MESSAGE-BASED INTERACTION METHOD AND APPARATUS, COMPUTER DEVICE, AND STORAGE MEDIUM

RELATED APPLICATION

[0001] This application claims priority to Chinese Patent Application No. 202411517373.6, entitled "MESSAGE-BASED INTERACTION METHOD AND APPARATUS, COMPUTER DEVICE, AND STORAGE MEDIUM" filed on October 28, 2024, which is incorporated by reference in its entirety.

FIELD OF THE TECHNOLOGY

[0002] This application relates to the field of computer technologies, and in particular, to a message-based interaction method and apparatus, a computer device, a computer-readable storage medium, and a computer program product.

BACKGROUND OF THE DISCLOSURE

[0003] With the development of computer technologies and widespread application of network communication, various types of applications have emerged. During use of various types of applications, content is usually pushed on the applications to the users of the applications.

[0004] In conventional methods, pushed content is usually presented in a form of static images, videos, or the like. Specifically, the pushed content may either be displayed upon opening of an application or displayed as pop-ups during use of the application.

[0005] Nevertheless, conventional methods expend resources on dedicated designs for the pushed content, while the pushed content usually can only be displayed for a short time when a user of an application starts the application or browses a page, resulting in a problem of low resource utilization.

SUMMARY

[0006] In view of the foregoing technical problem, it is necessary to provide a message-based interaction method and apparatus, a computer device, a computer-readable storage medium, and a computer program product that can increase resource utilization.

[0007] According to a first aspect, this application provides a message-based interaction method, which is performed by a computer device, and includes:

displaying a message transmission interface, and displaying, in response to a message input operation triggered on the message transmission interface, a message inputted through the message input operation;

displaying, in response to the message including a push keyword, push information associated with the push keyword, the push information indicating a promotional target; and

displaying, in response to a transmission operation for the push information, the push information that has been transmitted, the push information being configured for triggering to display promotional content linked to the push information, the promotional content being associated with the promotional target.

[0008] According to a second aspect, this application further provides a message-based interaction apparatus, including:

a message display module, configured to display a message transmission interface, and display, in response to a message input operation triggered on the message transmission interface, a message inputted through the message input operation;

a push information display module, configured to display, in response to the message including a push keyword, push information associated with the push keyword, the push information indicating a promotional target; and

a push information transmission module, configured to display, in response to a transmission operation for the push information, the push information that has been transmitted, the push information being configured for triggering to display promotional content linked to the push information, the promotional content being associated with the promotional target.

[0009] According to a third aspect, this application further provides a computer device, including a memory and a processor, the memory having a computer program stored therein, and the processor, when executing the computer program, implementing the following operations: displaying a message transmission interface, and displaying, in response to a message input operation triggered on the message transmission interface, a message inputted through the message input operation; displaying, in response to the message including a push keyword, push information associated with the push keyword, the push information indicating a promotional target; displaying, in response to a transmission operation for the push information, the push information that has been transmitted, the push information being configured for triggering to display promotional content linked to the push information, the promotional content being associated with the promotional target.

[0010] According to a fourth aspect, this application further provides a computer-readable storage medium, having a computer program stored therein, the computer program, when executed by a processor, implementing the following operations: displaying a message transmission interface, and displaying, in response to a message input operation triggered on the message transmission interface, a message inputted through the message input operation; displaying, in response to the message including a push keyword, push information associated with the push keyword, the push information indicating a promotional target; displaying, in response to a transmission operation for the push information, the push information that has been transmitted, the push information being configured for triggering to display promotional content linked to the push information, the promotional content being associated with the promotional target.

[0011] According to a fifth aspect, this application further provides a computer program product, including a computer program, the computer program, when executed by a processor, implementing the following operations: displaying a message transmission interface, and displaying, in response to a message input operation triggered on the message transmission interface, a message inputted through the message input operation; displaying, in response to the message including a push keyword, push information associated with the push keyword, the push information indicating a promotional target; displaying, in response to a transmission operation for the push information, the push information that has been transmitted, the push information being configured for triggering to display promotional content linked to the push information, the promotional content being associated with the promotional target.

[0012] Details of one or more embodiments of this application are provided in the following drawings and descriptions. Other features, objectives, and advantages of this application become apparent with reference to the specification, the drawings, and the claims.

BRIEF DESCRIPTION OF THE DRAWINGS

[0013] To describe technical solutions in embodiments of this application more clearly, drawings required for describing the embodiments are briefly described below. Apparently, the drawings in the following description merely show the embodiments of this application, and a person of ordinary skill in the art may still derive other drawings from the disclosed drawings without creative efforts.

[0014] FIG. 1 is a diagram of an application environment of a message-based interaction method according to an embodiment.

[0015] FIG. 2 is a schematic flowchart of the message-based interaction method according to an embodiment.

[0016] FIG. 3 is a schematic diagram of displaying push information associated with a push keyword according to an embodiment.

[0017] FIG. 4 is a schematic diagram of displaying promotional content linked to the push information according to an embodiment.

[0018] FIG. 5 is a schematic layout diagram of an information component according to an embodiment.

[0019] FIG. 6 is a schematic diagram of displaying, on a session interface, the push information that has been transmitted according to an embodiment.

[0020] FIG. 7 is a schematic diagram of displaying promotional content linked to push information that has been transmitted according to an embodiment.

[0021] FIG. 8 is a schematic diagram of displaying one piece of push information that has been transmitted in a case that a plurality of pieces of push information exist according to an embodiment.

[0022] FIG. 9 is a schematic diagram of displaying, in a case that a plurality of pieces of push information exist, the plurality of pieces of push information that have been transmitted according to an embodiment.

[0023] FIG. 10 is a schematic diagram of forwarding push information according to an embodiment.

[0024] FIG. 11 is a schematic diagram of displaying promotional content linked to received push information according to an embodiment.

[0025] FIG. 12 is a schematic diagram of forwarding received push information according to an embodiment.

