter described herein;

FIG. **16** is a flow chart illustrating an exemplary process for use by the system shown in FIG. **4** for grouping subscription messages to determine redundancy according to an embodiment of the subject matter described herein;

FIG. **17** is a flow chart illustrating an exemplary process for use by the system shown in FIG. **1** for prompting a user to prescribe an unsubscribe action according to an embodiment of the subject matter described herein;

FIG. **18** is a flow chart illustrating an exemplary process for use by the system shown in FIG. **1** for presenting unsubscribe action steps to a user according to an embodiment of the subject matter described herein; and

FIG. **19** is a flow chart illustrating an exemplary process for use by the system shown in FIG. **1** for confirming unsubscribing to an electronic subscription and for resetting monitoring of the electronic subscription according to an embodiment of the subject matter described herein.

DETAILED DESCRIPTION

The subject matter described herein includes methods, systems, and computer program products for managing electronic subscriptions. According to one aspect, a system according to the subject matter described herein may be implemented as hardware, software, and/or firmware components executing on one or more components of a system configured to manage and/or receive subscription messages associated with an electronic subscription. FIG. **1** is a block diagram of an exemplary system **100** for managing electronic subscriptions according to the subject matter described herein. An electronic subscription message source **102** may be configured to generate subscription messages associated with one or more electronic subscriptions. Electronic subscription message source **102** may also communicate subscription messages that carry subscription content to electronic subscription clients associated with the electronic subscriptions. For example, electronic subscription message source **102** may communicate subscription messages **104** and **106** to an electronic subscription client **108** via a network **110**. Electronic subscription client **108** may be subscribed to the electronic subscription and configured to receive subscription messages **104** and **106** via network **110**.

Electronic subscription client **108** may include means for monitoring receipt of one or more subscription messages associated with an electronic subscription. For example, electronic subscription client **108** may include an electronic subscription message monitor **112** configured to monitor receipt of subscription messages associated with an electronic subscription. Electronic subscription client **108** may monitor receipt of subscription messages **104** and **106**. Examples of subscription message monitoring include determining arrival of a subscription message, determining whether the subscription message is confirmation of a new subscription, determining subscription identification information in the subscription message, and determining information for unsubscribing to an electronic subscription.

Electronic subscription client **108** may include means for monitoring interaction with the electronic subscription client by a user to determine a viewing frequency of one or more received subscription messages. For example, electronic sub-

scription client **108** may include an interaction monitor function **114** configured to monitor interaction with electronic subscription client **108** by a user to determine a viewing frequency of the received subscription messages. In one example, interaction monitor function **114** may determine a viewing frequency of received subscription messages associated with an electronic subscription. Interaction monitor function **114** may compare the determined viewing frequency of received subscription messages to a viewing frequency threshold. Further, in one example, interaction monitor function **114** may determine a number of received subscription messages and a number of received subscription messages acted upon by a user, and compare the numbers. Interaction monitor function **114** may provide the interaction monitoring information to an unsubscribe function **116**.

Electronic subscription client **108** may include means for presenting, based on the determined viewing frequency, a prompt with a control configured for unsubscribing the user from receiving a future subscription message associated with the electronic subscription. For example, unsubscribe function **116** may be configured to present, based on a determined viewing frequency, a prompt with a control configured for unsubscribing the user from receiving future content associated with the electronic subscription. In one example, unsubscribe function **116** may be configured to present a prompt with a control based on interaction monitoring information provided by interaction monitor function **114**. The control may be a graphical object that allows the user to automatically unsubscribe from a subscription. The information required to unsubscribe may be stored by unsubscribe function **116** at the time a subscription agreement is made or when the message confirming a subscription is received. Further, in one example, unsubscribe function **116** may be configured to present a prompt with a control based on comparison information from interaction monitor function **114** about the determined viewing frequency of received subscription messages to a viewing frequency threshold. Further, in another example, unsubscribe function **116** may be configured to present a prompt with a control based on comparison information from interaction monitor function **114** about a number of received subscription messages and a number of received subscription messages acted upon by a user.

A user of electronic subscription client **108** may select the prompt for operating the control to unsubscribe the user from receiving future subscription messages associated with the electronic subscription. The control can be configured to implement one or more unsubscribe actions stored in a database **118** in response to selection of the prompt. The unsubscribe actions can include commands and/or functionality for unsubscribing to an electronic subscription. Unsubscribe function **116** may be configured to unsubscribe a user from receiving future subscription messages associated with an electronic subscription in response to receiving an input responsive to a prompt with a control for unsubscribing the user from receiving future subscription messages associated with the electronic subscription. The unsubscribe actions taken by unsubscribe function **116** for unsubscribing to an electronic subscription may be in accordance with the subject matter described herein or any other suitable procedure known to those of skill in the art.

Electronic subscription client **108** may include an electronic subscription database **120** configured to store information associated with one or more electronic subscriptions. For example, electronic subscription database **120** may store instructions or process information for unsubscribing to one or more electronic subscriptions. In this example, a control for unsubscribing to an electronic subscription may access the instructions stored in database **120** for unsubscribing to an electronic subscription. The information associated with an electronic subscription may be associated with the electronic subscription by an electronic subscription identifier. Exemplary unsubscribe instructions include the following: communicating a request to an electronic subscription message source for unsubscribing; and sending a message to one of an address, a uniform resource identifier (URI), or a link for unsubscribing from an electronic subscription. Exemplary links include web links. Exemplary addresses include e-mail addresses.

Unsubscribe function **116** may be configured to determine instructions or process information for unsubscribing a user from receiving future subscription messages associated with an electronic subscription. For example, unsubscribe function **116** may identify unsubscribe information in a message carrying subscription content or confirming a subscription. In this example, a control or process in unsubscribe actions **118** can be configured to unsubscribe based on the identified unsubscribe information, and the unsubscribe information may be stored in database **120**. In one example, unsubscribe function **116** may determine one of an address, a URI, and a link associated with the electronic subscription for use in unsubscribing. In this example, a control or process in unsubscribe actions **118** can be configured to unsubscribe based on the address, the URI, or the link, and the address, the URI, or the link may be stored in database **120**. Further, in this example, the process for unsubscribing may include accessing a resource and sending a message using the address, the URI, or the link. In one example, unsubscribe function **116** may identify text in one or more subscription messages indicating information for unsubscribing. Examples of text associated with unsubscribing includes one or more of subscribe text, mailing list text, and unsubscribe text. In another example, unsubscribe function **116** may determine a URI in an RSS reading list associated with an electronic subscription and configure a control or process to remove the URI from the RSS reading list.

