US 20140208391A1

(19) United States

(12) Patent Application Publication

Farnsworth et al.

(10) Pub. No.: US 2014/0208391 A1

(43) Pub. Date: Jul. 24, 2014

(54) SYSTEM FOR MULTI-POINT PUBLICATION SYNDICATION

(71) Applicant: **PROLIFIQ SOFTWARE INC.**, Beaverton, OR (US)

(72) Inventors: **Jeffrey Michael Farnsworth**, Portland, OR (US); **Isabella Wong**, Bellevue, WA (US); **Anh Huynh**, Tigard, OR (US); **Hemingway Huynh**, Salem, OR (US)

(73) Assignee: **Prolifiq Software Inc.**, Beaverton, OR (US)

(21) Appl. No.: **13/841,982**

(22) Filed: **Mar. 15, 2013**

Related U.S. Application Data

(60) Provisional application No. 61/755,428, filed on Jan. 22, 2013.

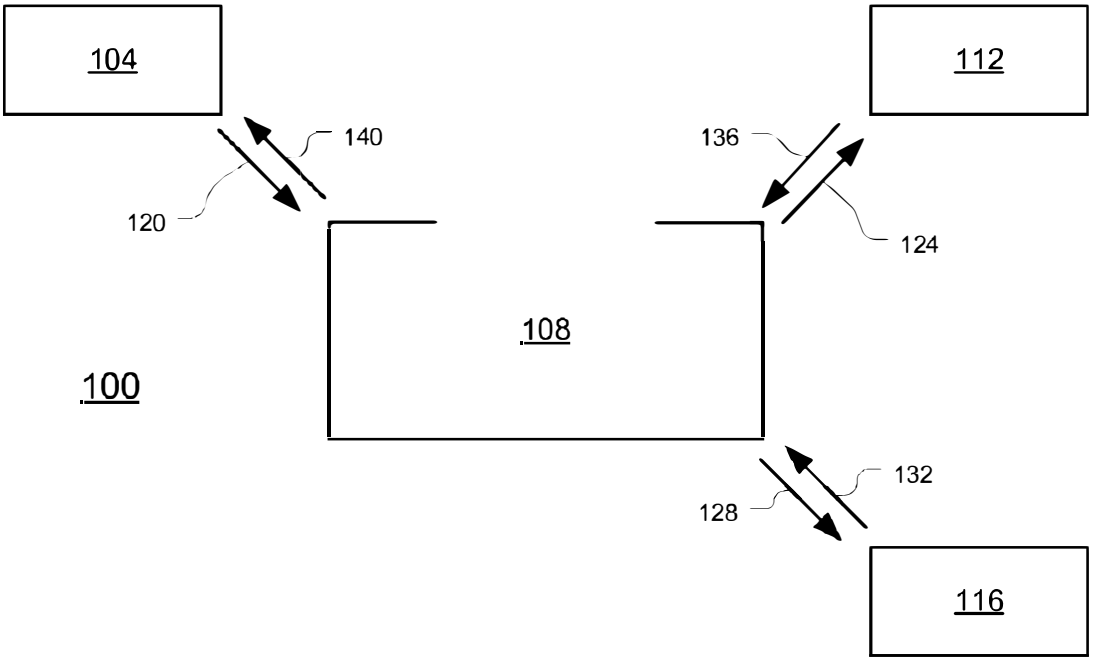
Publication Classification

(51) **Int. Cl.**
H04L 29/06 (2006.01)

(52) **U.S. Cl.**
CPC *H04L 63/10* (2013.01)
USPC **726/4**

(57) **ABSTRACT**

Embodiments of methods, systems and storage media associated with publication of message content may be described. In embodiments, a content creator may provide content to a message management node. Based on application of one or more business rules, one or more authorized recipients of the message content may be identified, and the message content may be provided to the one or more recipients. In various embodiments, the message content may be reviewed by one or more approvers prior to publication. The message content may not be provided to the authorized recipients without approval from the approvers. Other embodiments may be described and claimed.