[0026] FIG. 13 is a schematic flowchart of a message-based interaction method according to another embodiment.

[0027] FIG. 14 is a schematic timing diagram of a message-based interaction method according to an embodiment.

[0028] FIG. 15 is a structural block diagram of a message-based interaction apparatus according to an embodiment.

[0029] FIG. 16 is a diagram of an internal structure of a computer device according to an embodiment.

DESCRIPTION OF EMBODIMENTS

[0030] Technical solutions in the embodiments of this application are clearly and completely described below with reference to drawings in the embodiments of this application. Apparently, the described embodiments are merely some rather than all of the embodiments of this application. All other embodiments obtained by a person of ordinary skill in the art based on the embodiments of this application without creative efforts shall fall within the protection scope of this application.

[0031] A message-based interaction method provided in the embodiments of this application may be applied to an application environment shown in FIG. 1. A terminal 102 communicates with a server 104 through a network. A data storage system may store data that needs to be processed by the server 104. The data storage system may be integrated on the server 104, or may be placed on the cloud or another network server. A client configured to implement message-based interaction processing is installed on the terminal 102. The client may be a communication application, a multimedia application, a game application, a shopping application, or the like. The terminal 102 may be, but is not limited to, various personal computers, notebook computers, smartphones, tablet computers, Internet of Things devices, portable wearable devices, and aircrafts. The Internet of Things devices may be a smart speaker, a smart television, a smart air conditioner, a smart in-vehicle device, a projection device, or the like. The portable wearable devices may be a smart watch, a smart bracelet, a head-mounted device, or the like. The head-mounted device may be a virtual reality (VR) device, an augmented reality (AR) device, smart glasses, or the like. The server 104 may be an independent physical server, or may be a server cluster including a plurality of physical servers, or may be a cloud server providing basic cloud computing services such as a cloud service, a cloud database, cloud computing, a cloud function, cloud storage, a network service, cloud communication, a middleware service, a domain name service, a security service, a content delivery network (CDN), big data, and an artificial intelligence platform. The terminal 102 and the server 104 may be directly or indirectly connected through wired or wireless communication. This is not limited in this embodiment of this application.

[0032] The terminal 102 and the server 104 each may be configured to independently perform the message-based interaction method provided in the embodiments of this application. Alternatively, the terminal 102 and the server 104 may cooperatively perform the message-based interaction method provided in the embodiments of this application. For example, the terminal 102

and the server 104 cooperatively perform the message-based interaction method provided in the embodiments of this application. The terminal 102 displays a message transmission interface, and displays, in response to a message input operation triggered on the message transmission interface, a message inputted through the message input operation; and displays, in response to the message including a push keyword, push information associated with the push keyword, the push information indicating a promotional target. The server 104 may be configured to determine whether the message includes a push keyword, and feed back a determining result to the terminal 102, so that the terminal 102 can display, in response to the message including a push keyword, push information associated with the push keyword. The push information indicates a promotional target, and the promotional target is associated with promotional content linked to the push information. Further, the terminal 102 displays, in response to a transmission operation for the push information, the push information that has been transmitted. The push information may be configured for triggering to display, on the terminal 102, the promotional content linked to the push information.

[0033] In an exemplary embodiment, as shown in FIG. 2, a message-based interaction method is provided. The method may be independently performed by a terminal or a server, or may be cooperatively performed by a terminal and a server. In this embodiment of this application, an example in which the method is applied to the terminal 102 in FIG. 1 is used for description. The method includes the following operation S202 to operation S206.

[0034] Operation S202: Display a message transmission interface, and display, in response to a message input operation triggered on the message transmission interface, a message inputted through the message input operation.

[0035] The message transmission interface may be specifically a message transmission interface of an application such as a communication application, a multimedia application, or a game application. The message transmission interface is an interface for a user to perform message input and transmission operations. Different types of applications have message transmission interfaces of different forms. In the communication application, the message transmission interface is a display interface for two or more persons to conduct a real-time session. In the multimedia application (such as a video or short video application), the message transmission interface is implemented as a bullet screen message display interface. In the game application, the message transmission interface is an interface for communication and sessions between players in an online gaming process. The game application further supports full-platform notification message transmission and displaying. The communication application is an application that enables two or

more persons to perform network communication by using a network. The network communication may be understood as a real-time session. To be specific, the communication application may be understood as an application that allows two or more persons to conduct a real-time session by using a network. In this case, the message transmission interface of the communication application may be specifically understood as a display interface for two or more persons to conduct a real-time session by using the communication application.

[0036] The multimedia application may be specifically an audio application, a video application, a short video application, or the like. These applications usually may be configured to process and display multimedia data such as audio, videos, text, or images. In other words, the message transmission interface of the multimedia application may be specifically understood as a bullet screen message display interface for a video application, a short video application, or the like. A user of the multimedia application, for example, a user of a video application, may input and transmit, for a video played on the video application, a bullet screen message on a corresponding bullet screen message display interface of the video application, so that the bullet screen message transmitted by the user can be displayed on the bullet screen message display interface.

[0037] The game application may be specifically an application that enables online gaming in a form of a two-player battle or a multiplayer team battle. During online gaming in the form of a two-player battle, two parties participating in the game can communicate and conduct a session, and during online gaming in the form of a multiplayer team battle, a plurality of parties participating in the game can also communicate and conduct a session. Therefore, the message transmission interface of the game application may be an interface in which two or more players communicate and conduct a session during online gaming. In addition, since the game application supports a full-platform notification transmission function, a user can transmit a full-platform notification message during gaming, and the corresponding full-platform notification message can be displayed on a notification message display interface. In other words, the full-platform notification message may be viewed and clicked/tapped by all game participants.

[0038] The message input operation is an operation that is triggered on the message transmission interface and through which a message that needs to be transmitted can be transmitted to another user. A current user may specifically input, based on a message input area of the message transmission interface, a session message that needs to be transmitted to another user. The user may be specifically users of different applications, for example, a session object of a communication application, a user of a multimedia application, or a game player of a game application.