FIG. **2** is a flow chart illustrating an exemplary process for managing electronic subscriptions according to an embodiment of the subject matter described herein. Referring to FIG. **2**, in block **200** the process provides for monitoring, at an electronic subscription client, receipt of one or more subscription messages associated with an electronic subscription. For example, a process associated with system **100** may provide for electronic subscription message monitor **112** to monitor receipt of subscription messages **104** and **106** at electronic subscription client **108**. In block **202**, interaction with the electronic subscription client by a user may be monitored to determine a viewing frequency of the one or more received subscription messages. For example, interaction monitor function **114** may be configured to monitor interaction with electronic subscription client **108** by a user to determine a viewing frequency of one or more received subscription messages. A viewing frequency of the received one or more subscription messages may be determined using any of the techniques described above. In block **204**, based on the determined viewing frequency, a prompt with a control configured for unsubscribing the user from receiving a future subscription message associated with the electronic subscription may be presented. For example, unsubscribe function **116** may present a prompt with a control configured to unsubscribe the user from receiving a future subscription message associated with the electronic subscription. A user may select or otherwise activate the prompt for unsubscribing from receiving the future subscription message.

FIGS. **3**A and **3**B are a flow chart illustrating an exemplary process for use by system **100** shown in FIG. **1** for managing electronic subscriptions according to an embodiment of the subject matter described herein. FIGS. **3**A and **3**B illustrate in more detail the process illustrated in FIG. **2** for subscription management based on viewing frequency. Referring to FIG. **3**A, the process may start at block **300**. In block **302**, electronic subscription message monitor **112** may determine whether a new subscription message has been received. If it is determined that a new subscription message has not been received, the process may return to block **300**. Otherwise, if it is determined that a new subscription message has been received, it is determined whether the subscription message is a confirmation of a new electronic subscription (block **304**). If it is determined that the subscription message is a confirmation of a new electronic subscription, electronic subscription message monitor **112** may record and store data identifying the electronic subscription (block **306**). In block **308**, electronic subscription message monitor **112** may record and store data identifying unsubscribe information for the electronic subscription. For example, the data identifying the electronic subscription may be stored in electronic subscription database **120**. Examples of data identifying an electronic subscription include keywords, digits, embedded images, audio clips, and source addresses. Examples of data identifying unsubscribe information include digits and keywords, such as "unsubscribe".

In block **304**, if it is determined that the subscription message is not a confirmation of a new electronic subscription, it is determined whether the subscription message contains subscription content (block **310**). For example, electronic subscription message monitor **112** may determine whether the subscription message contains subscription content. Exemplary subscription content may include news, music files, pictures, daily horoscopes, daily jokes, ring tones, television shows, movies, or any other digital media or data that may be obtained through a subscription. If it is determined that the subscription message does not contain subscription content, the process may return to block **300**.

If it is determined in block **310** that the subscription message contains subscription content, interaction monitor function **114** may monitor user interaction with the subscription message (block **312**). For example, the user interaction may include the receipt of input into electronic subscription client **108** for selecting the subscription message for viewing purposes. Referring to FIG. **3**B, in block **314**, interaction monitor function **114** may determine the viewing frequency for the electronic subscription. For example, the viewing frequency may be a ratio of the number of received subscription messages acted upon by a user to the number of received subscription messages. In block **316**, interaction monitor function **114** may determine whether the viewing frequency meets predetermined tolerances. For example, interaction monitor function **114** may determine whether the viewing frequency ratio meets viewing frequency ratio tolerances. If it is determined that the viewing frequency ratio meets tolerances, the process may proceed to block **300**. Otherwise, if it is determined that the viewing frequency ratio does not meet tolerances, interaction monitor function **114** may notify unsubscribe function **116** that the viewing frequency ratio for the electronic subscription does not meet tolerances.

In block **318**, unsubscribe function **116** may present a prompt with a control configured for unsubscribing the user from receiving a future subscription message associated with the electronic subscription. For example, electronic subscription client **108** may use a display for displaying a prompt with a control configured to unsubscribe from receiving a future subscription message associated with the electronic subscription. In block **320**, a response to the prompt is received from the user. The input may be to maintain the electronic subscription or to unsubscribe to the electronic subscription. In block **322**, a subscription status in electronic subscription database **120** for the electronic subscription may be updated based on the input. The subscription status may be set to subscribe or unsubscribe to the electronic subscription. The process may then return to block **300**.

FIG. **4** is a block diagram of an exemplary system **400** for managing electronic subscriptions according to the subject matter described herein. Similar to system **100** shown in FIG. **1**, system **400** includes electronic subscription message source **102** configured to generate subscription messages and communicate the subscription messages to electronic subscription client **108** via network **110**. Further, similar to system **100** shown in FIG. **1**, electronic subscription client **108** includes electronic subscription message monitor **112** configured to monitor receipt of a subscription message associated with an electronic subscription via network **110**. Further, electronic subscription client **108** shown in FIG. **4** includes unsubscribe function **116** and databases **118** and **120** having functionality similar to the corresponding function and databases as described above.

Electronic subscription client **108** may include means for determining whether a received subscription message is redundant based on at least one of an identifier for the subscription message or content included in the subscription message. For example, electronic subscription client **108** may include a subscription message redundancy monitor **402** configured to monitor determined whether a received subscription message is redundant based on an identifier for the subscription message and/or content included in the subscription message. In one example, monitor **402** may determine whether a received subscription message is redundant by determining whether redundancy exists between content of the received subscription message and content of one or more messages associated with another electronic subscription. In another example, monitor **402** may determine whether a received subscription message is redundant by determining whether redundancy exists between content of the received subscription message and content of one or more messages associated with another electronic subscription received previously, and may be limited to messages received within a predetermined time period of receipt of the subscription message. In another example, monitor **402** may determine whether a received subscription message is redundant by determining whether the received subscription message and one or more previously-received subscription messages have a threshold amount of common content. Content can include the subject or body of a message. For example, an e-mail may be considered redundant if the subject line of the e-mail matches (or nearly matches) a headline of a story, the name of a song/group/artist, the name of a concert/event, etc. In another example, monitor **402** may determine whether a received subscription message is redundant based on an examination of an identifier associated with the message and/or subscription. For example, monitor **402** may determine whether a received subscription message is redundant by determining whether one or more links, addresses, or URIs in the subscription message matches one or more links, addresses, URIs, or other content in one or more messages associated with another electronic subscription. Rules for determining redundancy may be stored in a redundancy rules database **404**. Further, monitor **402** may provide information about a redundancy determination for a received subscription message to unsubscribe function **116**.

Electronic subscription client **108** may include means for presenting, based on a redundancy determination, a prompt with a control configured for unsubscribing a user from receiving a future subscription message associated with the electronic subscription. For example, unsubscribe function **116** may be configured to present, based on a redundancy determination, a prompt with a control configured for unsubscribing a user from receiving a future subscription message associated with the electronic subscription, i.e., either subscription that is identified as redundant. In one example, unsubscribe function **116** may present a prompt configured for unsubscribing a user based on the determined redundancy contents of the subscription message and one or more messages associated with another electronic subscription. In another example, unsubscribe function **116** may present a prompt configured for unsubscribing a user from receiving a future subscription message associated with the electronic subscriptions for which a subscription message was received or another electronic subscription having electronic subscription messages with content that is redundant in comparison to the received subscription message. A user of electronic subscription client **108** may select the prompt for operating the control to unsubscribe the user from receiving future subscription messages associated with the electronic subscription. The control can be configured to implement one or more unsubscribe actions stored in database **118** in response to selection of the prompt. Unsubscribe function **114** may be configured to unsubscribe a user from receiving future subscription messages associated with an electronic subscription in response to receiving an input responsive to a prompt with a control for unsubscribing the user from receiving future subscription messages associated with the electronic subscription.