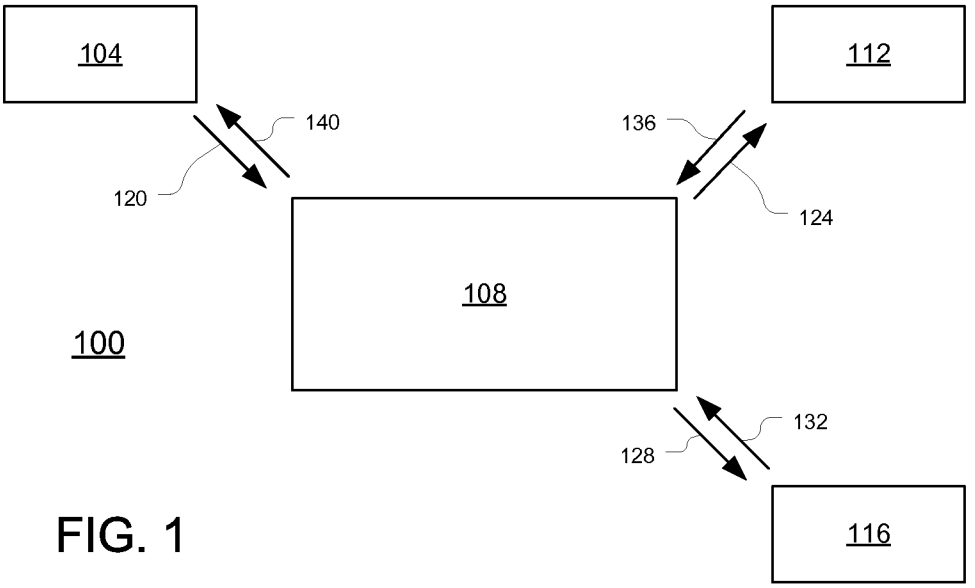

104
112
140
136
120
124
108
100
132
128
116

FIG. 1

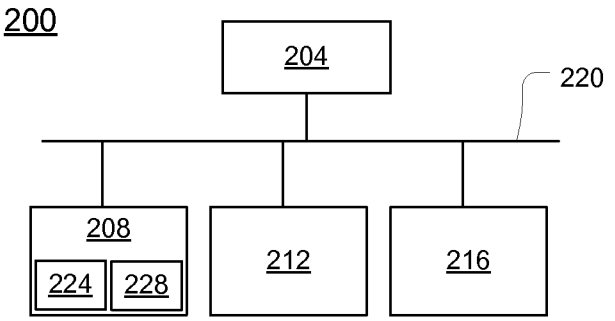

200
204
220
208
224
228
212
216

FIG. 2

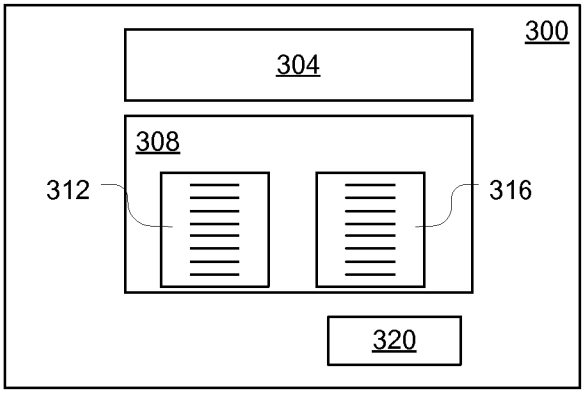


FIG. 3

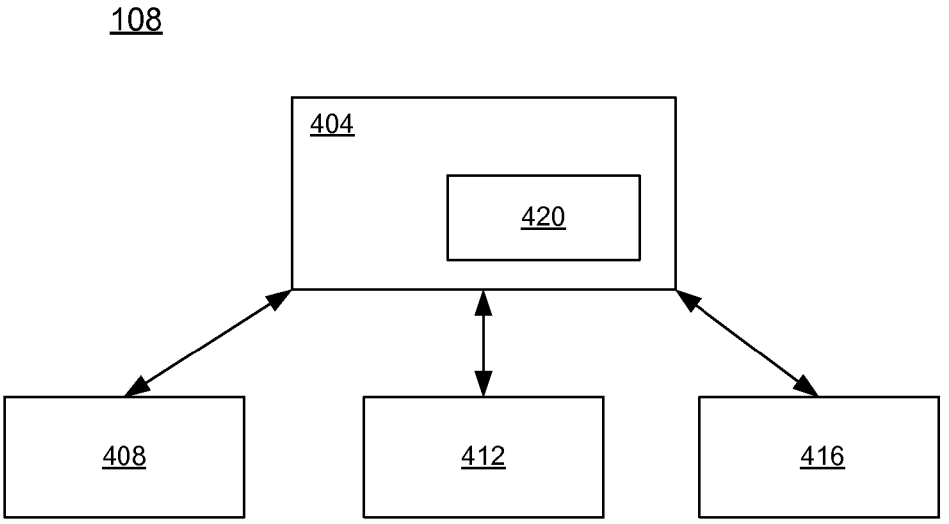


FIG. 4

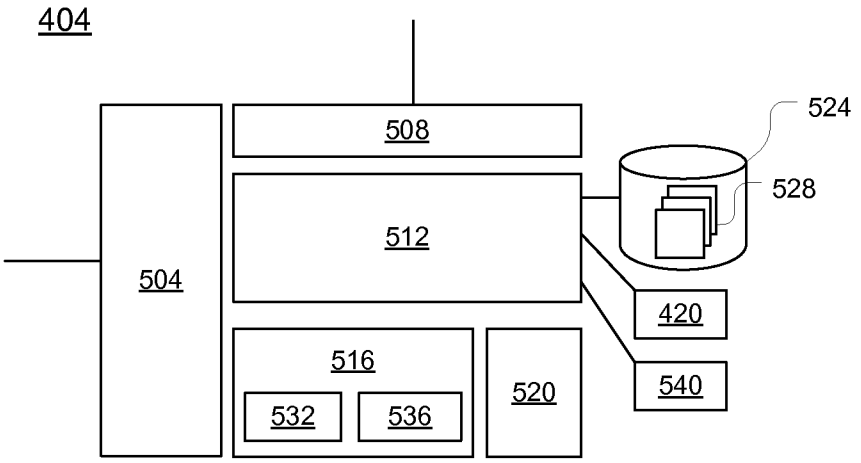

404
508
512
504
516
532
536
520
524
528
420
540

FIG. 5

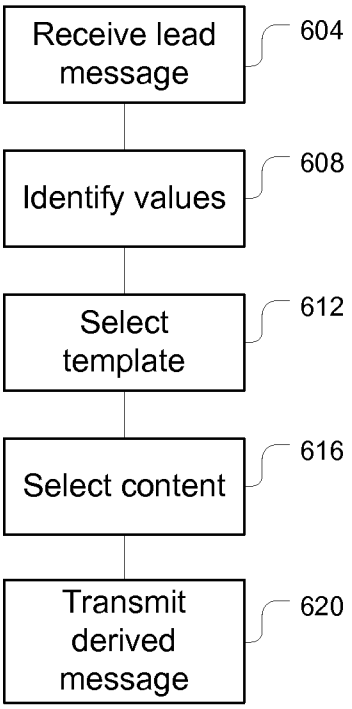

Receive lead message
604
Identify values
608
Select template
612
Select content
616
Transmit derived message
620

FIG. 6

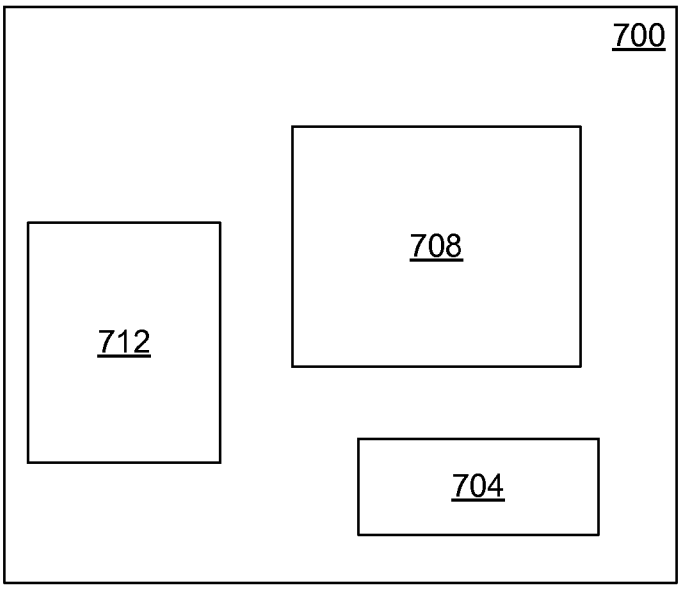


FIG. 7

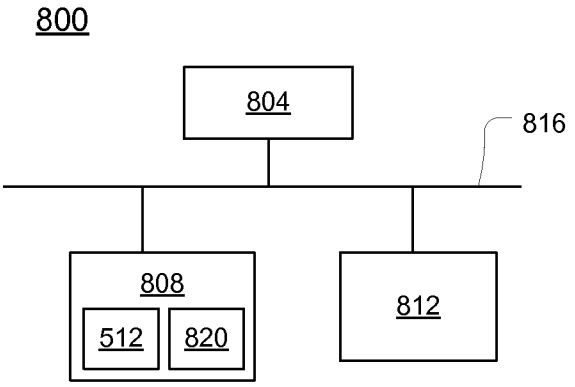


FIG. 8

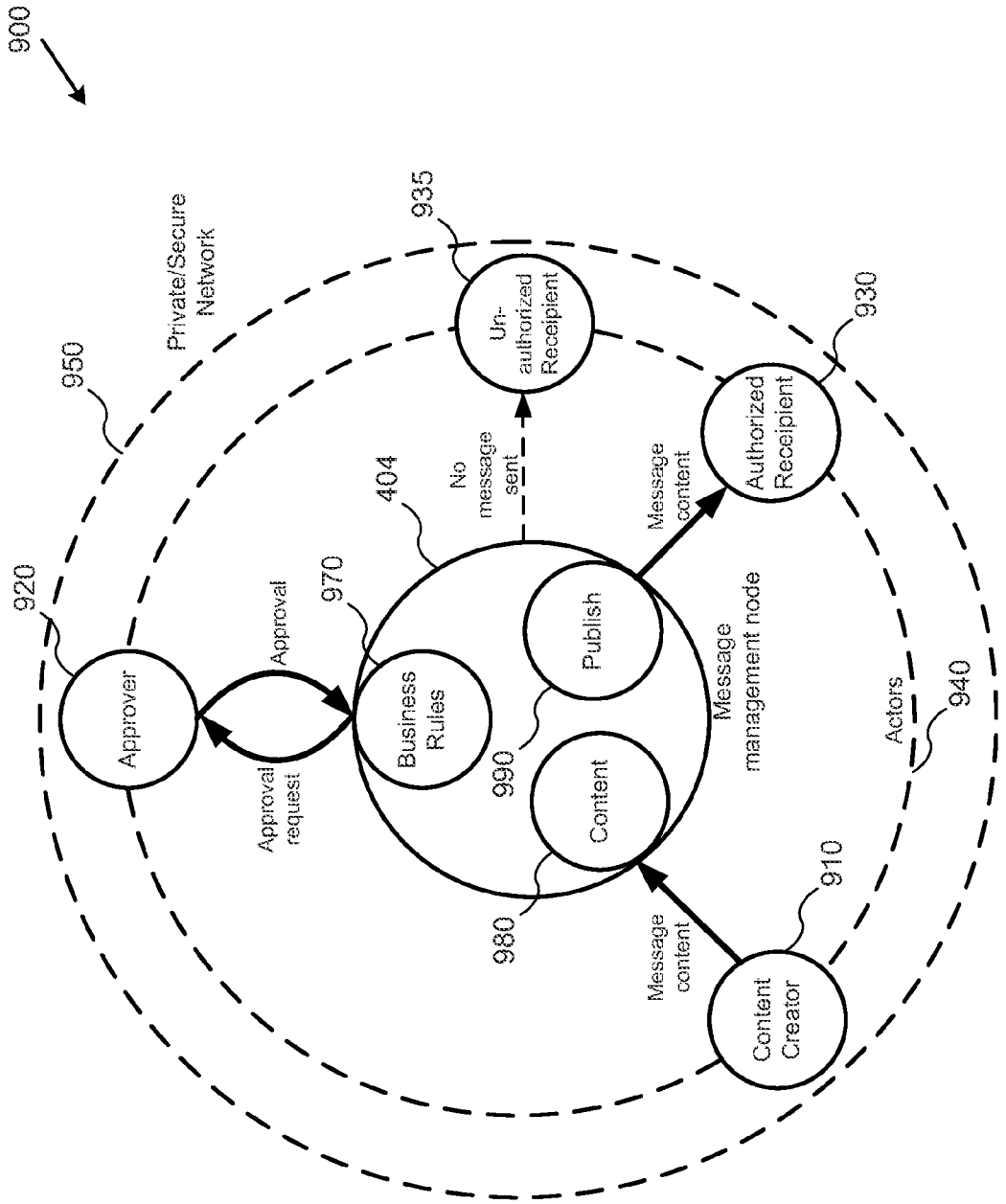

900
Private/Secure Network
950
920
Approver
Approval
Approval request
970
Business Rules
404
No message sent
935
Un-authorized Receipient
Publish
990
Content
980
Message management node
Message content
Authorized Receipient
930
Message content
Content Creator
910
Actors
940