[0039] Specifically, a message input area is displayed on the message transmission interface. The terminal displays the message transmission interface, for example, a session interface of a communication application or a bullet screen message display interface of a multimedia application, and displays the message input area on the message transmission interface. A user of the application may input, based on the message input area, a message that needs to be transmitted to another user. When detecting a message input operation triggered for the message input area (for example, an input keyboard) of the message transmission interface, the terminal responds to the message input operation, and displays the message inputted by the current user based on the message input area.

[0040] For example, the terminal displays a session interface of a communication application, and displays a message input area, that is, an input keyboard, on the session interface of the communication application. A current session object may input, based on the input keyboard of the session interface, a session message that needs to be transmitted to another session object. When detecting a message input operation triggered for the message input area (for example, an input keyboard) of the session interface, the terminal responds to the message input operation, and displays the session message inputted by the current session object based on the message input area.

[0041] In some embodiments, the terminal displays a bullet screen message display interface of a multimedia application, and displays a message input area, that is, an input keyboard, on the bullet screen message display interface. A user may input, in the message input area (for example, an input keyboard) displayed on the bullet screen message display interface, a bullet screen message that needs to be transmitted to another user for viewing. When detecting a message input operation triggered in the message input area displayed on the bullet screen message display interface, the terminal responds to the message input operation, and displays the bullet screen message inputted by the user based on the message input area.

[0042] The message input area of the session interface or the bullet screen message display interface corresponds to different types of input methods through an input method management module. The input method management module maintains an input method list, which includes different types of input methods, such as a pinyin input method and a five stroke input method. When the user performs an operation in the message input area, the system selects an appropriate input method from the input method list for loading based on settings or historical usage habits of the user. To support different languages and input habits, the input method has a corresponding lexicon and rule engine internally. For example, the lexicon contains a large quantity of Chinese words and phrases for Chinese input, and contains English words and common expressions for

English input. The rule engine performs intelligent word prediction and error correction based on inputted characters and language rules. When the user inputs "hello", the rule engine predicts a word " 你好" based on Pinyin rules and displays it in a candidate box. Through combination of different types of input methods with various types of social software and communication applications, cross-platform presentation of the promotional content is achieved, covering various promotional application scenarios and achieving large dissemination reach of the promotional content.

[0043] Operation S204: Display, in response to the message including a push keyword, push information associated with the push keyword, the push information indicating a promotional target.

[0044] The push keyword is a preset word that is semantically associated with a particular promotion scenario (such as a special festival, a celebratory activity, or a special service scenario), and is used as an identifier for message screening. In a message-based interaction system, when a message inputted by a user on a message transmission interface includes the word, the system presents at least one piece of push information corresponding to the word based on a pre-established association relationship. The push information points to a particular promotional target. The push keyword may be specifically a specific keyword associated with a special festival, a celebratory activity, a special scenario, or the like, such as a festival greeting or a celebration blessing. Each push keyword has at least one piece of push information associated therewith.

[0045] The push information is information associated with the push keyword, and has various forms, such as an emoji package, an image, and a link. It indicates a promotional target and contains a link that leads to promotional content associated with the promotional target. When the message inputted by the user includes the push keyword, the push information is displayed, and the user may view the promotional content or transmit the push information by clicking/tapping a related entry (such as a first promotional content obtaining entry or an information transmission entry) in the information component. The push information may be specifically in different forms such as an emoji package, an image, or a link. If the message inputted by the user hits a push keyword, push information associated with the push keyword may be displayed. For example, an emoji package associated with the push keyword is displayed. In addition, when the push keyword has a plurality of pieces of push information associated therewith, the plurality of pieces of push information are simultaneously displayed for viewing and selection by the session object.

[0046] The promotional content is content associated with the promotional target, which is, for example, an introduction to a product of a promoter, a purchase page, a service promotional introduction, or a handling page. When the user clicks/taps the push information or the related entry

(such as a first promotional content obtaining entry or a second promotional content obtaining entry), the terminal jumps to display the promotional content, thereby achieving promotion and advertisement of a product or a service of the promoter. The promotional target is a product or a service of a promoter. The push information indicates the promotional target, and the promotional target is associated with the promotional content linked to the push information. The system establishes an association between a promotional target and an indication element (such as a brand identifier or a name) by using a database table.

[0047] The push information indicating the promotional target means that the push information serves as a medium that explicitly points to promotional target such as a specific product, service, or business the promoter intends to promote. This is achieved by carrying key identifying elements of the promotional target (such as a brand name, a product image, or a specific business identifier) or by linking to promotional content associated with the promotional target (such as a product introduction or a service handling page), thereby guiding users' attention to and understanding of the promotional target.

[0048] The promotional target may be specifically a product or a service of a promoter. In the system, an association between a promotional target and an element configured for indicating the promotional target is established by using a database table. The database table has two columns, one of which stores the identification information of the promotional target, and the other of which stores a corresponding element configured for indicating the promotional target, such as a brand logo, a brand name, and a brand abbreviation of a promoter. During generation of the push information, the system queries the database for a corresponding indication element based on identification information of the promotional target, and incorporates the element into the push information. For example, during creation of push information in the form of an emoji package, a brand logo is added as a watermark to a corner of the emoji package, or a brand name is added to a description of the emoji package. In this way, when the push information is displayed, the user can identify the brand of the promoter more intuitively, thereby improving brand recognition and exposure of the promoter, and improving a brand's dissemination effect of the promoter.

[0049] The push information (such as an emoji package) has promotional content linked thereto. Through clicking/tapping of the push information, for example, through clicking/tapping of an emoji package, the terminal can jump to display the promotional content linked to the emoji package. The promotional content may be specifically promotional content associated with a specific product or service of the promoter. For example, after clicking/tapping of the emoji package, the terminal can jump to display a promotional content landing page linked to the emoji

package, including a product introduction landing page, a product purchase landing page, a service promotion introduction landing page, a service handling landing page, and the like of the promoter.