FIG. **5** is a flow chart illustrating an exemplary process for managing electronic subscriptions according to an embodiment of the subject matter described herein. Referring to FIG. **5**, in block **500** the process provides for monitoring, at an electronic subscription client, receipt of a subscription message associated with an electronic subscription. For example, a process associated with system **100** may provide for electronic subscription message monitor **112** to monitor receipt of subscription messages **104** and **106** at electronic subscription client **108**. In block **502**, it is determined whether the received subscription message is redundant based on at least one of an identifier for the subscription message or content included in the subscription message. For example, subscription message redundancy monitor **402** may be configured to determine whether the received subscription message is redundant based on at least one of an identifier for the subscription message or content included in the subscription message. In block **504**, a prompt may be present, based on the redundancy determination, with a control configured for unsubscribing a user from receiving a future subscription message associated with the electronic subscription. For example, unsubscribe function **116** may present a prompt with a control configured to unsubscribe the user from receiving a future subscription message associated with the electronic subscription. A user may select or otherwise activate the prompt for unsubscribing from receiving the future subscription message.

FIGS. **6**A and **6**B are a flow chart illustrating an exemplary process for use by system **400** shown in FIG. **4** for managing electronic subscriptions according to an embodiment of the subject matter described herein. FIGS. **6**A and **6**B illustrate in more detail the process illustrated in FIG. **5** for managing electronic subscriptions based on redundancy determinations. Referring to FIG. **6**A, the process may start at block **600**. In block **602**, electronic subscription message monitor **112** may determine whether a new subscription message has been received. If it is determined that a new subscription message has not been received, the process may return to block **600**. Otherwise, if it is determined that a new subscription message has been received, it is determined whether a predetermined examination time period is in effect (block **604**). The examination time period is a time period set within which it is determined whether there is redundancy between content of the new received subscription message and content of one or more messages associated with another electronic subscription. If it is determined that the examination time period is not in effect, electronic subscription message monitor **112** may examine the delivery time of the new subscription message and set an examination time period to start (block **606**).

If it is determined that the examination time is in effect, subscription message redundancy monitor **402** compares links, addresses, and/or URIs of the received subscription message to other subscription messages received within the same examination time period (block **608**). The links, addresses, and/or URIs may be contained within a subscription message. In block **610**, subscription message redundancy monitor **402** compares text or content of the received subscription message to the text or content of other subscription messages received within the same examination time period (block **610**). Referring to FIG. **6**B, in block **612**, subscription message redundancy monitor **402** determines whether the received subscription message is redundant in comparison to the other subscription messages received within the same examination time period. The redundancy determination may be based on the comparisons performed in blocks **608** and **610**. For example, subscription message redundancy monitor **402** may determine redundancy by determining whether the received subscription message and one or more previously-received subscription messages have a threshold amount of common content. In one example, monitor **402** may determine whether a received subscription message is redundant by determining whether one or more links, addresses, or URIs in the subscription message matches one or more links, addresses, or URIs in one or more messages associated with another electronic subscription.

In block **614**, subscription message redundancy monitor **402** determines whether the received subscription message is redundant. If it is determined that the received subscription message is not redundant, the process proceeds to block **600**. Otherwise, if it is determined that the received subscription message is redundant, subscription message redundancy monitor **402** may notify the user of redundant subscription messages. For example, monitor **402** may use a display of electronic subscription client **108** for displaying a notification of redundancy for the received subscription messages and one or more of the other subscription messages used in the redundancy determination.

In block **618**, subscription message redundancy monitor **402** may present a prompt with a control configured for unsubscribing the user from receiving a future subscription message associated with the electronic subscription. For example, subscription message redundancy monitor **402** may use a display for displaying a prompt with a control configured to unsubscribe from receiving a future subscription message associated with the electronic subscription. In block **620**, a response to the prompt is received from the user. The input may be to maintain the electronic subscription or to unsubscribe to the electronic subscription one or more of the other electronic subscriptions associated with the other subscription messages used in the redundancy determination. In block **622**, a subscription status in electronic subscription database

120 for the electronic subscription may be updated based on the input. The subscription status may be set to subscribe or unsubscribe to the electronic subscriptions. The process may then return to block **600**.

FIG. **7** is a block diagram of an exemplary system **700** for managing electronic subscriptions according to the subject matter described herein. Similar to system **100** shown in FIG. **1**, system **700** includes electronic subscription message source **102** configured to generate subscription messages and communicate the subscription messages to electronic subscription client **108** via network **110**. Further, similar to system **100** shown in FIG. **1**, electronic subscription client **108** includes electronic subscription message monitor **112** configured to monitor receipt of a subscription message associated with an electronic subscription via network **110**. Further, electronic subscription client **108** shown in FIG. **7** includes electronic subscription database **120** having functionality similar to the database as described above.

Electronic subscription client **108** may include means for saving a subscription identifier for an unsubscribed-from electronic subscription. For example, electronic subscription message monitor **112** may save a subscription identifier for an unsubscribed-from electronic subscription. Exemplary subscription identifiers include a subscription source identifier and subscription status information. Based on the subscription identifier for the received subscription message, it may be determined that the subscription message is associated with an electronic subscription that was previously unsubscribed-from. Electronic subscription database **120** may store subscription status information indicating that an electronic subscription was previously unsubscribed-from. In one example, a subscription message including a subscription identifier may be a subscription message for subscribing to the electronic subscription.

Electronic subscription client **108** may include means for receiving input corresponding to a subscription identifier for subscribing to the unsubscribed-from electronic subscription. For example, a subscription watchdog function **702** may be configured to receive input corresponding to a subscription identifier for subscribing to the unsubscribed-from electronic subscription. In one example, a user of electronic subscription client **108** may input data corresponding to a subscription identifier for subscribing to the unsubscribed-from electronic subscription.

Electronic subscription client **108** may include means for presenting an indication that the electronic subscription has been previously unsubscribed-from. For example, subscription watchdog function **702** may present an indication that the electronic subscription has been previously unsubscribed-from. In one example, subscription watchdog function **702** may use a display for indicating that the electronic subscription associated with a received subscription message has been previously unsubscribed-from.

