

[0030] In some embodiments, code-generating server 112 may generate a 2-D code that encodes the message content, or may generate a 2-D code that includes a link (e.g., a hyperlink) to the message content. For example, code-generating server 112 may store the message content locally or on any storage server, and may generate a 2-D code that encodes a link to the message content on the storage server. Target recipient 120 can access the original message content by using an application on his personal computing device 116 to decode the link from the 2-D code, and to follow the link (e.g., using a web browser, or the application that decodes the 2-D code) to download the message content.

[0031] Once code-generating server 112 generates the 2-D code, code-generating server 112 may use network 120 to send the 2-D code to mobile device 104, or to send the 2-D code directly to a mobile device 116 of target recipient 120. If code-generating server 112 returns the 2-D code to the device that sent the request (e.g., mobile device 104), mobile device 104 can insert the 2-D code into the message being composed by user 118.

[0032] Once user 118 finishes composing the message and sends the message to target recipient 120, mobile device 104 can send the message to a messaging server 114 that makes the message available to target recipient 120. Target recipient 120 may then use any computing device 116 to log into messaging server 114 (e.g., using a messaging application), at which point messaging server 114 may send the message (and any other unread messages) to computing device 116. Alternatively, if mobile device 104 and computing device 116 have a direct communication session to each other over network 102 (e.g., a peer-to-peer communication session), mobile device 104 may send the message to computing device 116 via this direct communication session.

[0033] FIG. 2 presents a flow-chart illustrating a method 200 for generating and sending a two-dimensional code from a messaging application in accordance with an embodiment. During operation, the mobile device can receive, from a messaging application, a request to generate a 2-D code (operation 202). In response to receiving the request, the mobile device can present a code-generating user interface (UI) mechanism, such as a modal window, for entering or selecting message content that is to be converted into a 2-D code (operation 204). For example, a UI of the messaging application may include a button (or any other type of user-input mechanism) for generating a 2-D code. When the user selects this button, the messaging application (or an operating system of the mobile device) can display the code-generating UI mechanism.

[0034] Alternatively, the user may access another UI element provided by the operating system of the mobile device (e.g., an on-screen keyboard, or a control panel) that includes a button for accessing the code-generating UI mechanism. This UI element may be presented within the messaging application's user interface, or may be presented by the operating system as

device (e.g., the messaging application) does not receive the send request, the mobile device may determine whether the user has cancelled the current message or has disabled the messaging application (operation 214).

[0041] If the user has not cancelled the message or disabled the messaging application, the system may return to operation 212 to wait for the user to finish composing or editing his message. Otherwise, the process may end, such as to cancel the current message or communication session.

[0042] Once the mobile device receives the request to send the message, the mobile device can generate a message that includes at least the two-dimensional code (operation 216), and proceeds to send the message to the target recipient (operation 218). In some embodiments, the message can include the 2-D code, and may also include additional message content that has not been converted into a 2-D code.

[0043] Moreover, during operation 218, the mobile device may send the message to a messaging server that makes the message available to the target recipient, or the mobile device may send the message to the target recipient directly (e.g., via a “push” message, or via a peer-to-peer network).

[0044] FIG. 3A illustrates exemplary communications 300 over a computer network when generating a two-dimensional code at a sender’s mobile device in accordance with an embodiment. When the user activates the messaging application a sender device 302, sender device 302 can send a login request 312 that includes the local user’s login credentials to a messaging server 304. If the local user’s login credentials are valid, login server 304 may return a login acknowledgement 314 to sender device 302.

[0045] Then, if the local user wishes to send a 2-D code to the target recipient, sender device 302 can present the UI mechanism for obtaining the message content to encode (operation 316). Sender device 302 may generate the 2-D code locally (operation 318), and may also generate a message that includes at least the 2-D code (operation 324). Sender device 302 may then send the generated message to a messaging server 306 (operation 330) that can store the message, which allows the target recipient to obtain the message at any time.