[0050] The promotional target being associated with the promotional content linked to the push information may be specifically understood as follows: Promotional content associated with the promotional target such as a product or a service of a promoter is pre-constructed based on the promotional target, including a product introduction landing page, a product purchase landing page, a service promotion introduction landing page, a service handling landing page, and the like of the promoter, and the constructed promotional content is linked to the push information, so as to jump to display the promotional content landing page linked to the push information after the push information is clicked/tapped. In this way, a brand, a service, and the like of the promoter can be repeatedly presented by using the push information, for example, in a form of an emoji package, to improve brand recognition and exposure of the promoter, and improve brand's dissemination effect of the promoter.

[0051] Specifically, a push information display area is displayed on the message transmission interface. Displaying, in a case that the message includes a push keyword, push information associated with the push keyword may be specifically displaying an information component in the push information display area, and displaying the push information in the information component. The push information may be specifically in a form of an emoji package. In this case, specifically, in a case that the message includes a push keyword, the terminal displays an emoji package associated with the push keyword, that is, displays an emoji package component in an emoji package display area, and displays the emoji package in the emoji package component.

[0052] A first promotional content obtaining entry associated with the push information, an information transmission entry associated with the push information, and a close entry associated with the push information are further displayed in the information component. Display rules for these entries are as follows: When the push information is displayed, the first promotional content obtaining entry and the information transmission entry are displayed by default, and the close entry is displayed when a mouse hovers over the information component. Style designing of the entries follows an overall style of the application. The first promotional content obtaining entry adopts a blue button style with a label "View details" to attract users to click/tap and view the promotional content. The information transmission entry adopts a green button style with a label "Transmit" to highlight its operability. The close entry adopts a small red cross icon, positioned at a top-right corner of the information component, allowing users to quickly close the push information. Through clicking/tapping of the first promotional content obtaining entry by the user, the terminal

can jump to display the promotional content linked to the push information, and through clicking/tapping of the information transmission entry, the terminal can transmit the push information to another user of a current application (such as a communication application or a multimedia application) and display the push information that has been transmitted. By clicking/tapping the close entry, the user can further stop displaying the push information.

[0053] Exemplarily, as shown in FIG. 3, an example of displaying push information associated with a push keyword is provided. It may be learned from FIG. 3 that, a message input area 304 (for example, an input keyboard) is displayed in a message transmission interface 302, which is configured to obtain an inputted message in response to a message input operation triggered by a current object. A message display area 306 is further displayed on the message transmission interface, which is configured to display a message (for example, a session message "Happy new year and good health") inputted by the object based on the message input area 304. A push information display area 308 is further displayed on the message transmission interface. In a case that the message includes a push keyword (for example, "Happy new year and good health") having push information associated therewith, an information component 310 is displayed in the push information display area 308, and push information 312 is displayed in the information component 310.

[0054] In an exemplary embodiment, in a case that the push information is displayed, a first promotional content obtaining entry associated with the push information is displayed, and promotional content linked to the push information is displayed in response to a trigger operation for the first promotional content obtaining entry.

[0055] Specifically, in a case that the push information is displayed, specifically, the information component may be displayed in the push information display area and the push information is displayed in the information component, the first promotional content obtaining entry associated with the push information is displayed in the information component.

[0056] The user may click/tap the first promotional content obtaining entry displayed in the information component, and the terminal jumps to display the promotional content linked to the push information in response to the trigger operation for the first promotional content obtaining entry.

[0057] Further, as shown in FIG. 4, an example of displaying promotional content linked to the push information is provided. It may be learned from FIG. 4 that, a first promotional content obtaining entry 314 associated with the push information is further displayed in the information component 310. The user may click/tap the first promotional content obtaining entry 314. In

response to the trigger operation for the first promotional content obtaining entry 314, the terminal jumps to display the promotional content linked to the push information 312, for example, displays a promotional content landing page 402 shown in FIG. 4. The promotional content landing page may specifically include a product introduction landing page, a product purchase landing page, a service promotion introduction landing page, a service handling landing page, and the like of a promoter.

[0058] In an exemplary embodiment, in a case that the push information is displayed, a close entry associated with the push information is displayed, and in response to a trigger operation for the close entry, the displaying of the push information is stopped.

[0059] Specifically, in a case that the push information is displayed, specifically, the information component may be displayed in the push information display area and the push information is displayed in the information component, the close entry associated with the push information is displayed in the information component. The user may click/tap the close entry displayed in the information component. In response to the trigger operation for the close entry, the terminal stops displaying the push information on a session interface.

[0060] For example, as shown in FIG. 5, an example of a layout of an information component is provided. It may be learned from FIG. 5 that, in the information component 310, the first promotional content obtaining entry 314 associated with the push information is displayed, and an information transmission entry 316 associated with the push information 312 and a close entry 318 associated with the push information 312 are further displayed. The user may click/tap the information transmission entry 316. In response to the trigger operation for the information transmission entry 316, the terminal transmits the push information 312 to another user, and displays the push information 312 that has been transmitted. The user may click/tap the close entry 318. In response to the trigger operation for the close entry 318, the terminal stops displaying the push information.

[0061] In an exemplary embodiment, in a case that the message includes no push keyword, the message that has been transmitted is displayed in response to the transmission operation triggered for the message.

[0062] Specifically, in a case that the message includes no push keyword, a normal message transmission process is performed. To be specific, when detecting a transmission operation triggered for the message, the terminal transmits the message to another user in response to the transmission operation, and displays the session message that has been transmitted, so as to select, based on an actual need of the user, whether to transmit the push information. This incorporates

presentation of the promotional content into daily social interaction of the user without interrupting user experience, improving fun and interactivity of content pushing, and increasing flexibility of promotional content presentation.