FIG. **8** is a flow chart illustrating an exemplary process for managing electronic subscriptions according to an embodiment of the subject matter described herein. Referring to FIG. **8**, in block **800** the process provides for saving, at an electronic subscription client, a subscription identifier for an unsubscribed-from electronic subscription. For example, a process associated with system **700** may provide for electronic subscription message monitor **112** to save at database **120** a subscription identifier for an unsubscribed-from electronic subscription. In block **802**, input may be received that corresponds to the subscription identifier for subscribing to the unsubscribed-from electronic subscription. Further, in block **804**, an indication may be presented that the electronic subscription has been previously unsubscribed-from. Further, for example, a user of electronic subscription client **108** may be provided a prompt with a control configured to subscribe or not subscribe to the previously unsubscribed-from electronic subscription.

FIGS. **9**A and **9**B are a flow chart illustrating an exemplary process for use by system **700** shown in FIG. **7** for managing electronic subscriptions according to an embodiment of the subject matter described herein. The process illustrated in FIGS. **9**A and **9**B illustrates in more detail the process for managing electronic subscriptions based on previous unsubscription actions illustrated in FIG. **7**. Referring to FIG. **9**, the process may start at block **900**. In block **902**, electronic subscription message monitor **112** may determine whether a new subscription message has been received. If it is determined that a new subscription message has not been received, the process may return to block **900**. Otherwise, if it is determined that a new subscription message has been received, it is determined whether the received subscription message is a confirmation of a new subscription (block **904**). If it is determined that the received subscription message is not a confirmation of a new subscription, the process may return to block **900**.

If it is determined that the received subscription message is a confirmation of a new subscription, electronic subscription message monitor **112** may collect identifying data about the subscription source (block **906**). The identifying data about the subscription source may be contained in the received subscription message. The identifying data may be a subscription source identifier and/or subscription status information. Subscription watchdog function **702** may compare the identifying data about the subscription source to records in electronic subscription database **120** (block **908**). Referring to FIG. **9**B, in block **910**, subscription watchdog function **702** may determine whether a record in database **120** matches the identifying data about the subscription source. If it is determined that a record does not match, the process can proceed to block **900**.

If it is determined that a record does match, subscription watchdog function **702** may determine whether the subscription status in the matching record indicates that the corresponding electronic subscription has been previously unsubscribed-from (block **914**). If it is determined that the corresponding electronic subscription has not been previously unsubscribed-from, the process can proceed to block **900**. Otherwise, if it is determined that the corresponding electronic subscription has been previously unsubscribed-from, subscription watchdog function **702** may notify the user of electronic subscription client **108** that the electronic subscription associated with the received subscription message had been previously subscribed to and was subsequently unsubscribed-from (block **916**).

Electronic subscriptions may be obtained by communicating a subscription request to an electronic subscription message source. For example, when an e-mail client is utilized as an electronic subscription client, an electronic subscription may be requested by completion of a web-based form that collects a user's e-mail address and other pertinent information. In another example, when an RSS aggregator or a personalized web browser is utilized as an electronic subscription client, an electronic subscription may be requested by clicking on an RSS icon located within a web page of an electronic subscription source.

When an electronic subscription request is received, confirmation of the electronic subscription may be provided to an electronic subscription client. For example, an e-mail may be communicated by an electronic subscription source to an electronic subscription client for confirming the subscription.

In this example, the electronic subscription client may request a subscription via a web-based form. The following is an example of e-mail message content for confirming a subscription.

Hi! This is the ezmlm program. I'm managing the ms-secnews@securityfocus.com mailing list.

I'm working for my owner, who can be reached at ms-secnews-owner@securityfocus.com.

Acknowledgment: I have added the address john.q.public@somecompany.com to the ms-secnews mailing list.

Welcome to ms-secnews@securityfocus.com!

Please save this message so that you know the address you are subscribed under, in case you later want to unsubscribe or change your subscription address.

To unsubscribe, send a message to:

<ms-secnews-unsubscribe-john.q.public=somecompany.com@securityfocus.com>

The above example was generated by a MajorDomo or LISTSERV program, as an example at URL: http://www.webopedia.com/TERM/M/Majordomo.html.

FIG. **10** illustrates a computer screenshot displayed by a display of an RSS electronic client device of an exemplary RSS feed web page for subscribing and unsubscribing to electronic subscriptions according to an embodiment of the subject matter described herein. Subscription content is posted to an RSS reader or a web page. In this example, a user has three subscriptions, generally designated **1000**. The user may select an edit icon **1002** for editing a corresponding subscription. Further, the user may select an unsubscribe icon **1004** for unsubscribing from a corresponding subscription. Instructions for unsubscribing by selecting an unsubscribe icon corresponding to an electronic subscription may be stored in an unsubscribe actions database, such as database **118** shown in FIG. **1**. An unsubscribe function **116** may unsubscribe from an electronic subscription by accessing and implementing instructions stored in database **118**. The screenshot also includes exemplary subscription message content **1006**.

FIGS. **11-13** illustrate computer screenshots displayed by a display of a media player electronic client device of an exemplary media player interface for subscribing and unsubscribing to electronic subscriptions according to an embodiment of the subject matter described herein. FIGS. **11-13** include an example of displaying subscribing to an iTunes PodCast, a subscription list, and an unsubscribe icon. Referring to FIG. **11**, a window **1100** includes a subscribe button **1102** for subscribing to a PodCast video provided by iTunes. Referring to FIG. **12**, a list **1200** of electronic subscriptions is shown. Referring to FIG. **13**, an unsubscribe button **1300** is shown that may be selected for unsubscribing to a corresponding electronic subscription. Instructions for unsubscribing by selecting an unsubscribe icon corresponding to an electronic subscription may be stored in an unsubscribe actions database, such as database **118** shown in FIG. **1**. An unsubscribe function **116** may unsubscribe from an electronic subscription by accessing and implementing instructions stored in database **118**.

In one embodiment, an electronic subscription message monitor may monitor all messages received by an electronic subscription client to determine whether any of the messages are new subscription confirmation messages. The electronic subscription message monitor may be adapted to recognize subscription confirmation messages for any type of electronic subscription client. If the electronic subscription client is an e-mail application, the electronic subscription message monitor may recognize a new subscription confirmation message by text contained within an e-mail message. For example, the electronic subscription message monitor may review text of the subject line or body of an e-mail message for key words, such as "subscribe," "mailing list," and "unsubscribe," for determining that the message is a new subscription confirmation message. If the electronic subscription client is an RSS reader, the electronic subscription message monitor may recognize a new subscription confirmation message by determining that a URL has been added to a reading list of the RSS reader or that the reading list has been updated. If the electronic subscription client is media player client, the electronic subscription message monitor may recognize a new subscription confirmation message by determining that a new entry has been added to a library of the media player client.

In one embodiment, a record of an electronic subscription may be created and added to an electronic subscription database when a subscription confirmation message is recognized. The record is created and added to the database so that subscription messages can be monitored to see if they are associated with the electronic subscription. Table 1 below shows exemplary records of an electronic subscription database according to the subject matter described herein.