Fig. 9

Fig. 10

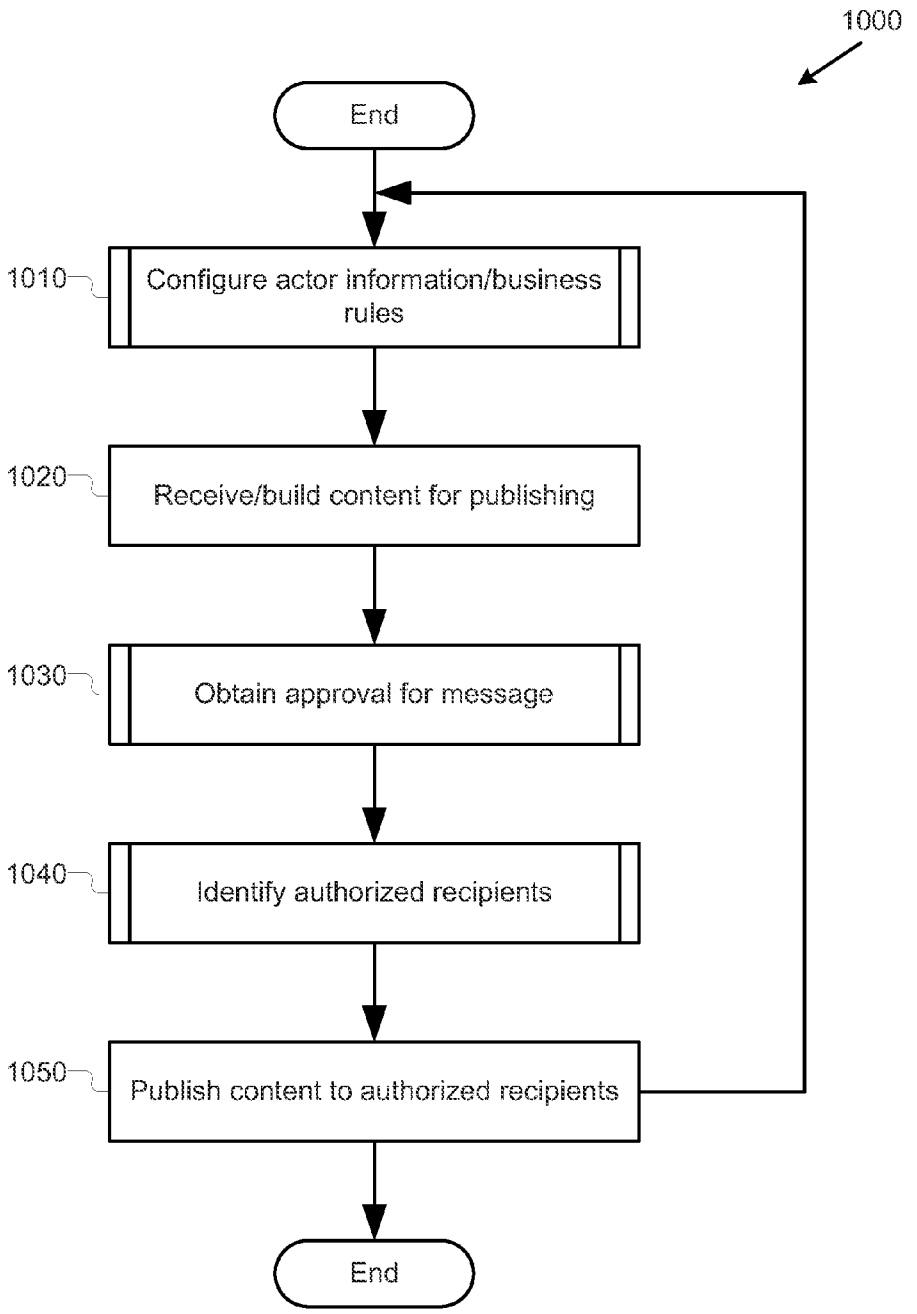

1000
End
1010
Configure actor information/business rules
1020
Receive/build content for publishing
1030
Obtain approval for message
1040
Identify authorized recipients
1050
Publish content to authorized recipients
End

Fig. 11

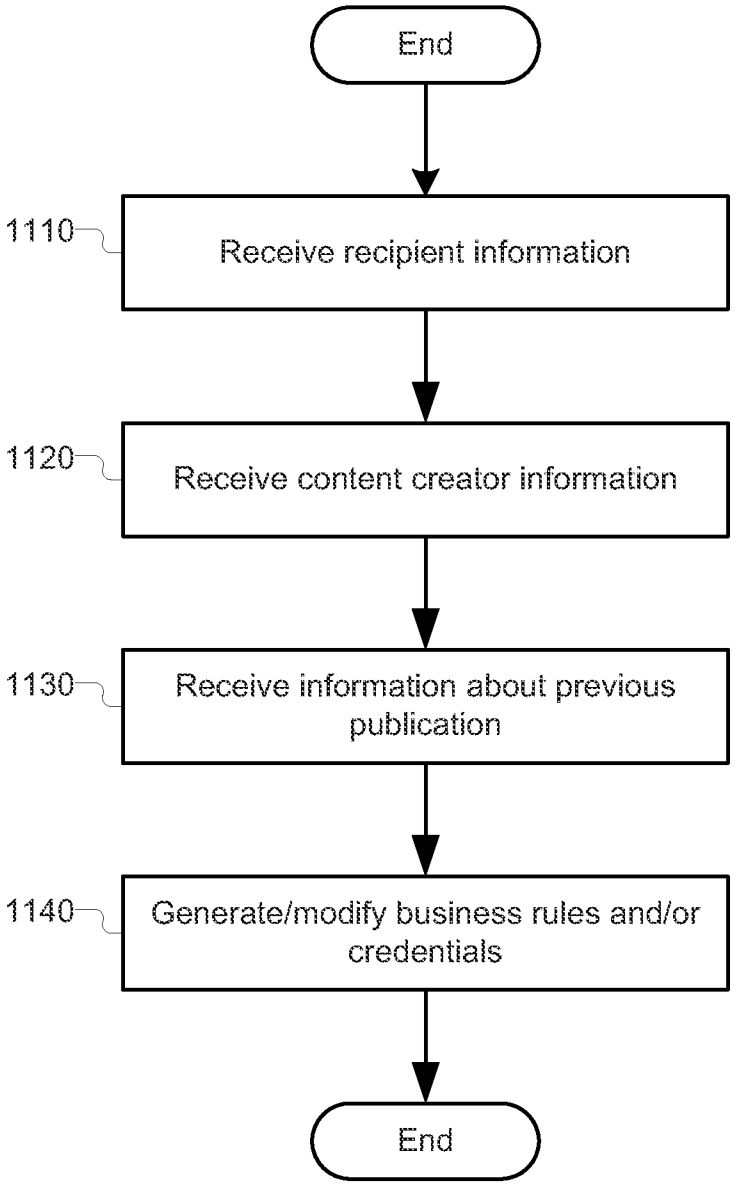

End
1110
Receive recipient information
1120
Receive content creator information
1130
Receive information about previous publication
1140
Generate/modify business rules and/or credentials
End

Fig. 12

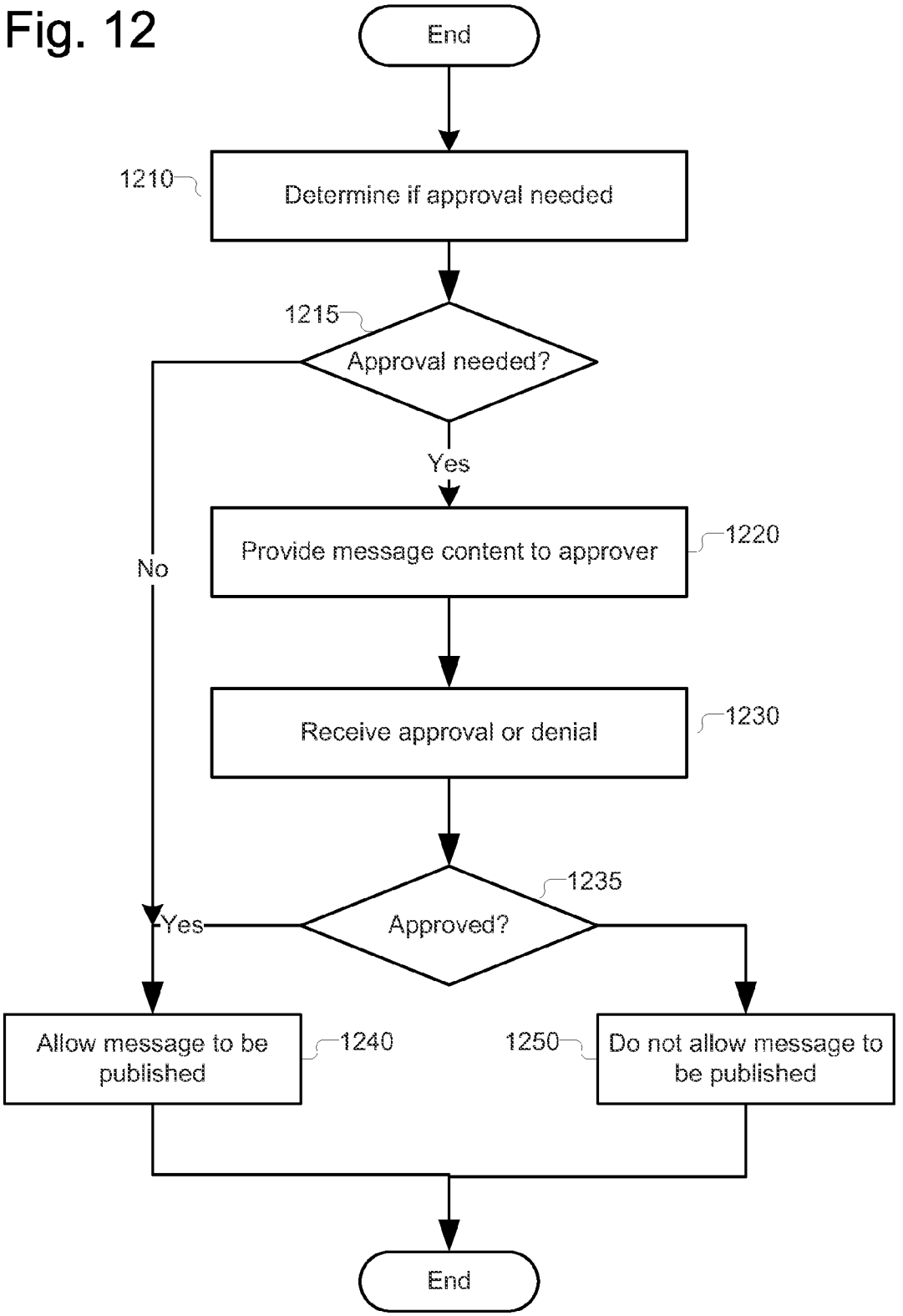
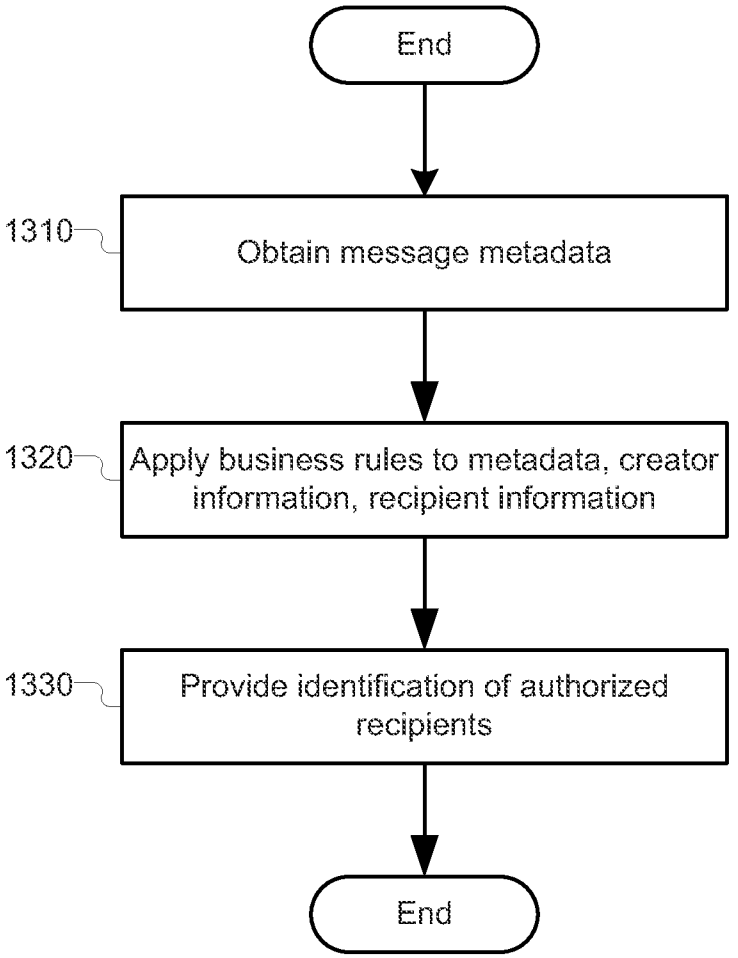