[0046] To obtain the message that includes the 2-D code, the target recipient may access a messaging application on a recipient device 310, which may require the target recipient to log into the messaging service. Recipient device 310 can send a login request 340 to login server 308, which may or may not be the same server as login server 304.

[0047] If the target recipient’s login credentials are valid, login server 308 may return a login acknowledgement 342 back to recipient device 310. At this point, recipient device 310 may send a read-message request 344 to messaging server 306 to receive any pending messages.

Messaging server 306 may respond by searching for messages intended for the target recipient (e.g., messages which the target recipient has not read), and may send the message that includes the 2-D code to recipient device 310 (operation 346).

5 [0048] Alternatively, in some embodiments, sender device 302 may send the message directly to recipient device 310. This may allow sender device 302 and recipient device 310 to bypass messaging server 306. For example, if sender device 302 and recipient device 310 are communicating with each other in near real-time, sender device 302 can send a message directly to a network address associated with recipient device 310 (e.g., via a “push” message, or over a peer-to-peer network). In this embodiment, sender device 302 and recipient device 310 may not
10 need to first send login requests to login servers 304 and 308, respectively. Rather, sender device 302 and recipient device 310 may authenticate each other directly, such as by exchanging digital certificates or any other type of authentication information now known or later developed.

[0049] In some embodiments, when receiving device 310 receives the message originating from sender device 302, recipient device 310 can present the 2-D code within the
15 messaging application. The user may copy the 2-D code into another application on recipient device 310 that may decode the 2-D code.

[0050] Alternatively, the messaging application at recipient device 310 may present the 2-D code as an interactive UI element (e.g., a button). The target recipient may select the 2-D code within the UI at recipient device 310 (e.g., by tapping or clicking on the 2-D code within the UI),
20 which can cause recipient device 310 to initiate another application that decodes the 2-D code. Recipient device 310 may present the decoded message content within this other application, or may send the decoded message content back to the messaging application to present the decoded message content inside the messaging application. For example, the other application can include a third-party application, an application supplied along with the operating system, a software
25 extension for the operating system, or the operating system itself.

[0051] FIG. 3B illustrates exemplary communications 350 over a computer network when generating a two-dimensional code at a code-generating server 305 in accordance with an embodiment. Specifically, after sender device 302 presents the UI mechanism for obtaining message content to encode (operation 316), sender device 302 can send a request to generate 2-D
30 code to a code-generating server 305 (operation 320). This request can include the message content that the sender wishes to convert into a 2-D message.

[0052] Recall that, code-generating server 305 may generate a 2-D code that encodes the message content, or may generate a 2-D code that includes a link (e.g., a hyperlink) to the message content. If the 2-D code include a link, code-generating server 305 may store the
35 original message content either locally or on a third-party storage server (not shown), and

generates a link that can be used to obtain the message content. Code-generating server 305 can generate a 2-D code that encodes this link. Then, when recipient device 310 obtains the 2-D code and decodes the link from the 2-D code, recipient device 310 may follow the link to obtain the original message content.

5 **[0053]** After generating the 2-D code, sender device 302 may receive the 2-D code from code-generating server 305 (operation 322). Sender device 302 may then proceed to generate the message that includes the 2-D code (operation 324), and to send the message to messaging server 306 (operation 330). However, in some embodiments, sender device 302 may send the 2-D code directly to recipient device 310, thus bypassing messaging server 306.

10 **[0054]** In some other embodiments, instead of returning the 2-D code back to sender device 302, code-generating server 305 may send the 2-D code to messaging server 306 or to recipient device 310 on behalf of sender 302. This embodiment can simplify the process of sending 2-D codes for the sender, as the sender may not need to go through the extra steps of generating a message that includes the 2-D code (e.g., during operation 324) and sending the
15 message that includes the 2-D code (e.g., during operation 330). If the user wishes to send additional messages that do not include 2-D codes, the user may use the messaging application to send these messages as follow-up messages to the 2-D code.