[0063] Further, when detecting a message input operation triggered based on the message input area of the message transmission interface, the terminal displays, in response to the message input operation, a message inputted by a current user based on the message input area, and displays a current message transmission entry in the message input area.

[0064] When the terminal detects a trigger operation for the current message transmission entry displayed in the message input area, in response to the trigger operation for the current message transmission entry, the terminal transmits the message to another user, and displays the message that has been transmitted.

[0065] Operation S206: Display, in response to a transmission operation for the push information, the push information that has been transmitted, the push information being configured for triggering to display promotional content linked to the push information, the promotional content being associated with the promotional target.

[0066] Specifically, in a case that the push information associated with the push keyword is displayed, the user may trigger a transmission operation for the push information. In response to the transmission operation for the push information, the terminal transmits the push information to another user, and displays the push information that has been transmitted. This achieves transmission and presentation of the push information through high-frequency interaction in daily session scenarios between users, improving a brand's dissemination effect of the promoter, closely integrating promotional content display with users' chat behaviors, and improving natural presentation and interactivity of the promotional content.

[0067] The push information has promotional content linked thereto, and the push information is configured for triggering to display the linked promotional content. In other words, through clicking/tapping of the push information, the terminal can jump to display the promotional content linked to the push information. The promotional content may be specifically promotional content associated with a specific product or service of the promoter. For example, after clicking/tapping of the push information, the terminal can jump to display a promotional content landing page linked to the push information, including a product introduction landing page, a product purchase landing page, a service promotion introduction landing page, a service handling landing page, and the like of the promoter.

[0068] Exemplarily, as shown in FIG. 6, an example of displaying, on a message transmission interface, the push information that has been transmitted is provided. It may be learned from FIG. 6 that, the push information display area 308 is displayed in the message transmission interface 302. In a case that the message includes a push keyword (for example, "Happy new year and good health") having push information associated therewith, the information component 310 is displayed in the push information display area 308, and the push information 312 is displayed in the information component 310.

[0069] Further, it may be learned from FIG. 6 that the information transmission entry 316 associated with the push information is further displayed in the information component 310. Therefore, in a case that the push information 312 is displayed in the information component 310, the user may trigger a transmission operation for the push information 312, and specifically, may trigger the information transmission entry 316 in the information component 310. In response to the transmission operation for the push information 312, and specifically, in response to the trigger operation for the information transmission entry 316, the terminal transmits the push information 312 to another user, and displays the push information 312 that has been transmitted.

[0070] In an exemplary embodiment, in a case that the push information that has been transmitted is displayed in the message transmission interface, the promotional content linked to the push information is displayed in response to a first trigger operation for the push information that has been transmitted.

[0071] Specifically, in a case that the push information that has been transmitted is displayed in the message transmission interface, the user may click/tap the push information that has been transmitted, to jump to display the promotional content linked to the push information. The first trigger operation is an operation performed by the user on the push information that has been transmitted. In response to the operation, the terminal displays the promotional content linked to the push information. The first trigger operation is usually presented as that the user clicks/taps the push information that has been transmitted.

[0072] Further, in a case that the push information that has been transmitted is displayed in the message transmission interface, after the user clicks/taps the push information that has been transmitted, the terminal jumps to display the promotional content linked to the push information in response to the first trigger operation for the push information that has been transmitted.

[0073] The promotional content linked to the push information may be specifically promotional content associated with a specific product or service of the promoter. For example, after the session object clicks/taps the push information, in response to the first trigger operation for

the push information that has been transmitted, the terminal may jump to display a promotional content landing page linked to the push information, such as a product introduction landing page, a product purchase landing page, a service promotion introduction landing page, or a service handling landing page of the promoter.

[0074] Exemplarily, as shown in FIG. 7, an example of displaying the promotional content linked to the push information that has been transmitted is provided. It may be learned from FIG. 7 that, in a case that the push information 312 that has been transmitted is displayed in the message transmission interface 302, after the user clicks/taps the push information 312 that has been transmitted, in response to the first trigger operation for the push information 312 that has been transmitted, the terminal jumps to display the promotional content 702 linked to the push information, for example, displays a promotional content landing page linked to the push information 312 that has been transmitted, such as a product introduction landing page, a product purchase landing page, a service promotion introduction landing page, or a service handling landing page of the promoter.

[0075] In an exemplary embodiment, in a case that a plurality of pieces of push information exist, the displaying, in response to a transmission operation for the push information, the push information that has been transmitted includes:

displaying, in response to a transmission operation for at least one piece of the plurality of pieces of push information, the at least one piece of push information that has been transmitted.

[0076] Specifically, in a case that a plurality of pieces of push information exist, the terminal displays the push information associated with the push keyword, and monitors a transmission operation triggered by the user for at least one piece of the plurality of pieces of push information. To be specific, the user may click/tap one piece of the plurality of pieces of push information, or may sequentially click/tap each of the plurality of pieces of push information. When detecting a transmission operation performed by the user for at least one piece of the plurality of pieces of push information, the terminal transmits the at least one piece of push information to another user in response to the transmission operation for at least one piece of the plurality of pieces of push information, and displays the at least one piece of push information that has been transmitted.

[0077] Through transmission of the push information associated with the promoter between users, the promotional content not only can be presented to a current user, but also can be further disseminated to other users, improving a multi-level dissemination effect of the promotional

content. To be specific, each transmission of the push information is equivalent to effective dissemination of the promotional content, prolonging a life cycle of content pushing, and improving user feedback quality of the promotional content.

[0078] In a case that a plurality of pieces of push information exist, the user may trigger a transmission operation for one piece of the plurality of pieces of push information, or may sequentially trigger a transmission operation for each of the plurality of pieces of push information. In this case, the terminal may transmit, based on the transmission operation triggered by the user, one piece of push information to another user, or may sequentially transmit each of the plurality of pieces of push information clicked/tapped by the user to another user, and display the single piece of push information that has been transmitted, or sequentially display the plurality of pieces of push information that have been transmitted.