End
1210
Determine if approval needed
1215
Approval needed?
Yes
No
Provide message content to approver
1220
Receive approval or denial
1230
1235
Approved?
Yes
Allow message to be published
1240
1250
Do not allow message to be published
End

Fig. 13


End
1310
Obtain message metadata
1320
Apply business rules to metadata, creator information, recipient information
1330
Provide identification of authorized recipients
End

SYSTEM FOR MULTI-POINT PUBLICATION SYNDICATION

RELATED APPLICATIONS

[0001] This application claims the benefit of U.S. Provisional Patent Application No. 61/755,428, filed Jan. 22, 2013, which is hereby incorporated by reference in its entirety. This patent application also hereby incorporates the following applications by reference in their entirety: U.S. patent application Ser. No. 11/296,587, filed Dec. 6, 2005; U.S. patent application Ser. No. 10/976,057, filed Oct. 27, 2004; U.S. patent application Ser. No. 10/611,698, filed Jun. 30, 2003; U.S. Provisional Pat. App. No. 60/633,832, filed Dec. 6, 2004; and U.S. Provisional Pat. App. No. 60/393,176 filed on Jul. 1, 2002.

FIELD

[0002] This present invention is directed to the field of electronic messaging, and in particular to management and distribution of electronic messages.

BACKGROUND

[0003] Electronic communications provide a powerful means of communicating content to a targeted audience. Traditional efforts utilizing electronic communications involve a user assembling content and distributing content to selected recipients. While this may provide an effective strategy in many circumstances, it requires significant computational resources to provide access and control of the content to be incorporated into the message, as well as human resources to direct the creation of the message.

BRIEF DESCRIPTION OF THE DRAWINGS

[0004] Embodiments are illustrated by way of example and not by way of limitation in the figures of the accompanying drawings, in which the like references indicate similar elements and in which:

[0005] FIG. **1** illustrates a network within which a message management service may be employed in accordance with various embodiments;

[0006] FIG. **2** illustrates a computer system generally suitable for use as a sending device in accordance with various embodiments;

[0007] FIG. **3** illustrates an example of a user interface in accordance with various embodiments;

[0008] FIG. **4** illustrates a message manage in accordance with various embodiments;

[0009] FIG. **5** illustrates a message management node in accordance with various embodiments;

[0010] FIG. **6** illustrates an operation of a message management service in accordance with various embodiments;

[0011] FIG. **7** illustrates a message template in accordance with various embodiments;

[0012] FIG. **8** illustrates a computer system generally suitable for implementing message creation component in accordance with various embodiments;

[0013] FIG. **9** illustrates example interactions between entities of a multi-point publication system in accordance with various embodiments;

[0014] FIG. **10** illustrates an example process for publishing message content with approval and/or recipient control in accordance with various embodiments;

[0015] FIG. **11** illustrates an example process for configuring actor information and business rules for the multi-point publication system in accordance with various embodiments;

[0016] FIG. **12** illustrates an example process for obtaining message approval using the multi-point publication system in accordance with various embodiments;

[0017] FIG. **13** illustrates an example process for identifying authorized recipients using the multi-point publication system in accordance with various embodiments;

DETAILED DESCRIPTION

[0018] In the description to follow, various aspects of the present invention will be described, and specific configurations will be set forth. However, embodiments of the present invention may be practiced with only some or all aspects, and/or without some of these specific details. In other instances, well-known features may be omitted or simplified in order not to obscure the description.

[0019] The description will be presented in terms of operations performed by a processor based device, using terms such as receiving, transmitting, determining, identifying, displaying and the like, consistent with the manner commonly employed by those skilled in the art to convey the substance of their work to others skilled in the art. As is well understood by those skilled in the art, the quantities take the form of electrical, magnetic, or optical signals capable of being stored, transferred, combined, and otherwise manipulated through mechanical, electrical and/or optical components of the processor based device.

[0020] Various operations will be described as multiple discrete steps in turn, in a manner that is most helpful in understanding embodiment of the present invention; however, the order of description should not be construed as to imply that these operations are necessarily order dependent. In particular, these operations need not be performed in the order of presentation.

[0021] The description repeatedly uses the phrase "in one embodiment", which does not necessarily refer to the same embodiment, although it may. Furthermore, the terms "comprising", "including", "having", and the like, as used in the present application, are synonymous.

[0022] The phrase "A and/or B" means "(A), (B), or (A and B)." The phrase "at least one of A, B, and C" means "(A), (B), (C), (A and B), (A and C), (B and C), or (A, B, and C)."

[0023] In accordance with embodiments of the present invention, message management services may be provided for generating and transmitting electronic messages having digital content items to one or more designated recipients at the receipt of a message construct. Additionally, embodiments of the present invention may provide for the adaptation of the form and/or content of the electronic message based on capabilities and/or preferences associated with the message recipient.

[0024] FIG. **1** illustrates a network **100** within which a message management service (MMS) may be employed in accordance with an embodiment of the present invention may be practiced. In this embodiment, a sending device **104** may be communicatively coupled to a message manager **108**, which may, in turn, be communicatively coupled to a receiving device **112** and a third-party device **116**, as shown. In various embodiments, these elements may be coupled to one another through one or more communication networks, including both wired and wireless communication links, ranging from local networks to one or more global intercon-

nected networks such as the publicly-switched telephone network (PSTN), Internet or World Wide Web.

[0025] The sending device **104** may transmit an electronic message, e.g., message construct **120**, to the message manager **108**, including construct information for construction and/or delivery of an electronic message to a recipient. The construct information may include recipient information, e.g., information about a recipient associated with the receiving device **112** and/or requested content information, e.g., information that is directly and/or indirectly related to content that the recipient is, or may be, interested in. As used herein, content that the recipient is, or may be, interested in may be also be referred to as "requested content." It may be noted that requested content need not be explicitly requested by the recipient in all embodiments. Requested content information directly related to the requested content could include, e.g., a request for information on a particular product and/or service (hereinafter collectively referred to as "core content"). Requested content information indirectly related to requested content could include, e.g., information on recipient's occupation, interests, hobbies, work address, home address, timeframe for making a purchase of products/services, etc. (hereinafter collectively referred to a "peripheral content"). In one embodiment, the message manager **108** may derive the requested content, in whole or in part, from this peripheral content.

[0026] Briefly, the message manager **108** may receive the message construct **120** from the sending device **104**, including identification of the recipient and requested content information, and generate an electronic message **124** according to a message generation specification. The message generation specification may direct the generation of the electronic message **124** through providing associations between requested content information, received from the sending device **104**, and message templates and content controlled and accessible by the message manager **108**, to be described in further detail below. As used herein the electronic message **124** may also be referred to as derived message **124** as its formation is at least partly derived from the message construct **120**.

[0027] In various embodiments, the content may include any number of digital content elements such as, but not limited to, text, data, image, audio, video, web, executable elements and the like. Digital content elements may also refer to links or other user interface controls designed to enable recipients to obtain further information about a message, to forward the message to another recipient, to request to not receive similar messages in the future, and so forth.