TABLE 1

Electronic Subscription Database

Subscription Name	Source	Subscription Status	Date Initialized	Msgs Red'd (MR)	Msgs Acted Upon (MAU)	Viewing Frequency	Interaction Rule Name
Microsoft Security Newsletter	mssecnews@security.focus.com	Permanent	May 23, 2006	1	0	N/A	N/A
Linux Security Newsletter	linuxsecnews@securityfocus.com	Active	Aug. 02, 2004	50	45	90%	Security
Security Focus Newsletter	sfnews@securityfocus.com	Unsubscribed	Dec. 22, 2005	23	10	43%	Security

In Table 1, the subscription name field includes an identifier for an electronic subscription to enable the coordination of actions taken for managing electronic subscriptions. The source field may contain a URL or e-mail address associated with the electronic subscription message source. The subscribe status field may be set according to user decisions about electronic subscriptions. For example, an electronic subscription may be set to permanent, active, or unsubscribed. The date initialized field may contain the date that an electronic subscription was initially confirmed and may be utilized for actions defined by unsubscribe rules described herein. The messages read (MR) field may include a count of received message associated with an electronic subscription after the initialization date. The messages acted upon (MAU) field may include a count of received messages acted upon by a user. For example, an MAU count may increase in the case of an e-mail subscription message when a user reads or opens the e-mail subscription message. In another example, a MAU count may increase in the case of a Podcast when a user plays or views the Podcast. The viewing frequency field may contain a ratio of the MAU and the MR for the electronic subscription. The MAU-to-MR ratio may be used to determine whether to prompt a user with a control configured to unsubscribe a user from receiving future messages associated with the electronic subscription. The interaction rule field may include a rule name selected for the electronic subscription that is used to determine user interaction with the subscription messages of the electronic subscription.

In one embodiment, an electronic subscription message monitor may notify an unsubscribe function of a new electronic subscription and provide information about actions for unsubscribing to the electronic subscription. The unsubscribe actions may be stored in an unsubscribe actions database. The unsubscribe actions in the database may be associated with a subscription name so that the unsubscribe actions can be retrieved when the unsubscribe function receives instructions for unsubscribing to the named electronic subscription. The unsubscribe function may retrieve and implement instructions for unsubscribing from the unsubscribe actions database. Further, the unsubscribe function may determine actions needed for unsubscribing to an electronic subscription. One exemplary unsubscribe action for an e-mail subscription client includes sending an e-mail to an electronic message subscription source with an appropriate unsubscribe subject line. Another exemplary unsubscribe action for an e-mail subscription client includes opening a web link contained in a subscription confirmation message that removes the subscribers address from a subscription list when the HTML of the web link is loaded. One exemplary unsubscribe action for an RSS subscription client includes deleting the source URL associated with the electronic subscription from an RSS reading list.

Table 2 below shows exemplary records of an unsubscribe actions database according to the subject matter described herein.

TABLE 2

Unsubscribe Actions Database		
Subscription Name	Unsubscribe Action	Related Data
Microsoft Security Newsletter	Send a reply unsubscribe e-mail	Message 123 in drafts folder
Linux Security Newsletter	Delete URL from client	<del> www.yoursub.com from reading list

TABLE 2-continued

Unsubscribe Actions Database		
Subscription Name	Unsubscribe Action	Related Data
Security Focus Newsletter	Execute web link	https://unsubscribe.yoursub.org

For the electronic subscription named Microsoft Security Newsletter, the electronic subscription can be unsubscribed-from by sending a reply to an unsubscribe e-mail. For example, the e-mail message identified as Message **123** in the drafts folder may be sent for unsubscribing to the electronic subscription. For the electronic subscription named Linux Security Newsletter, the URL associated with the associated reading list may be deleted to unsubscribe. For example, the URL www.yoursub.com may be deleted from the reading list. For the electronic subscription named Security Focus Newsletter, the web link https://unsubscribe.yoursub.org may be executed for unsubscribing from the electronic subscription.

In one embodiment, an electronic subscription message monitor may determine whether a received message contains subscription-related content or that the message is a subscription message. In one example, the monitor may determine that the received message contains subscription-related content or that the message is a subscription message by comparing a source address for the message to source addresses stored in an electronic subscription database. If a record is found with a matching source address, the monitor may determine that the received message contains subscription-related content or that the message is a subscription message.

In one embodiment, a viewing frequency of received subscription messages associated with an electronic subscription may be based on a ratio of a number of subscription messages acted upon by a user to a number of received subscription messages. An electronic subscription database may maintain counts of the numbers of subscription messages acted upon by a user and the numbers of received subscription messages for each electronic subscription. In one example, when an electronic subscription message monitor determines that a newly received message is associated with an electronic subscription, an interaction monitor function may be notified to start monitoring the subscription message in relation to the subscription. The interaction monitor function may determine whether a subscription message is acted upon by a user. For example, the interaction monitor function may determine whether the subscription message has been opened or not opened. In some instances, if an interaction monitor function is not integrated with an electronic subscription client, the interaction monitor function may suitably interface with the electronic subscription client to determine user interaction with subscription messages.

In one embodiment, an interaction monitor function may apply one or more interaction rules for determining interaction of a user with a received subscription message. One exemplary interaction rule includes monitoring reading of an e-mail subscription message to determine whether the user reads or opens the e-mail subscription message. In this example, if the user reads or opens the e-mail subscription message, the user has interacted with the subscription message. Another exemplary interaction rule includes monitoring viewing of a video file received in a subscription message to determine whether the user views the video file. In this example, if the user views the video file, the user has inter-

acted with the subscription message. Interaction rules may be set to default levels or customized per electronic subscription or electronic subscription type. Further, the interaction rules may be suitably configured based upon a volume of subscription messages being received.

Table 3 below shows an exemplary interaction rule record according to the subject matter described herein.

TABLE 3

Interaction Rule Record		
Interaction Rule Name	Message Timer	Clipping Level
Default	7 days	<50%
Security	30 days	<75%
World News	1 day	<65%

In Table 3, the interaction rule name field contains a name of the rule that can be applied to a particular electronic subscription. Message timer field contains an indication of a time period that an interaction monitor function should wait before determining a viewing frequency based on when a new subscription message arrived. The clipping level field indicates a viewing frequency percentage tolerance level that can be used for determining whether a user should be prompted with a control configured to unsubscribe the user from receiving future subscription messages associated with the electronic subscription. Interaction rules may also include grace periods or delay timers to allow for subscription messages to be received for a longer period of time than in an interaction rule before determining a viewing frequency for an electronic subscription.

In one embodiment, an unsubscribe function may control presentation of a prompt with a control configured for unsubscribing a user from receiving a future subscription message associated with an electronic subscription. For example, the prompt may be displayed using a display of the electronic subscription client. The following is an exemplary notification to a user that an unsubscribe action may be taken for an electronic subscription.