[0079] Exemplarily, as shown in FIG. 8, an example of displaying one piece of push information that has been transmitted in a case that a plurality of pieces of push information exist is provided. It may be learned from FIG. 8 that, when a plurality of pieces of push information exist, the terminal displays a plurality of pieces of push information associated with a push keyword (for example, "Happy new year"), including, for example, push information 1, push information 2, and push information 3 shown in FIG. 8, and monitors a transmission operation triggered by the user on at least one piece of the plurality of pieces of push information. If the user clicks/taps only one piece of the plurality of pieces of push information, for example, clicks/taps the push information 1, the terminal may transmit the push information 1 to another user based on a transmission operation triggered by the user on the push information 1, and display, on the message transmission interface 302, the push information 1 that has been transmitted.

[0080] Further, as shown in FIG. 9, an example of displaying, in a case that a plurality of pieces of push information exist, the plurality of pieces of push information that have been transmitted is provided. It may be learned from FIG. 9 that, in a case that a plurality of pieces of push information exist, the terminal displays the plurality of pieces of push information associated with the push keyword, including, for example, push information 1, push information 2, and push information 3 shown in FIG. 9, and monitors a transmission operation triggered by the user on at least one piece of the plurality of pieces of push information. If the user sequentially triggers a transmission operation for each of the plurality of pieces of push information, the terminal may sequentially transmit each of the plurality of pieces of push information clicked/tapped by the user to another user based on the transmission operation triggered by the user, and sequentially display, on the message transmission interface, the plurality of pieces of push information that have been

transmitted, including the push information 1, the push information 2, the push information 3, and the like.

[0081] In the foregoing message-based interaction method, the message transmission interface is displayed, the message inputted through the message input operation is displayed in response to the message input operation triggered on the message transmission interface, and the push information associated with the push keyword is displayed in a case that the message includes the push keyword. Because the push information indicates the promotional target, and the promotional target is associated with the promotional content linked to the push information, presentation and transmission of the push information associated with the promotional target may be triggered when the inputted message hits the push keyword. This incorporates presentation of the promotional content into a daily message transmission scenario, improving interactivity and a dissemination effect of the promotional content, and increasing utilization of a promotional content resource. Further, in response to the transmission operation for the push information, the push information that has been transmitted is displayed, and the linked promotional content is triggered to be displayed through the push information, so that interaction between the message transmission object and the promotional content can be enhanced, dissemination reach of the promotional content can be expanded, and utilization of a promotional content resource can be increased.

[0082] In an exemplary embodiment, in a case that the push information that has been transmitted is displayed, at least one session object item is displayed in response to an information forwarding operation for the push information that has been transmitted, and the push information is transmitted to a session object indicated by the first object selection operation in response to a first object selection operation triggered for the at least one session object item.

[0083] The session object item is an option displayed during the information forwarding operation. Each session object item includes one session object and a selection box associated with the session object. The user selects, by using the selection box, a session object to receive the push information.

[0084] Specifically, in a case that the push information that has been transmitted is displayed, the terminal monitors an information forwarding operation triggered by the user for the push information that has been transmitted. If detecting an information forwarding operation triggered by the user for the push information that has been transmitted, the terminal displays at least one session object item in response to the information forwarding operation for the push information that has been transmitted. The information forwarding operation is an operation triggered by a user during the displaying of the push information that has been transmitted. When

the user performs this operation, the terminal displays at least one session object item. The user may select a session object to which the push information is to be forwarded, to disseminate the push information and further spread the promotional content.

[0085] One session object item specifically includes one session object and a selection box associated with the session object. When the user triggers a selection operation for the session object item, the user selects another session object to which an emoji package needs to be forwarded, specifically by selecting a selection box within the session object item associated with the session object.

[0086] Further, in a case that at least one session object item is displayed, the terminal monitors a first object selection operation triggered by the user for the at least one session object item. If detecting a first object selection operation triggered by the user for at least one session object item, the terminal obtains a session object indicated by the first object selection operation in response to the first object selection operation triggered for the at least one session object item, to transmit the push information to the session object indicated by the first object selection operation.

[0087] Exemplarily, as shown in FIG. 10, an example of forwarding push information is provided. It may be learned from FIG. 10 that, in a case that the push information 312 that has been transmitted is displayed in the message transmission interface 302, if detecting an information forwarding operation triggered by the user for the push information 312 that has been transmitted, the terminal displays at least one session object item 1002, for example, a session object A to a session object E, in response to the information forwarding operation for the push information 312 that has been transmitted.

[0088] Further, in a case that at least one session object item 1002 is displayed, if detecting a first object selection operation triggered by the user for the at least one session object item 1002, the terminal transmits, in response to the first object selection operation triggered for the at least one session object item 1002, for example, the first object selection operation is triggered for the "session object A", the push information 312 to the session object A indicated by the first object selection operation.

[0089] If the user triggers the first object selection operation for a plurality of session object items, the terminal transmits the push information to each of the plurality of selected session objects in response to the first object selection operation triggered for the plurality of session object items.

[0090] In this embodiment, in a case that the push information that has been transmitted is displayed, the terminal displays the at least one session object item in response to the information

forwarding operation for the push information that has been transmitted, and may transmit the push information to the session object indicated by the first object selection operation in response to the first object selection operation triggered for the at least one session object item. This achieves repeated transmission and dissemination of the push information, and enhances interaction between the user and the promotional content linked to the push information, thereby expanding dissemination reach of the promotional content, and increasing utilization of a promotional content resource.

[0091] In an exemplary embodiment, the received push information is displayed, and in a case that the received push information has promotional content linked thereto, the promotional content linked to the received push information is displayed in response to a second trigger operation for the received push information.