[0028] As used herein electronic messages, including the derived message **124**, may be of a variety of message types including but not limited to a text message, a multimedia message, an electronic mail (e-mail), a file (either coupled to one of the earlier described message types or transferred independently), e.g., a extensible markup language (XML) file, and the like delivered over appropriate channel delivery services including but not limited to simple messaging service (SMS), multimedia messaging service (MMS), the Internet and the like. Electronic messages may be delivered according to a variety of message transfer protocols including but not limited to transmission control protocol/Internet protocol (TCP/IP), simple mail transfer protocol (SMTP), hypertext transfer protocol (HTTP), Global System for Mobile Communications (GSM), file transfer protocol (FTP), and protocols directed toward communication of markup language files ((e.g., XML) such as, simple object access protocol (SOAP), XML-remote procedure call (RPC), Global XML Web Services Architecture (GXA), Representational State Transfer (REST), and the like. As used herein, the particular message type and corresponding services, protocols, structures, etc. to communicate that particular message type from one device to another over the network may be referred to as a delivery channel.

[0029] The device **104**, message manager **108**, device **112**, and/or device **116** may include user-devices and/or server devices such as a host server equipped with the device, or communicatively coupled thereto, to facilitate creation and/or transmission of the various electronic messages. For example, in an embodiment a host server may be a mail server designed to deliver and/or receive e-mail. Such a mail server may be a hardware based device or a software service that executes on the sending device **104**, message manager **108**, receiving device **112**, and/or third-party device **116**.

[0030] Sending device **104**, message manager **108**, receiving device **112**, and third-party device **116** may each represent a broad range of digital systems known in the art, including but not limited to devices such as wireless mobile phones, palm sized personal digital assistants, notebook computers, desktop computers, servers, set-top boxes, game consoles and the like.

[0031] Following creation of the derived message **124**, the message manager **108** may then forward it to the receiving device **112** via a selected delivery channel. In various embodiments, the message manager **108** may also generate and transmit a notification message **128** to a third-party device **116** to, e.g., notify an interested party of selected details of the transaction including, but not limited to, information on the sender, the receiver, the requested content information, and/or the one or more digital content elements provided in the derived message. This third-party notification may, for example, provide a local sales representative with information that a prospective customer has inquired about one or more products and/or services.

[0032] In one embodiment, a message manager **108** may delay the transmission of the derived message **124** pending indication from a third-party user that the derived message **124** should be sent. Such an indication could be a reply or specified interaction with the notification message **128**. This may provide notice to the third-party user prior to actual transmission of the derived message **124**. This pre-notification, coupled with the inclusion of content related to the third-party user, e.g., a digital business card, may provide the perception, to the recipient, that the third-party user has generated the derived message, with little actual effort expended on behalf of the third-party user.

[0033] In an embodiment, various acknowledgement messages, e.g., messages **132**, **136**, and **140**, may be transmitted to communicate various activities such as, but not limited to, receipt and/or read activities.

[0034] Embodiments of the present invention may provide teachings to leverage a relatively simple message construct **120** into a potentially more sophisticated derived message **124** delivering content in a manner that may be tailored to aspects of the receiving environment. Transmission of the message construct **120** may be accomplished without the need for significant processing power, bandwidth, memory, and/or authoring involvement at the sending device **104** that would otherwise be necessary for control of all aspects of the message construction. Thus, embodiments of the present

invention present the option of employing thin-client devices for the sending device **104**; however, embodiments are not so limited.

[0035] FIG. **2** illustrates a computer system **200** generally suitable for use as sending device **104** in accordance with an embodiment of the present invention. In this embodiment, the system **200** may include a processor **204**, memory **208**, input/output device(s) **212**, and a networking interface **216**, coupled to each other via a communication bus **220**. During operation, memory **208** may store working copies of an operating system (OS) **224** and message construct component (MCC) **228**, which may include an implementation of an application programming interface (API), in a volatile storage element; while a non-volatile storage element may be used for persistent storage of the OS **224** and MCC **228**. The implementation of the API may be based on an XML-processing model such as, but not limited to, a document object model (DOM), a simple API for XML (SAX), an ECMAScript for XML E4X, etc.

[0036] In various embodiments, the memory **208** may include a variety of storage mediums such as, but not limited to, volatile memory, e.g., random access memory (RAM), dynamic RAM (DRAM), static RAM (SRAM), and the like; non-volatile memory, e.g., read-only memory (ROM), electrically erasable-programmable ROM (EEPROM), Flash, and the like; and removable memory, e.g., compact disk (CD); digital versatile disk (DVD), Flash, and the like.

[0037] In an embodiment a persistent copy of the MCC **228** may be downloaded from a distribution server through a data network, installed in the factory, or in the field. For field installation, the persistent copy may be distributed using one or more articles of manufacture such as diskettes, CDROM, DVD, Flash and the like, having a recordable medium including but not limited to magnetic, optical, and other mediums of the like.

[0038] In various embodiments the processor **204** may include one or more of a microprocessor (having one or more processing cores), a controller, an application specific integrated circuit, and the like. The processor **204** may perform the function of executing programming instructions of OS **224** and MCC **228** to enable the operations of the various elements as described herein.

[0039] In various embodiments the input/output device(s) **212** may include a display device including but not limited to a CRT and an active or passive matrix LCD display, to output a user interface, the creation of which may be controlled by instructions of the MCC **228**. The input/output device(s) **212** may also include input mechanisms including but not limited to: a mouse; a touch pad; a track ball; a keyboard; a bar-code scanner; a Bluetooth transceiver; an infrared transceiver; radio-frequency identification transceiver, and the like to facilitate user input into the system **200**.

[0040] Lastly, in various embodiments the networking interface **216** may represent a wireless network interface, an integrated services digital network (ISDN) adapter, a digital subscriber line (DSL) interface, an Ethernet or Token ring network interface, and the like.

[0041] FIG. **3** illustrates an example of a user interface **300** suitable for output on display of sending device **104** in accordance with an embodiment of the present invention. The user interface **300** may include a recipient information field **304** and a requested content information field **308**, values for which may be input by an operator using one or more input devices such as those described above. The recipient information field **308** may receive an electronic address, e.g., an e-mail address, a phone number, etc., of the recipient. In another embodiment, the recipient information field **308** may include a unique identifier of the recipient, which may be linked with an electronic address of the recipient at the message manager **108**.

[0042] The requested content information field **308** may provide a user with a selection of core-content candidates **312**. The core-content candidates **312** may be selected from a list of, for example, products and/or services, for which the message manager **108** may have access to the associated content. The core-content candidates **312** may be presented to the user in a variety of ways such as, but not limited to, a check-the-box selection or through a pull-down menu.

[0043] In an embodiment, the requested content information field **308** may additionally/alternatively provide for peripheral content queries **316** directed to solicit information on peripheral content that may be of relevance. In some embodiments, the peripheral content queries **316** may be dependent upon which of the core-content candidates **312** is selected.

[0044] In some embodiments, the MCC **228** may query the message manager **108** for population of the requested content information field **308**, including, for example, the current core-content candidates **312**. The requested content information field **308** may be customized based at least in part on user credentials, device configuration, and/or device operational capabilities. For example, in accordance with an embodiment of the present invention, the message manager **108** may populate the requested content information field **308** based upon an identification of the operational capabilities of the sending device **104**. For example, traditional wireless devices, such as mobile phones and personal digital assistants, may be equipped with less powerful hardware (including displays, processors, and memory) and software components than their wireline counterparts. Therefore, if the sending device **104** is identified as such a device it may be advantageous to adapt the requested content information field **308** to account for such potential limitations. This may be done, for example, by providing a reduced set of peripheral content queries **316**. On the other hand, in an embodiment where the sending device **104** has significant resources, e.g., is a desktop computing device, the set of peripheral content queries **316** may be more comprehensive. The identification of the operational capabilities of the sending device **104** may be done through, e.g., association with user credentials, transmission of capability information from the sending device **104** to the message manager **108** at a handshake operation, resulting from a query, an unprompted transmission, etc.

[0045] Once, the appropriate information has been added to the appropriate fields, the user may transmit the message construct **120** to the message manager **108** using a send function **320**. The activation of the send function **320** may cause the MCC **228** to create a file including the values given for the various fields, which may be transmitted as the message construct **120**. In some embodiments, the file created by the MCC **228** may be, but is not limited to, a general purpose markup language, e.g., ASN.1 (Abstract Syntax Notation One), EBML, XML, YAML, etc.

[0046] While the illustrated embodiment shows the core-content candidates **312** and the peripheral content queries **316** depicted side-by-side on the same screen, other embodiments, may provide a series of screenshots including the various fields.

[0047] FIG. **4** illustrates the message manager **108** in accordance with an embodiment of the present invention. The message manager **108** may include a message management node **404** communicatively coupled to an administration console **408**, integration resources **412**, and a message tracker **416**. The message management node **404** may include a message creation specification **420** for directing creation of the derived message **124**.

[0048] The administration console **408** may provide authoring services for an authorized administrator. The authoring services may include services to facilitate creation and/or editing of the message creation specification **420**, locally stored content, rules, and other administrative tasks. Additionally, the authoring services may provide a message-template editing environment through which an administrator may compose/edit message templates including, for example, format definitions and/or content definitions for one or more of the cells within the template. In one embodiment, the authoring services may provide graphical or text-based tools.

[0049] In some embodiments, if the appropriate digital content to be associated with the requested content information may not be locally accessible, the message management node **404** may cooperate with integration resources **412** in order to acquire such content. In various embodiments, the integration resources **412** may include, for example, external content management systems, database management systems, etc.