The following subscription does not meet the viewing frequency tolerances, would you like to unsubscribe from it?	
Subscription Name	Unsubscribe (Check Box)
Microsoft Security Newsletter	☐

The notification may be presented when interaction monitor function determines that the viewing frequency associated with the subscription is below a clipping level for the subscription. A user can input instructions for unsubscribing by selecting the unsubscribe box displayed in the prompt. Once unsubscribe instructions are input, the unsubscribe function may implement unsubscribe actions for unsubscribing the electronic subscription client from the subscription. Further, a subscription status field for the subscription in the electronic subscription database may be updated to indicate that the status is unsubscribed.

In one embodiment, a subscription message redundancy monitor may be notified by electronic subscription monitor when a subscription message is received having new content. The subscription message redundancy monitor may be configured to determine whether a received subscription message have a predetermined amount of content common to other received subscription messages for other electronic subscriptions. As stated above, subscription message redundancy may determine whether an examination period is in effect. The examination period may define a time period within which the subscription message redundancy monitor examines messages for redundancy. For example, if an examination period is set for 4 hours and not subscription messages are received within the 4-hour examination period, the subscription message redundancy monitor will not determine redundancy for the messages. An exemplary messaging scenario having a 4-hour examination period follows:

1. A subscription message is received at 8:00 a.m.
2. An examination period is set for 4 hours. Therefore, the examination period will expire at 12:00 p.m.
3. All subscription messages received between 8:00 a.m. and 12:00 p.m. will be compared to one another for redundancy.
4. At 12:00 p.m., the active examination period expires. None of the subscription messages received after 12:00 p.m. will be compared to the subscription messages received prior to 12:00 p.m.
5. A subscription message is received at 12:30 p.m.
6. A new examination period is set for 4 hours. Therefore, the examination period will expire at 4:30 p.m.

In an alternative embodiment, an examination time period may be set for monitoring newly received subscription messages and for comparing the messages to other subscription messages received within a previous time period equal to the examination time period.

In one embodiment using an examination time period, new subscription messages may be received and similarity equations (SEs) may be applied to each subscription message received during the examination time period. Similarity equations are used to determine the amount of content that messages must have in common to be identified as redundant. An exemplary messaging scenario using similarity equations follows:

1. Receive a first subscription message within the examination time period.
2. Receive a second subscription message within the examination time period.
3. Compare the second subscription message to the first subscription message for a redundancy determination.
4. Receive a third subscription message within the examination time period.
5. Compare the third subscription message to the first and second subscription messages for a redundancy determination.

In one example, a similarity comparison can include a content comparison of subscription messages. For example, a difference function can be executed on the text contained in a set of subscription messages. The difference return value may be set as a similarity value. For example, if the number of lines of text in the subscription messages with differences is 5, the subscription messages may be determined to contain substantially the same content.

In another example, a similarity comparison can include a comparison of links contained in subscription messages. For example, web links (e.g., URLs) with subscription messages may be compared. If it is determined that all of the web links are identical, the subscription messages may be considered to be redundant. The similarity value may be set as the percentage of links that are identical. For example, if 90% of the URLs contained in the body of two or more subscription

messages are identical, the subscription messages may be considered to contain the substantially the same content.

A subscription message redundancy monitor may apply redundancy rules for evaluating results generated by similarity equations. For example, redundancy rules may define tolerance levels for determining whether subscription messages are redundant. In the above example of the number of lines of text with differences being 5, redundancy rules may be applied that compare the number 5 to a threshold level number of text lines. In this example, the subscription messages may be determined to be redundant if the number of text lines with differences is less than a predetermined number 8. Thus, in this example, the subscription messages are considered redundant. In the above example of 90% of the URLs contained in the body of subscription messages being identical, it may be determined that the subscription messages are redundant based on a comparison of 90% to a threshold level percentage. In this example, if the 90% is greater than the threshold level percentage, the subscription messages are considered redundant.

Table 4 below shows exemplary entries of a content rules database according to an embodiment of the subject matter described herein.

TABLE 4

Content Rules Database

Rule Name	Value
Examination Time Period	4 hours
Link Comparison	95%
Full Text Comparison	Less than 8 lines different

In one example, the examination time period is four hours. In this example, the examination time period is the time period set for monitoring newly received subscription messages and for comparing the messages to other subscription messages received within a previous time period equal to the examination time period. In another example, the link comparison is the percentage links that must be identical in subscription messages for determining that the subscription messages are redundant. In this example, the percentage is 95%. In another example, the full text comparison is the number of lines in subscription messages that must be different for determining that the subscription messages are redundant. In this example, less than 8 lines in subscription messages must be different for determining that the subscription messages are redundant.

In one embodiment, a subscription name associated with an electronic subscription may be presented to a user in a prompt for indicating that a subscription message associated with the electronic subscription. For example, if a subscription message redundancy monitor determines that a subscription message is redundant, a subscription name associated with the subscription message may be displayed. For example, the subscription name column in Table 2 above includes a listing of exemplary subscription names that may be displayed to a user. In one example, the subscription name may be presented in a pop-up message, such as in a pop-up window. The subscription name may also be associated with an icon or button that may be selected by a user for unsubscribing to the electronic subscription. In another example, information regarding redundancy may be presented to a user via an e-mail message, SMS message, and/or other suitable type of electronic message.

In one embodiment, a user may be allowed to select one or more electronic subscriptions to unsubscribe from if subscription messages of the electronic subscriptions are determined to be redundant. The following is an exemplary pop-up notification message to a user that electronic subscription messages include redundant information.

The following subscriptions contain much of the same information. Would you like to unsubscribe from one of them?

Subscription Name	Unsubscribe (Check One)
Microsoft Security Newsletter	☐
Security Focus Newsletter	☐

A user may select one of the unsubscribe boxes for unsubscribing to the corresponding electronic subscription. After selection of one of the unsubscribe boxes, a message may be sent to an electronic message subscription source for unsubscribing the associated electronic subscription client. Further, the subscribe status for the electronic subscription can be set to unsubscribe.

In one embodiment, an electronic subscription client may be separate from an electronic subscription message monitor, an interaction monitor function, an unsubscribe function, and an electronic subscription database. The electronic subscription message monitor, the interaction monitor function, the unsubscribe function, and the electronic subscription database may be contained within an electronic subscription manager. The separation of the electronic subscription client may be advantageous, for example, for providing the services of the electronic subscription manager to a plurality of electronic subscription clients on a single electronic device. Another exemplary advantage is that the electronic subscription manager may be deployed on a standard operating system. FIG. **14** is a block diagram of an exemplary system **1400** for managing electronic subscriptions according to the subject matter described herein. System **1400** includes an electronic device **1402** including an electronic subscription client **1404** that is separate from an electronic subscription manager **1406**. Electronic subscription manager **1406** may include electronic subscription message monitor **112**, interaction monitor function **114**, unsubscribe function **116**, unsubscribe actions database **118**, and electronic subscription database **120**, each of which may include functionality as described herein. The same communications as described herein may occur between electronic subscription client **1404** and the components of subscription manager **1406**. An application program interface (API) may manage interoperability between electronic subscription client **1404** and electronic subscription manager **1406**.