[0092] The second trigger operation is an operation performed by the user for the received push information. When the received push information has promotional content linked thereto, after the user performs the second trigger operation, the terminal displays an information component associated with the received push information, and displays a second promotional content obtaining entry in the component. The user may click/tap the entry to display the promotional content. The information component is a component displayed in the push information display area of the message transmission interface, which is configured to present push information and related operation entries. These entries include a first promotional content obtaining entry, an information transmission entry, and a close entry associated with the push information. During processing of the received push information, the second promotional content obtaining entry and an information forwarding entry are further displayed.

[0093] In a case that the push information associated with the push keyword is displayed, the user in the communication application may trigger a transmission operation for the push information. In response to the transmission operation for the push information, the terminal transmits the push information to another user, and displays the push information that has been transmitted. In addition, the user in the communication application may receive received push information transmitted by another user, and the terminal displays the received push information on the message transmission interface.

[0094] Specifically, the terminal displays the received push information, and monitors a trigger operation performed by the user for the received push information. If the terminal detects a second trigger operation for the received push information, in a case that the received push information has promotional content linked thereto, the terminal displays the promotional content

linked to the received push information in response to the second trigger operation for the received push information.

[0095] Exemplarily, when determining that the received push information has promotional content linked thereto, the terminal jumps to display the promotional content linked to the received push information in response to the second trigger operation for the received push information. The promotional content linked to the received push information may be specifically promotional content associated with a specific product or service of the promoter. For example, after the user clicks/taps the received push information, in response to a second trigger operation for the received push information, the terminal may jump to display a promotional content landing page linked to the received push information, such as a product introduction landing page, a product purchase landing page, a service promotion introduction landing page, or a service handling landing page of the promoter.

[0096] In an exemplary embodiment, the displaying, in a case that the received push information has promotional content linked thereto, the promotional content linked to the received push information in response to a second trigger operation for the received push information includes:

displaying, in a case that the received push information has promotional content linked thereto, an emoji package component associated with the received push information in response to the second trigger operation for the received push information, displaying a second promotional content obtaining entry in the information component, and displaying the promotional content linked to the received push information in response to a trigger operation for the second promotional content obtaining entry.

[0097] Specifically, the terminal displays the received push information on the message transmission interface, and monitors a trigger operation performed by the user for the received push information. If detecting a second trigger operation for the received push information, the terminal displays, in response to the second trigger operation for the received push information in a case that the received push information has promotional content linked thereto, an information component associated with the received push information, and displays a second promotional content obtaining entry in the information component.

[0098] In a case that the second promotional content obtaining entry is displayed in the information component, the terminal monitors a trigger operation performed by the user for the second promotional content obtaining entry. If detecting a trigger operation performed by the user for the second promotional content obtaining entry, the terminal displays the promotional content

linked to the received push information in response to the trigger operation for the second promotional content obtaining entry.

[0099] For example, as shown in FIG. 11, an example of displaying promotional content linked to received push information is provided. It may be learned from FIG. 11 that, the terminal displays received push information 1102 on the message transmission interface 302, and when detecting a second trigger operation for the received push information 1102, the terminal displays, in a case that the received push information has promotional content linked thereto, an information component 1104 associated with the received push information 1102 in response to the second trigger operation for the received push information 1102.

[00100] A second promotional content obtaining entry 1106 is further displayed in the information component 1104. If detecting a trigger operation for the second promotional content obtaining entry 1106, the terminal displays, in response to the trigger operation for the second promotional content obtaining entry 1106, the promotional content linked to the received push information 1102, for example, displays a promotional content landing page 1108 shown in FIG. 11. The promotional content landing page may specifically include a product introduction landing page, a product purchase landing page, a service promotion introduction landing page, a service handling landing page, and the like of the promoter.

[00101] In this embodiment, in response to the second trigger operation for the received push information, in a case that the received push information has promotional content linked thereto, the information component associated with the received push information is displayed, the second promotional content obtaining entry is displayed in the information component, and the promotional content linked to the received push information is displayed in response to the trigger operation for the second promotional content obtaining entry. In this way, in a case that the received push information has promotional content linked thereto, transmission of the received push information associated with the promotional target and presentation of the promotional content linked to the received push information can be triggered, thereby enhancing interaction between the user and the promotional content, expanding dissemination reach of the promotional content, and increasing resource utilization.

[00102] In an exemplary embodiment, the displaying an information component associated with the received push information further includes:

[00103] displaying an information forwarding entry in the information component, displaying at least one session object item in response to a trigger operation for the information forwarding entry, and transmitting, in response to a second object selection operation triggered for the at least

one session object item, the received push information to a session object indicated by the second object selection operation.

[00104] Specifically, the terminal displays the received push information on the message transmission interface, and monitors a trigger operation performed by the user for the received push information. If detecting a second trigger operation for the received push information, the terminal displays, in response to the second trigger operation for the received push information in a case that the received push information has promotional content linked thereto, an information component associated with the received push information, and displays the information forwarding entry in the information component.

[00105] In a case that the information forwarding entry is displayed in the information component, the terminal monitors a trigger operation performed by the user for the information forwarding entry. If detecting a trigger operation performed by the user for the information forwarding entry, the terminal performs at least one session object item in response to the trigger operation performed for the information forwarding entry. The information forwarding entry is a trigger entry configured for forwarding the received push information to another session object. One session object item specifically includes one session object and a selection box associated with the session object. When the user triggers a selection operation for the session object item, the user selects another session object to which an information needs to be forwarded, specifically by selecting a selection box within the session object item associated with the session object.

[00106] Further, in a case that at least one session object item is displayed, the terminal monitors a second object selection operation triggered by the user for the at least one session object item. If detecting the second object selection operation triggered by the user for the at least one session object item, the terminal obtains a session object indicated by the second object selection operation in response to the second object selection operation triggered for the at least one session object item, to forward the received push information to the session object indicated by the second object selection operation.