[0050] The message tracker **416** may include a database to track various activities and/or events. These activities and/or events could include information on the sender, the recipient, the message construct **120**, the derived message **124**, acknowledgement message **136**, which may include information on recipient interaction with derived message **124**, for example, which digital content elements are activated by recipient, etc. In some embodiments, a message record of these activities and/or events may be transmitted notification message **128**.

[0051] FIG. **5** illustrates the message management node **404** in more detail in accordance with an embodiment of the present embodiment. The message management node **404** may include an interface component **504**, a delivery component **508**, a message creation component **512**, a content component **516**, and a rules component **520**.

[0052] As used herein, the term 'component' is intended to refer to programming logic that may be employed to obtain a desired outcome. The term component may be synonymous with 'module' and may refer to programming logic that may be embodied in hardware or firmware, or in a collection of software instructions, possibly having entry and exit points, written in a programming language, such as, for example, C++. In various embodiments, components may be co-located in the same device, e.g., a server, may be located in a device dedicated to the particular component's function, or may distributed over a collection of devices cooperatively interacting to obtain the outcome described.

[0053] A software component may be compiled and linked into an executable program, or installed in a dynamic link library, or may be written in an interpretive language such as BASIC. It will be appreciated that software components may be callable from other components/modules or from themselves, and/or may be invoked in response to detected events or interrupts. Software instructions may be embedded in firmware, such as an EEPROM or may be stored on a readable medium such as a magnetic or optical storage device. It will be further appreciated that hardware components may be comprised of connected logic units, such as gates and flip-flops, and/or may be comprised of programmable units, such as programmable gate arrays or processors. In one embodiment, the components described herein are implemented as software modules, but nonetheless may be represented in hardware or firmware. Furthermore, although only a given number of discrete software/hardware components may be illustrated and/or described, such components may nonetheless be represented by additional components or fewer components without departing from the spirit and scope of embodiments of the invention.

[0054] Interaction of the components of the message manager **108** may now be described with additional reference to operational phases illustrated in FIG. **6** in accordance with an embodiment of the present invention. Operational phases may be referenced by numerals in parentheses. In an embodiment, an operation may begin by the interface component **504** receiving the message construct **120** (**604**). The interface component **504** may be any type of interface to facilitate reception/transmission of electronic messages over a network from/to networked devices, e.g., devices **104**, **112**, and **116**. The interface component **504** may support various application interfaces for message composition and delivery triggers, as well as reporting interfaces. The interface component **504** may include an implementation of an API having a common set of definitions as the MCC **228**, described above, to facilitate interpretation of the message construct **120**. In various embodiments, the interface component **504** may be compatible with a variety of web services protocols including, but not limited to, those directed toward communication of markup language files.

[0055] The message creation component **512** may receive the message construct **120**, or portions thereof, from the interface component **504**. The message creation component **512** may identify the values of the message construct **120** (**608**) and may operate to generate the derived message **124** according to the message creation specification **420**. To generate the derived message **124** the message creation component **512** may access a message template database **524**, having a plurality of message template candidates **528** stored therein, in order to select a message template that is suitable for delivery of the digital content element deemed to satisfy the requested content information (**612**).

[0056] In the generation of the derived message **124**, the message creation component **512** may also select the delivery channel, which may influence the selection of the message template and/or the digital content. In some embodiments, the selection of the delivery channel may be determined through rules provided by rules component **520** and/or through the message creation specification **420**. Furthermore, embodiments of the present invention may allow for the dynamic determination of the delivery channel based upon network conditions (e.g., available bandwidth in alternative communication links), device capabilities, device preferences, etc. This may be further incorporated with teachings of the message adaptation operations below.

[0057] The message creation component **512** may also activate the content by accessing the content component **516** to select the one or more digital content elements (**616**). The content component **516** may include a document repository **532** having, e.g., text and/or binary elements, a media repository **536** having, e.g., audio and/or video elements, suitable to provide accessible storage of the various types of digital

content elements. As discussed above, if the digital content associated with the requested content information value is not found in the content component **516**, it may be accessed through integration resources **412**.

[0058] In various embodiments, the message creation component **512** may link and/or embed the selected digital content elements with the selected message template. During formation of the derived message **124**, digital content elements may be linked to the message template or may be embedded within message template through techniques such as object linking and embedding (OLE), or the use of uniform resource identifiers (URIs) or uniform resource locators (URLs) for example. Other methods of linking and/or embedding digital content elements to a message template may similarly be employed without departing from the spirit and scope of the embodiments of the present invention.

[0059] In some embodiments, the message creation component **512** may also generate the derived message **124** with reference to a message adaptation specification **540** to provide a flexible and extensible adaptation of the derived message **124** for delivery to the intended recipient.

[0060] In one embodiment, message adaptation specification **540** may include a message layer definition to define alternative presentations or layers for a given derivative electronic message, where each presentation may represent a different combination of digital content element candidates. In one embodiment, the derived message **124** may include one or more content cells that may be adapted to include a version of one or more digital content elements selected from the digital content element candidates **528** as may be appropriate for a given message presentation. As such, it may be possible to generate an electronic message that may be adapted to take advantage of particular configurations and/or preferences.

[0061] In one embodiment, message adaptation specification **540** may be device-specific or user-specific. For example, message adaptation specification **540** may indicate one or more operational capabilities of one or more devices, such as receiving device **112** associated with the intended recipient. Such operational capabilities may include multimedia presentation capabilities of a device, content rendering capabilities of a device, data throughput/bandwidth capabilities of a device, and may identify whether a device is configured as a wireless device or traditional, non-wireless or wireline device, and so forth. Additionally, message adaptation specification **540** may further represent user-specific (or company/entity-specific) preferences such as a message filtering level indicating, e.g., a preferred message delivery policy with respect to one or more recipients. In one embodiment, message adaptation specification **540** may represent a collection of user-specific or device-specific message adaptation specifications that may be selectively employed based upon identification of an intended recipient of the derived message **124**.

[0062] In embodiments utilizing adaptive configuration of the derived message **124**, the delivery component **508** may cooperate with the message creation component **512** to dynamically determine the capabilities and/or preferences of a recipient and/or receiving device **112** through execution of one or more client-side or server-side components or scripts. Accordingly, a recipient may receive the derived message **124** including one or more scripts or components, or links to one or more remotely located scripts or components, which when executed, may determine various capabilities of the receiving device **112** and request supplemental digital content elements accordingly. Alternatively, device capabilities may be predetermined and stored e.g., in the rules component **520**, for access via a lookup table, file, or database by message adaptation specification **540**. As such, electronic messages may be remotely adapted with one or more content element candidates prior to transmission of the message to a recipient. Of course, electronic message adaptation may be conditioned on other factors besides device capabilities.

[0063] In some embodiments, the derived message **124** may be dynamically adapted after transmission to the receiving device **112**. For example, the derived message **124** may be transmitted with alternatively versioned content element candidates **528** programmed to respond by activating the appropriate version based on capabilities/preferences at the receiving device **112**.

[0064] In some embodiments, the base electronic message may include an initial content layer, to which client-side scripts and recipient-specific customization information may be added through the adaptation process. The added client-side scripts may perform such functions as: reporting on the opening of the email message; reporting on the activation of digital content elements; testing the digital content capabilities of the receiving device **112**; selecting the most appropriate layer of the derived message **124** to be exposed to the user based upon the results of the tests; and supplementing (including possibly replacing) the contents of the derived message **124** with those of the selected layer.

[0065] While FIG. **6** illustrates the message creation specification **420** and the message adaptation specification **540** as two separate entities, in other embodiments they may be integrated.

[0066] Adaptive configuration of the derived message **124** may be based on the teachings of the above mentioned, and fully incorporated, U.S. patent application No. 60/393,176, Ser. Nos. 10/611,698, and/or 10/976,057.

[0067] Upon creation of the derived message **124**, the message creation component **512** may cooperate with a delivery component **508** to transmit the derived message **124** to the receiving device **112** (**620**).

[0068] In some embodiments, the rules component **520** may maintain and manage business rules associated with the composition and delivery of the derived message **124** and/or the notification message **128**. These rules may be created manually through, e.g., the administration console **408**, or automatically based on, e.g., message delivery and performance. In various embodiments, the rules component **520** may ensure that messages comply with legal statutes and/or corporate branding policies; may facilitate the maintenance of privacy of sender data, recipient data, and/or content; may ensure appropriate deliverability, e.g., through execution of spam-filter analysis before the derived message **124** is transmitted. The rules component **520** may additionally/alternatively provide rules adapted to ensure that the derived message **124** contains proper content based on sender identification, sender locale, recipient domain, date, etc. In various embodiments, some/all of these rule-check operations may be incorporated within the message creation specification **420**. Additionally, in various embodiments, the message creation specification **420** may be more directly coupled to the rules component **520**, rather than to the message creation component **512**.

[0069] FIG. **7** illustrates a message template **700** in accordance with an embodiment of the present invention. The

message template **700** may have cells **704**, **708**, and **712**, each associated with a digital content element, or a type of digital content elements. In various embodiments, the cell selection and arrangement of the message template **700** may be customized based on a variety of factors including, for example, requested content, the recipient, the seller, date, channel delivery, etc. For example, the cell **704** may be associated with an image file of certain dimensions. In an embodiment, the sender's credentials may be associated with rules to provide a digital business card identifying the seller and may, therefore, utilize the cell **704** for an image of the sender's business card. However, a sender of another embodiment may have rules associated that do not provide for this particular item of personalization and therefore, cell **704** may be deactivated or used for another content element.