[0055] FIG. 4 illustrates an exemplary apparatus 400 that facilitates using a messaging application to generate and send a two-dimensional code to a target recipient in accordance with
20 an embodiment. Apparatus 400 can comprise a plurality of modules which may communicate with one another via a wired or wireless communication channel. Apparatus 400 may be realized using one or more integrated circuits, and may include fewer or more modules than those shown in FIG. 4. Further, apparatus 400 may be integrated in a computer system, or realized as a separate device which is capable of communicating with other computer systems and/or devices.
25 Specifically, apparatus 400 can include a data storage module 410, a set of sensors 420, a communication module 430, a user-interface module 440, a message-composing module 450, a code-generating module 460, and a message-exchange module 470.

[0056] In some embodiments, data storage module 410 can store any content which has been created or obtained by the local user, and can store one or more messaging applications
30 which the user may use to communicate with others. Sensors 420 can include one or more physical sensors that can allow the user to generate content to share with others, such as an image sensor, a microphone, a camera system, a GPS sensor, a compass, etc. Communication module 430 can include a wired or wireless interface for communicating over a computer network, such as an Internet Packet (IP)-based network, an ad-hoc network (e.g., via Bluetooth or Wi-Fi), etc.

[0062] Data 530 can include any data that is required as input or that is generated as output by the methods and/or processes described in this disclosure. Specifically, data 530 can store at least any content which has been created or obtained by the local user, and can store one or more messaging applications which the user may use to communicate with others. Moreover, data 530 can store data for these applications, such as contact data, phonebook data, messages, pictures, videos, and the like.

[0063] In some embodiments, processor 504 may execute the instructions of operating system 520 and messaging system 522 to control overall operations of computer system 502, such as the operations associated with presenting information on multimedia device 510, initiating and managing telephone calls, managing messages (e.g., composing, sending, and/or receiving messages), communicating data over a network, camera operations, and recording operations. Processor 504 may comprise one or more processing units to execute local or remote instructions to perform all or a part of the steps in the above-described methods. In addition, processor 504 may comprise one or more hardware modules, and may execute one or more software modules, which facilitate the interaction between processor 504 and other components of computer system 502. For example, processor 504 may comprise a multimedia module that manages an interface between processor 504 and multimedia device 510.

[0064] Power unit 514 can provide power to various components of computer system 502. For example, power unit 514 can include a power management system, one or more power supplies, a battery, and other components associated with the generation, management, and distribution of power in the mobile computer system 502.

[0065] Multimedia device 510 can include a screen providing an output interface between computer system 502 and the user. In some embodiments, the screen may include a liquid crystal display (LCD). Multimedia device 510 may also include an audio component (e.g., at least one speaker) to output audio signals.

[0066] User-input device 512 can also include one or more interface devices included in or coupled to computer system 502, such as a keyboard, a mouse, a click wheel, a button, or the like. The buttons may include, but are not limited to, a home button, a volume button, a starting button, a locking button, a power or standby button, or a mouse button.

[0067] Moreover, in some embodiments, multimedia device 510 may include user-input device 512. For example, multimedia device 510 may include a touch panel (TP) on an LCD screen to receive input signals from the user. The touch panel can include one or more touch sensors to sense touch gestures, multi-finger touch gestures, swipe gestures, and/or any other gestures on the touch panel. The touch sensors may not only sense a boundary of a touch or

What Is Claimed Is:

1. A method, comprising:

obtaining, by a personal computing device presenting a messaging application to a first
5 user, a request to generate a two-dimensional optical code, wherein the messaging application
facilitates bidirectional message-based communication between the first user and a second user;
presenting, in the messaging application, a user-interface for providing a message content
to represent as the two-dimensional optical code;
generating, using the messaging application, the two-dimensional optical code
10 representing the message content;
generating, for the second user, a message comprising the two-dimensional optical code
in the messaging application; and
transmitting the message, which is destined to the second user, via the messaging
application.