In one embodiment, a user can be prompted to confirm that a subscription message is a confirmation of a new electronic subscription. FIG. **15** is a flow chart illustrating an exemplary process for use by system **100** shown in FIG. **1** for confirmation by a user of a new electronic subscription according to an embodiment of the subject matter described herein. The process of FIG. **15** includes blocks **300**, **302**, **304**, **306**, **308**, and **310**, **312** similar to the same blocks of FIGS. **3**A and **3**B. In this example, the process may proceed to process blocks similar to those shown in FIG. **3**A after implementing the process at block **312**.

The FIG. **15** process includes blocks **1500** and **1502**. In block **304**, if electronic subscription message monitor **112** determines that a subscription message is a confirmation of a

new electronic subscription, the new electronic subscription may be confirmed with the user (block **1400**). For example, a prompt may be presented to the user for confirming the new electronic subscription.

In block **1502**, electronic subscription message monitor **112** may determine whether the user confirms the new electronic subscription. For example, monitor **112** may detect input by the user for confirming the new electronic subscription. If it is determined that the user confirms the new electronic subscription, the process may proceed to block **306**. Otherwise, if is determined that the user does not confirm the new electronic subscription, the process may proceed to block **300**. Thus, block **1500** and **1502** provided for the confirmation of a new electronic subscription by a user.

In one embodiment, a user may identify a confirmation subscription message or subscription message content for an electronic subscription message monitor. In one example, a user may use a mouse for right clicking on an e-mail message. In response to the right click, a menu may be presented on a display including an item that may be selected for identifying the subscription message as being associated with an electronic subscription. Alternatively, a menu item may be selected for identifying a message as confirmation of an electronic subscription. Further, a user may identify content in a message for identifying the message as being associated with an electronic subscription. The identified content may be a keyword or text. The electronic subscription message monitor may be configured for recognizing the identified keyword or text for use in identifying other subscription messages associated with the electronic subscription.

In one embodiment, only grouped subscription messages may be compared to one another for determining redundancy. A user may configure a subscription message redundancy monitor to select only subscription messages meeting user defined criteria for a redundancy determination. In one example, subscription messages may be grouped together according to a group identifier. Exemplary group identifiers include information technology (IT) security, sports, and news

FIG. **16** is a flow chart illustrating an exemplary process for use by system **400** shown in FIG. **4** for grouping subscription messages to determine redundancy according to an embodiment of the subject matter described herein. The process of FIG. **16** includes blocks **300**, **302**, **304**, **306**, **308**, and **310**, **312** similar to the same blocks of FIGS. **3**A and **3**B. In this example, the process may proceed to process block similar to those shown in FIG. **3**B after implementing the process at block **312**.

The FIG. **16** process also includes blocks **1600** and **1602**. In block **1600**, electronic subscription message monitor **112** may determine whether the new subscription message should be assigned a group identifier. In one example, a user may configure monitor **112** to provide a prompt for the user to input a group identifier for new subscription messages. Further, in one example, monitor **112** may be configured to determine whether the new subscription message includes a group identifier defined by the user. If it is determined that the new subscription message should be assigned a group identifier, monitor **112** may prompt the user for a group identifier for the new subscription message. In one example, the user may input a group identifier for the new subscription message after examining the message. The group identifier may be stored in electronic subscription database **120**. Subscription messages may only be compared to other subscription messages in the same group for the purpose of determining redundancy.

A record in an electronic subscription database may include a group identifier for grouping subscription messages for redundancy determinations. Table 5 below shows exemplary records of an electronic subscription database according to the subject matter described herein.

TABLE 5

Electronic Subscription Database

Subscription Name	Group ID	Source	Subscription Status	Unique Identifier	Date Initialized	MR	MAU	Viewing Frequency
Microsoft Security Newsletter	2	mssecnews@security.focus.com	Active	MS Security Newsletter	May 23, 2006	1	0	N/A
Linux Security Newsletter	2	linuxsecnews@securityfocus.com	Active	Linux Security Newsletter	Aug. 02, 2004	50	45	90%
ESPN	1	espnnews@espn.com	Active	ESPN news	Dec. 22, 2005	23	23	100%

In Table 5, the ESPN® sports news subscription is the only member of group identifier 1. Subscription messages from the ESPN subscription may be associated with group identifier 1 by including the phrase "ESPN news". Further, the Microsoft Security Newsletter and Linux Security Newsletter subscriptions are grouped together by group identifier 2. Subscription messages from the MICROSOFT® Security Newsletter and Linux Security Newsletter subscriptions may be associated with group identifier 2 by including the phrases "MS Security Newsletter" and "Linux Security Newsletter," respectively.

In one embodiment, an unsubscribe function may prompt a user to prescribe an unsubscribe action. The user may be prompted if the unsubscribe function cannot determine an unsubscribe action autonomously. FIG. **17** is a flow chart illustrating an exemplary process for use by system **100** shown in FIG. **1** for prompting a user to prescribe an unsubscribe action according to an embodiment of the subject matter described herein. Referring to block **1700**, unsubscribe function **116** may determine whether it can identify an unsubscribe action for unsubscribing from an electronic subscription. If unsubscribe function **116** can identify an unsubscribe action, the process may proceed to block **308**. Otherwise, if unsubscribe function **116** cannot identify an unsubscribe action, unsubscribe function **116** may prompt the user to prescribe an unsubscribe action (block **1702**). In response to the prompt, the user may enter an unsubscribe action. Unsubscribe function **116** may store the unsubscribe action in unsubscribe actions database **118** and associate it with the electronic subscription.

In one embodiment, an unsubscribe function may present unsubscribe notification and steps for an unsubscribe action if unsubscribe actions cannot be generated by the unsubscribe function or a user, or unsubscribe actions are not stored. The user may manually implement the presented unsubscribe actions for unsubscribing to an electronic subscription. FIG. **18** is a flow chart illustrating an exemplary process for use by system **100** shown in FIG. **1** for presenting unsubscribe action steps to a user according to an embodiment of the subject matter described herein. Referring to block **1800**, unsubscribe function **116** may determine whether unsubscribe is automated. If it is determined that unsubscribe is not automated, the process may proceed to block **318**. Otherwise, if it is determined that unsubscribe is not automated, unsubscribe function **116** may present unsubscribe notification and steps for an unsubscribe action (block **1802**). The user may implement the unsubscribe action steps for unsubscribing from the electronic subscription.

In one embodiment, an unsubscribe function may provide for a user to confirm unsubscribe and to reset monitoring. FIG. **19** is a flow chart illustrating an exemplary process for use by system **100** shown in FIG. **1** for confirming unsubscribing to an electronic subscription and for resetting monitoring of the electronic subscription according to an embodiment of the subject matter described herein. Referring to block **1900**, unsubscribe function **116** may receive user input for confirming an unsubscribe action for an electronic subscription. If the user input is to unsubscribe, unsubscribe function **116** may implement unsubscribe actions for unsubscribing from the electronic subscription (block **1902**). If the user input is not to unsubscribe, unsubscribe function **116** may prompt a user about whether to reset subscription monitoring (block **1904**). If it is determined that reset is confirmed (block **1906**), the process may proceed to block **300**. Otherwise, if it is determined that reset is not confirmed, the user may be prompted to set the subscribe status (block **1908**). Unsubscribe function **116** may receive the subscribe status indicated by user input and set the subscribe status for the electronic subscription. Next, the process may proceed to block **322**.