[0070] In some embodiments, the cells may be customized based at least in part on operational capabilities and/or preferences at the receiving device **112**. For example, in an embodiment, the cell **708** may be suitable for delivery of video element while the cell **712** may be suitable for an image element. If, in an embodiment, it is determined that the receiving device **112** is not to receive video messages, the cell **708** may be deactivated and a like-topic, but differently versioned, content element may alternatively be displayed in cell **712**.

[0071] In various embodiments, a variety of customization options relating to the message templates may be employed.

[0072] FIG. **8** illustrates a computer system **800** generally suitable for implementing message creation component **512** in accordance with an embodiment of the present invention. In this embodiment, the system **800** may include a processor **804**, memory **808**, and a networking interface **812**, coupled to each other via a communication bus **816**. During operation, memory **808** may store working copies of an OS **820** and message creation component **512** in a volatile storage element; while a non-volatile storage element may be used for persistent storage of the OS **820** and message creation component **512**.

[0073] In various embodiments the processor **804** may be, for example, a microprocessor (having one or more processing cores), a controller, an application specific integrated circuit, and the like. The processor **804** may perform the function of executing programming instructions of OS **820** and the message creation component **512** to enable the operations of the various elements as described herein.

[0074] In various embodiments, the memory **808** may include a variety of storage mediums such as, but not limited to, volatile memory, e.g., RAM, DRAM, SRAM, and the like; non-volatile memory, e.g., ROM, EEPROM, Flash, and the like; and removable memory, e.g., CD; DVD, Flash, and the like.

[0075] Lastly, in various embodiments, networking interface **812** may represent a wireless network interface, an ISDN adapter, a DSL interface, an Ethernet or Token ring network interface, and the like.

[0076] In various embodiments, the message management node **404**, and in particular the delivery component **508** and rules component **520** may be configured to provide for fine-grained control over delivery of one or more messages. FIG. **9** is block diagram that illustrates examples of interactions between various actors in a private secure network to provide message content to one or more recipients using various features of the message management node to provide for targeted content delivery as well as the ability to check and approve messages prior to delivery. It may be recognized that, while various activities described herein are described as being performed by the "message management node," in various embodiments, different components of the message management node and/or separate entities may perform the techniques described herein.

[0077] In various embodiments, the various interactions described herein may take place in a private and/or secure network, such as network **100** described herein. In various embodiments, network security may be provided via various means, including, but not limited to, virtual private networks, encryption of wireless network communication, encryption of messages use of wired networks, and/or authentication of one or more actors involved in message activities such as message creation, publication, provision, delivery, and/or receipt. Security may additionally be provided, in various embodiments, through permission-based provisioning of message content. In various embodiments, as illustrated, various actors, such as content creators, approvers, and recipients, may interact through the message management node to create, publish, approve, and/or receive message content. In various embodiments, the actors may interact with the message management node through various computing devices, including, but not limited to desktop and laptop computers, portable and mobile devices including tablets and mobile phones. As discussed above, the interactions between these devices and the message management node may be performed through various interfaces, such as provided by the interface component **504**.

[0078] In various embodiments, client applications may provide secure interfaces to various actors, such as recipients, content creators, and approvers. In various embodiments, to communicate with a secure network, an actor operation may include presentation of an access token to the network along with the requested operation's processing instructions. In various embodiments, an application may generate an access token on behalf of an actor, such as based on the actor's provided credentials. These credentials may include a username/password, and/or other credentials signifying a trusted integration with identity management systems. In various embodiments, operations to a network may be performed over an encrypted channel (such, as for example, SSL). In various embodiments, an operation may be digitally signed with a private key associated with an access token; this digital signature may help ensure contents are not been tampered with in transport. In various embodiments, an access token may provide authentication for an actor to the network. In various embodiments, a network may enforce authorization over the requested operation based on factors such as, but not limited to, actor identity and/or the requested operation's contents (such as, but not limited to: content, recipient, business rules etc.).

[0079] In various embodiments, the message management node **404** may be configured to provide for delivery of messages based on one or more business rules. Thus, in various embodiments, the message management node **404** may be configured to determine, based on various information, one or more recipients for a message based on the business rules. In various embodiments, these business rules may be applied to information about the a content creator of the message, the message itself, and/or various recipients to determine which, if any recipients may receive a message. Particular embodiments of application of the business rules to direct delivery of messages is described herein.

[0080] FIG. **9** illustrates example interactions between various entities associated with a multi-point publication system **900** in accordance with various embodiments. In various embodiments, the multi-point publication system **900** may include various modules, such as content module(s) **980**, business rules **970**, and/or publish module(s) **990**, which may interact with various actors **940** in a private and/or secure network **950**, as described herein. In various embodiments, a content creator **910** may provide message content to one or more content modules **980** of the message management node **404**, such as through the techniques described above. Examples of the provision and creation of message content may be described above. In various embodiments, the content creator may provide this message content with or without reference to particular recipients. In various embodiments, the message management node may determine particular authorized recipients **930** which are authorized to receive the message content. In various embodiments, the determination of which recipients are authorized to receive a message may be determined substantially contemporaneously with receipt of the message content. In various embodiments, business rules **970** may be configured to determine that an authorized recipient **930** is authorized based on recipient and or message content information, such as recipient preferences or legal, security, and/or privacy restrictions on the ability of the recipient to receive the particular message content. In various embodiments, the identification of authorized recipients **930** may take place in response to receipt of message content or may take place after authorization of message content, as described herein.

[0081] Thus, as illustrated in FIG. **9**, the provided message content may be published by one or more publish modules **990** to an authorized recipient **930**, while the message content may not be provided to an unauthorized recipient **935**. In various embodiments, authorized recipients **930** may be identified by reference to credentials that may be created for various recipients, such as through application of one or more business rules. In various embodiments, the publishing of the message content to authorized recipients **930** may be performed without explicit request for the message content from the authorized recipient **930**. Thus, the content creator **910** may be facilitated in "pushing" the message content to one or more authorized recipients **930**, such as based on the business rules **970**.

[0082] In addition to targeted publication of message content, message content may be subject to approval before publication. Thus, for example, message content may be sent to one or more approvers **920** for approval prior to publishing the message content to an authorized recipient **930**. In various embodiments, the approver **920** may approve (or deny) the publication of the message content separately from application of any business rules **970** that may identify authorized recipients **930**. In various embodiments, a content creator **910** may be determined to be authorized or not authorized to send particular message content, based on approval by one or more approvers **920**, applications of business rules **970**, or both.

[0083] FIG. **10** is a flowchart that illustrates examples various embodiments of a process **1000** for publishing message content with approval and/or recipient control. While FIG. **10** illustrates a particular order of particular operations, in various embodiments, operations of FIG. **10** may be reordered, broken into additional operations, and/or omitted entirely. The process may begin at operation **1010** where the message management node **404** may configure actor information and/or business rules to use during subsequent receipt and publishing of message content. Particular examples of this operation are discussed below with reference to FIG. **11**.

[0084] Next, at operation **1020**, the message management node **404** may receive message content. In various embodiments, the message content may be received in complete form. In alternative embodiments, the message content may be generated, in whole or in part, using the message management node **404**, such as using message creation techniques/content modules **980** described above. In some embodiments, messages that include, in whole or in part, the received message content may be generated. In some embodiments, generation of messages may be postponed, in whole or in part, such that message generation may be made with reference to one or more authorized receivers. Next, at operation **1030** the message management node **404** may obtain approval for the message. Particular examples of this operation are discussed below with reference to FIG. **12**.

[0085] After approval is obtained, then at operation **1040** the message management node **404** may identify one or more authorized recipients **930** for the message content. In various embodiments, the identification of authorized recipients **930** may be performed based on an audience rule or other business rule **970**. Particular examples of this operation are discussed below with reference to FIG. **13**. Once the authorized recipients **930** have been identified, at operation **1050** the message management node **404** may publish the message content to the previously-identified authorized recipients **930**. In various embodiments, publication of message content may include various types of publishing, including the sending of emails, text messages, images, and/or other content directly to authorized recipients. In various embodiments, the message content may be published in an adaptive configuration. In yet other embodiments publication of message content may include providing a publicly-available facility for authorized recipients to access message content, such as through a website or other electronic means. In various embodiments, when an authorized recipient **930** seeks to access message content after publication, the message management mode **404**, or other entity, may confirm authorization of the recipient before providing message content; this authorization may be confirmed whether the message content is delivered directly to the authorized recipient **930** or is published at a publicly-available facility. In various embodiments, the message content may be modified, reduced, and/or augmented by the message management node **404** and/or other entity, based at least in part on the identity of a requesting recipient and/or that requesting recipient's credentials.

[0086] In various embodiments, after publication of the message content, the process may repeat, such as by returning to operation **1010**. For example, new actor information may be received and/or business rules may be created or modified based on previous publication of message content. In some embodiments, however, the process may then end.

[0087] FIG. **11** is a flowchart that illustrates examples of various embodiments of a process for configuring actor information and business rules for the multi-point publication system. While FIG. **11** illustrates a particular order of particular operations, in various embodiments, operations of FIG. **11** may be reordered, broken into additional operations, and/or omitted entirely. The process may begin at operation **1110** where the message management node may receive recipient information for one or more message recipients to use to determine which recipients may be authorized to

receive message content. In various embodiments, this information may include recipient demographic information, recipient preferences (such as message type, length, content, reading level, etc.), message receipt history, message read history, and/or other information. In some embodiments, the recipient information may include information confirming the recipient's ability to receive certain types of restricted message content. Thus, for example, the message management node may receive recipient authentication information, security information, legal information, etc.