2. The method of claim 1, further comprising:

entering the message comprising the two-dimensional optical code into an input field of
the messaging application.

3. The method of claim 1, wherein generating the message involves:

obtaining, from the first user, additional message content that is not to be converted into a
two-dimensional optical code; and
generating the message comprising the two-dimensional optical code and the additional
message content.

4. The method of claim 1, wherein presenting the user-interface in the messaging
application involves presenting a graphical control element of the messaging application.

5. The method of claim 1, wherein presenting the user-interface in the messaging
30 application involves presenting the user-interface as an overlay window of the messaging
application.

6. The method of claim 1, wherein generating the two-dimensional optical code
involves processing the message content on the personal computing device.

7. The method of claim 1, wherein generating the two-dimensional optical code involves sending the message content to a code-generating server.

5 8. The method of claim 1, wherein transmitting the message via the messaging application involves transmitting the message to a messaging server.

9. The method of claim 1, wherein transmitting the message via the messaging application involves sending the message to a personal computing device presenting the messaging application to the second user.
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10. A non-transitory computer-readable storage medium storing instructions that when executed by a computer cause the computer to perform a method, the method comprising:
obtaining a request to generate a two-dimensional optical code, while a first user is composing a message in a messaging application, wherein the messaging application facilitates
15 bidirectional message-based communication between the first user and a second user;
presenting, in the messaging application, a user-interface for providing a message content to represent as the two-dimensional optical code;
generating, using the messaging application, the two-dimensional optical code representing the message content;
20 generating, for the second user, a message comprising the two-dimensional optical code in the messaging application; and
transmitting the message, which is destined to the second user, via the messaging application.

25 11. The storage medium of claim 10, further comprising:
entering the message comprising the two-dimensional optical code into an input field of the messaging application.

12. The storage medium of claim 10, wherein generating the message involves:
30 obtaining, from the first user, additional message content that is not to be converted into a two-dimensional optical code; and
generating the message comprising the two-dimensional optical code and the additional message content.

13. The storage medium of claim 10, wherein generating the two-dimensional optical code involves one or more of:

processing the message content by the messaging application or another local code-generating application; and

5 sending the message content to a code-generating server.

14. The storage medium of claim 10, wherein transmitting the message via the messaging application involves one or more of:

transmitting the message to a messaging server; and

10 sending the message to a personal computing device presenting the messaging application to the second user.

15. An apparatus, comprising:

a user-interface mechanism operable to:

15 obtain a request to generate a two-dimensional optical code, while a first user is composing a message in a messaging application, wherein the messaging application facilitates bidirectional message-based communication between the first user and a second user; and

20 present, in the messaging application, a user-interface for providing a message content to represent as the two-dimensional optical code;

a code-generating mechanism operable to generate, using the messaging application, the two-dimensional optical code representing the message content;

a message-composing module operable to generate, for the second user, a message comprising the two-dimensional optical code in the messaging application; and

25 a message-exchange mechanism operable to transmit the message, which is destined to the second user, via the messaging application.

16. The apparatus of claim 15, wherein the message-composing module is further operable to enter the message comprising the two-dimensional optical code into an input field of
30 the messaging application.

17. The apparatus of claim 15, wherein the message-composing module is further operable to:

obtain, from the first user, additional message content that is not to be converted into a two-dimensional optical code; and

generate the message comprising the two-dimensional optical code and the additional message content.

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18. The apparatus of claim 15, wherein generating the two-dimensional optical code involves one or more of:

processing the message content by the messaging application or another local code-generating application; and

10 sending the message content to a code-generating server.

19. The apparatus of claim 15, wherein transmitting the message via the messaging application involves one or more of:

transmitting the message to a messaging server; and

15 sending the message to a personal computing device presenting the messaging application to the second user.

20. A computer program or a computer program product comprising instructions which, when executed by a personal computing device, cause the personal computing device to

20 carry out the method of any one of claims 1 to 9.