It will be understood that various details of the subject matter described herein may be changed without departing from the scope of the subject matter described herein. Furthermore, the foregoing description is for the purpose of illustration only, and not for the purpose of limitation, as the subject matter described herein is defined by the claims as set forth hereinafter.

What is claimed is:

1. A method for managing electronic subscriptions, the method comprising:

monitoring, at an electronic subscription client, receipt of one or more subscription messages associated with an electronic subscription;

monitoring interaction with the electronic subscription client by a user to determine a viewing frequency of the one or more received subscription messages; and

presenting, based on the determined viewing frequency, a prompt with a control configured for unsubscribing the user from receiving a future subscription message associated with the electronic subscription.

2. The method of claim **1** wherein monitoring receipt of one or more subscription messages includes monitoring receipt of one or more subscription messages at an electronic subscription client comprising one of an e-mail client, a real simple syndication (RSS)-based client, a media-based client, a photoshare client, and a personalized web page subscription client.

3. The method of claim **1** wherein monitoring interaction with the electronic subscription client by a user includes comparing the viewing frequency of the one or more received subscription messages to a viewing frequency threshold, and wherein presenting a prompt with a control includes presenting the prompt with the control based on the comparison of the viewing frequency to the viewing frequency threshold.

4. The method of claim **1** wherein monitoring interaction with the electronic subscription client by a user includes determining a number of the received subscription messages, and determining a number of the received subscription messages acted upon by the user and wherein presenting a prompt with the control includes presenting a prompt with a control based on a relationship between the number of received subscription messages and the number of received subscription messages acted upon by the user.

5. The method of claim **1** comprising determining a process for unsubscribing the user from receiving the future subscription message associated with the electronic subscription.

6. The method of claim **5** wherein determining a process for unsubscribing includes identifying unsubscribe information in the one or more subscription messages, and wherein the method further comprises configuring the control for unsubscribing the user from receiving the future subscription message based on the unsubscribe information.

7. The method of claim **5** wherein determining a process for unsubscribing includes determining one of an address, a uniform resource identifier (URI), and a link associated, With the electronic subscription, and wherein the method further comprises configuring the control to unsubscribe the user from receiving the future subscription message by at least one of accessing a resource and sending a message using the address, the URI, or the link.

8. The method of claim **5** wherein determining a process for unsubscribing includes identifying text in the one or more subscription messages indicating information for unsubscribing.

9. The method of claim **8** wherein identifying text includes identifying at least one of subscribe, mailing list, and unsubscribe.

10. The method of claim **5** wherein determining a process for unsubscribing includes determining a URI in an RSS reading list associated with the electronic subscription, and wherein the method further comprises configuring the control to remove the URI from the RSS reading list.

11. The method of claim **1** comprising unsubscribing the user from receiving the future subscription message associated with the electronic subscription in response to receiving an input responsive to the prompt.

12. A system for managing electronic subscriptions, the system comprising:

a processor;

a memory;

an electronic subscription message monitor configured to monitor, at an electronic subscription client, receipt of one or more subscription messages associated with an electronic subscription;

an interaction monitor configured to monitor interaction with the electronic subscription client by a user to determine a viewing frequency of the one or more received subscription messages; and

an unsubscribe function configured to present, based on the determined viewing frequency, a prompt with a control configured for unsubscribing the user from receiving a future subscription message associated with the electronic subscription.

13. The system of claim **12** wherein the electronic subscription message monitor is configured to monitor receipt of one or more subscription messages at an electronic subscription client comprising one of an e-mail client, a real simple syndication (RSS)-based client, a media-based client, a photoshare client, and a personalized web page subscription client.

14. The system of claim **12** wherein the interaction monitor is configured to compare the viewing frequency of the one or more received subscription messages to a viewing frequency threshold, and wherein the unsubscribe function is configured to present the prompt with the control based on the comparison of the viewing frequency to the viewing frequency threshold.

15. The system of claim **12** wherein the interaction monitor is configured to determine a number of the received subscription messages, and configured to determine a number of the received subscription messages acted upon by the user, and wherein the unsubscribe function is configured to present a prompt with a control based on a relationship between the number of received subscription messages and the number of received subscription messages acted upon by the user.

16. The system of claim **12** wherein the unsubscribe function is configured to determine a process for unsubscribing the user from receiving the future subscription message associated with the electronic subscription.

17. The system of claim **16** wherein the unsubscribe function is configured to identify unsubscribe information in the one or more subscription messages, and wherein the unsubscribe function is configured to configure the control for unsubscribing the user from receiving the future subscription message based on the unsubscribe information.

18. The system of claim **16** wherein the unsubscribe function is configured to determine one of an address, a uniform resource identifier (URI), and a link associated with the electronic subscription, and wherein the unsubscribe function is configured to configure the control to unsubscribe the user from receiving the future subscription message by at least one of accessing a resource and sending a message using the address, the URI, or the link.

19. The system of claim **16** wherein the unsubscribe function is configured to identify text in the one or more subscription messages indicating information for unsubscribing.

20. The system of claim **19** wherein the unsubscribe function is configured to identify at least one of subscribe, mailing list, and unsubscribe.

21. The system of claim **16** wherein the unsubscribe function is configured to determine a URI in an RSS reading list associated with the electronic subscription, and wherein the unsubscribe function is configured to configure the control to remove the URI from the RSS reading list.

22. The system of claim **12** wherein the unsubscribe function is configured to unsubscribe the user from receiving the future subscription message associated with the electronic subscription in response to receiving an input responsive to the prompt.

23. A hardware computer program product comprising computer executable instructions embodied in a computer readable medium for performing steps comprising: monitoring, at an electronic subscription client, receipt of one or more subscription messages associated with an electronic subscription; monitoring interaction with the electronic subscription client by a user to determine a viewing frequency of the one or more received subscription messages; and presenting, based on the determined viewing frequency, a prompt with a control configured for unsubscribing the user from receiving a future subscription message associated with the electronic subscription.

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UNITED STATES PATENT AND TRADEMARK OFFICE

CERTIFICATE OF CORRECTION

PATENT NO. : 7,831,707 B2
APPLICATION NO. : 11/497819
DATED : November 9, 2010
INVENTOR(S) : Jeffrey S Bardsley

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

In the Claims, Column 24, line 28, please replace, "associated, With" with --associated with--

Signed and Sealed this
Twenty-eighth Day of December, 2010

David J. Kappos

David J. Kappos
Director of the United States Patent and Trademark Office