[0088] Next, at operation **1120** the message management node may receive content creator information to be used to determine authorized recipients. In various embodiments, the content creator information may include content creator identity information, general message content type information, security information, legal information, etc. Next, at operation **1130** the message management node may then receive information about previous publication. For example, if content creators and/or recipients have provided feedback on previously-published message content, such information may be received at this operation and then used to generate or modify business rules. In another example, if publication of message content to a particular recipient has failed (either once or above a pre-set threshold) then at this information that information be received to allow business rules to be configured to make it less likely that additional message content will be published to that recipient.

[0089] Next, at operation **1140** business rules and/or credentials may be generated and/or modified to identify, for message content, which recipients may be authorized to receive the information. In various embodiments, the message management node itself may perform generation and/or modification of one or more business rules. For example, the message management node may generate and/or modify business rules based on security, legal, or privacy information previously received that requires a recipient to have proper authorization to receive restricted message content. In another example, the message management node may generate a business rule that prevents users from receive message content that is specific to a particular geographic area if they do not reside in that area. In various embodiments, the message management node may also create credentials for one or more recipients. These credentials may serve to identify message content that the recipients are authorized to view. As such, the credentials may identify types of message content, message content subject matter, content creator identity, geographical information, etc. from which it can be determined for specific message content, whether the recipient is authorized to receive the content.

[0090] In various embodiments, the message management node may provide a facility for a user of the message management node to generate and/or modify one or more business rules and/or credentials, either in lieu of or in addition to business rules and/or credentials that may be generated by the message management node. In various embodiments, the message management node may be configured to display or otherwise provide recipient and/or content creator information to a user to facilitate generation and/or modification of business rules and/or credentials. After generation and/or modification of the business rules and/or credentials, the process may then end.

[0091] FIG. **12** is a flowchart that illustrates examples various embodiments of a process **1200** for obtaining message approval using the multi-point publication system. While FIG. **12** illustrates a particular order of particular operations, in various embodiments, operations of FIG. **12** may be reordered, broken into additional operations, and/or omitted entirely. The process may begin at operation **1210** where the message management node may determine whether the received message content needs approval. In some embodiments, this determination may be performed based on the message content itself, such as by analysis of textual or image content, message content type, message size, etc. In other embodiments, the message management node may determine if approval is needed based on an identity of the content creator and/or an identity of one or more suggested recipients. In yet other embodiments, all or substantially all message content may be determined to need approval. If approval is not needed at decision operation **1215**, then the process may proceed to allow the message to be published.

[0092] If, however, approval is needed at decision operation **1215**, then the process may continue to operation **1220** where the message management node may provide the message content to the approver actor. In various embodiments, the message management node **404** may send or otherwise publish the message content to the approver **920**. In other embodiments, the message management node **404** may provide an interface for the approver **920** to visit and view the message content, such as via a web-based interface and/or other interfaces described herein. In various embodiments, the message management node **404** may also provide a notification to the approver **920** to facilitate the approver's review of the message content. In various embodiments the interface may also facilitate the approver **920** in editing the message content before approving it. In various embodiments, the message management node **404** may provide the message content to a plurality of approvers **920**. For example, message content may be sent through a cascade or sequence of multiple approvers. Thus, a message may be approved by a first approver **920** before being sent to a second approver **920**, etc. In various embodiments, an approver at a particular place in the sequence may not be requested to provide approval until approval has been obtained at previous places in the sequence. In another example, message content may be provided in parallel to multiple approvers, and approval may be obtained if a pre-determined number of the approvers **920** approve the message content. In various embodiments, one or more approvers **920** may approve based on message content, content creator identity, or both.

[0093] Next, at operation **1230** the message management node **404** may receive an approval or denial from the approver **920**. The approval or denial may be provided via various processes in various embodiments, and may including the sending of a separate message by the approver and/or indication in an interface as to whether the message content is approved or denied. If at decision operation **1235** the approver **920** has approved the message content, then at operation **1240** the message management node **404** may allow the message content to be published. If not, then at operation **1250** the message management node **404** may not allow the message content to be published. The process may then end.

[0094] FIG. **13** is a flowchart that illustrates examples various embodiments of a process **1300** for identifying authorized recipients using the multi-point publication system. While FIG. **13** illustrates a particular order of particular operations, in various embodiments, operations of FIG. **13** may be reordered, broken into additional operations, and/or

omitted entirely. The process may begin at operation **1310** where the message management node may obtain message metadata from the message content. In various embodiments, the message metadata may include, but is not limited to: keywords, message type, message size, message structure, image data, etc. Next, the at operation **1320** message management node may apply the previously generated and/or modified business rules to the message metadata, received content creator information, and/or received recipient information to identify one or more recipients who should be authorized to receive the information. Next, at operation **1330** the message management node may provide identification of the authorized recipients. This identification may then be used to publish the message content, such as in the process of FIG. **10**. The process may then end.

[0095] Although specific embodiments have been illustrated and described herein, it will be appreciated by those of ordinary skill in the art that a wide variety of alternate and/or equivalent implementations calculated to achieve the same purposes may be substituted for the specific embodiment shown. This application is intended to cover any adaptations or variations of the embodiments discussed herein.

What is claimed is:

1. A computer-implemented method for distributing content, the method comprising:

receiving, by a computing device, message content;

determining, by the computing device, one or more authorized recipients to receive the message content based at least in part on applying one or more business rules to the message content; and

facilitating, by the computing device, delivery of the message content to the one or more authorized recipients.

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

providing, by the computing device, the message content to one or more approvers; and

in response to receiving approval from the one or more approvers, performing, by the computing device, said determining one or more authorized recipients and facilitating delivery of the message content.

3. The method of claim **2**, wherein:

providing the message content to one or more approvers comprises providing the message content to one or more approvers in a sequence; and

receiving approval comprises receiving approval from all approvers in the sequence.

4. The method of claim **2**, wherein:

providing the message content to one or more approvers comprises providing the message content to one or more approvers in parallel; and

receiving approval comprises receiving approval from a pre-determined number of the one or more approvers.

5. The method of claim **1**, wherein determining one or more authorized recipients comprises determining one or more authorized recipients based on one or more keywords and/or subject matter in the message content.

6. The method of claim **1**, wherein:

the message content is received from a content creator; and

determining one or more authorized recipients comprises determining recipients based on the identity of the content creator.

7. The method of claim **1**, wherein determining one or more authorized recipients comprises determining one or more authorized recipients based one or more security authorizations of the one or more authorized recipients.

8. The method of claim **1**, wherein determining one or more authorized recipients comprises determining one or more recipients that have requested the message content.

9. The method of claim **1**, wherein facilitating delivery of the message content to the one or more authorized recipients comprises delivering a message to the one or more authorized recipients.

10. The method of claim **9**, wherein the message is configured to confirm authentication of the authorized recipient before the message may be consumed.

11. The method of claim **1**, wherein facilitating delivery of the message content to the one or more authorized recipients comprises providing a publicly-available facility for consuming the message content.

12. One or more computer-readable storage media comprising instructions configured, in response to executions of the instructions by a computing device, to cause the computing device to:

receive message content;

determine one or more authorized recipients to receive the message content based at least in part on applying one or more business rules to the message content; and

facilitate delivery of the message content to the one or more authorized recipients.

13. The computer-readable storage media of claim **12**, wherein the instructions are further configured to cause the computing device to:

provide the message content to one or more approvers; and

in response to receipt of approval from the one or more approvers, perform said determine one or more authorized recipients and facilitate delivery of the message content.

14. The computer-readable storage media of claim **12**, wherein determine one or more authorized recipients comprises determine one or more authorized recipients based on one or more keywords and/or subject matter in the message content and/or one or more security authorizations of the one or more authorized recipients.

15. The computer-readable storage media of claim **12**, wherein:

the message content is received from a content creator; and

determine one or more authorized recipients comprises determine recipients based on the identity of the content creator.

16. The computer-readable storage media of claim **12**, wherein facilitate delivery of the message content to the one or more authorized recipients comprises deliver a message to the one or more authorized recipients, wherein the message is configured to confirm authentication of the authorized recipient before the message may be consumed.

17. An apparatus, comprising:

one or more computer processors; and

one or more message content publication modules configured to operate on the one or more computer processors to:

receive message content;

determine one or more authorized recipients to receive the message content based at least in part on applying one or more business rules to the message content; and

facilitate delivery of the message content to the one or more authorized recipients.

18. The apparatus of claim **17**, further comprising one or more approval modules configured to operate on the one or more computer processors to:

provide the message content to one or more approvers; and

in response to receipt of approval from the one or more approvers, perform said determine one or more authorized recipients and facilitate delivery of the message content.

19. The apparatus of claim **17**, wherein determine one or more authorized recipients comprises determine one or more authorized recipients based on one or more keywords and/or subject matter in the message content and/or one or more security authorizations of the one or more authorized recipients.

20. The apparatus of claim **17**, wherein:

the message content is received from a content creator; and

determine one or more authorized recipients comprises determine recipients based on the identity of the content creator.

21. The apparatus of claim **17**, wherein facilitate delivery of the message content to the one or more authorized recipients comprises deliver a message to the one or more authorized recipients, wherein the message is configured to confirm authentication of the authorized recipient before the message may be consumed.

* * * * *