[00107] For example, as shown in FIG. 12, an example of forwarding received push information is provided. It may be learned from FIG. 12 that, the terminal displays the received push information 1102 on the message transmission interface 302, and when detecting a second trigger operation for the received push information, the terminal displays, in a case that the received push information 1102 has promotional content linked thereto, the information component 1104 associated with the received push information 1102 in response to the second trigger operation for

the received push information 1102, and displays an information forwarding entry 1108 in the information component 1104.

[00108] In a case that the information forwarding entry 1108 is displayed in the information component 1104, if detecting a trigger operation performed the user for the information forwarding entry 1108, the terminal displays at least one session object item 1202, for example, a session object A to a session object E in response to the trigger operation for the information forwarding entry 1108.

[00109] Further, in a case that the at least one session object item 1202 is displayed, if detecting a second object selection operation triggered by the user for the at least one session object item 1202, the terminal obtains a session object indicated by the second object selection operation in response to the second object selection operation triggered for the at least one session object item 1202, for example, a second object selection operation triggered for the "session object B", to forward the received push information 1102 to the session object B indicated by the second object selection operation.

[00110] If the user triggers the second object selection operation for a plurality of session object items, the terminal transmits the received push information to each of a plurality of selected session objects in response to the second object selection operation triggered for the plurality of session object items.

[00111] In this embodiment, in a case that the information component associated with the received push information is displayed, the information forwarding entry is displayed in the information component, and the terminal displays the at least one session object item in response to the trigger operation for the information forwarding entry, and transmits the received push information to the session object indicated by the second object selection operation in response to the second object selection operation for the at least one session object item. This achieves repeated transmission and dissemination of the received push information, and enhances interaction between the user and the promotional content linked to the received push information, thereby expanding dissemination reach of the promotional content, and increasing utilization of a promotional content resource.

[00112] In an exemplary embodiment, as shown in FIG. 13, a message-based interaction method is provided. An example in which the method is applied to the terminal 102 in FIG. 1 is used for description. The method specifically includes the following operation S1301 to operation S1308.

[00113] Operation S1301: Display a message transmission interface, and display, in response to a message input operation triggered on the message transmission interface, a message inputted through the message input operation.

[00114] Specifically, a message input area is displayed on the message transmission interface. The terminal displays the message transmission interface, for example, a session interface of a communication application or a bullet screen message display interface of a multimedia application, and displays the message input area on the message transmission interface. A user of the application may input, based on the message input area, a message that needs to be transmitted to another user. When detecting a message input operation triggered for the message input area (for example, an input keyboard) of the message transmission interface, the terminal responds to the message input operation, and displays the message inputted by the current user based on the message input area.

[00115] For example, the terminal displays a session interface of a communication application, and displays a message input area, that is, an input keyboard, on the session interface of the communication application. A current user may input, based on the input keyboard of the session interface, a session message that needs to be transmitted to another session object. When detecting a message input operation triggered for the message input area (for example, an input keyboard) of the session interface, the terminal responds to the message input operation, and displays the session message inputted by the current user based on the message input area.

[00116] Operation S1302: Perform phrase splitting on the message, to obtain at least one phrase; and traverse a preset push keyword library based on the at least one phrase.

[00117] Specifically, an input method backend deployed on the terminal performs phrase splitting on the message to obtain at least one phrase, for example, performs phrase splitting on "Hello, happy new year", to obtain phrases "Hello" and "Happy New Year". For each phrase w_i ($i = 1,2,\cdots,n$, n being a quantity of phrases) obtained through splitting, matching is performed with each push keyword k_j ($j = 1,2,\cdots,m$, m being a quantity of push keywords) in the preset push keyword library. During the matching, a character string matching algorithm, for example, a simple exact matching algorithm, may be used, to determine whether the phrase w_i is identical to the push keyword k_j. If $w_i = k_j$, the matching is considered successful, and it is determined that the preset push keyword library includes a push keyword that matches the phrase.

[00118] The push keyword library may specifically include a plurality of push keywords, each having at least one piece of push information associated therewith. For example, the push

keyword library may include keywords such as "Happy new year and good health", "Happy birthday and happy every day", "Mid-Autumn reunion", and "Dragon Boat Festival peace and health". Specific content of the push keyword may be set or adjusted based on actual needs of a promoter. For example, the keyword "Happy new year and good health" has at least one piece of push information associated therewith, which may be push information associated with a promoter A, a promoter B, or the like, carrying brand elements or brand identifiers associated with different promoters, or may be push information associated with different products or services of the promoter A, for example, push information associated with an X product or a Y service of the promoter A.

[00119] Operation S1303: Display, in response to a transmission operation triggered for a session message, the message that has been transmitted if it is determined that no push keyword matches the phrase.

[00120] Specifically, if it is determined that no push keyword in the preset push keyword library matches the phrase, it indicates that the current scenario does not involve promotional content. In this case, a normal session process is to be performed. The message is transmitted to another user in response to the transmission operation triggered by the user for the message, and the message that has been transmitted is displayed on the message transmission interface.

[00121] Operation S1304: Obtain, if it is determined that the preset push keyword library includes a push keyword matching the phrase, push information associated with the push keyword.

[00122] Specifically, if it is determined that the preset push keyword library includes a push keyword matching the phrase, phrase splitting may be performed on, for example, "Hello, happy new year", to obtain phrases "Hello" and "Happy new year", and the preset push keyword library is traversed based the phrase, for example, "Hello" or "Happy new year" obtained through splitting. In a case that the push keyword library includes a plurality of keywords such as "Happy new year and good health", "Happy birthday and happy every day", "Mid-Autumn reunion", and "Dragon Boat Festival peace and health", it may be determined that the push keyword "Happy new year and good health" in the preset push keyword library matches the phrase "Happy new year", and push information associated with the push keyword is obtained. For example, push information associated with push keyword "Happy new year and good health" is obtained.

[00123] The push information associated with the push keyword "Happy new year and good health" specifically carries the push keyword "Happy new year and good health", carries an element of a promotional target, for example, a brand element or a brand identifier configured for indicating

a promoter, and has linked thereto promotional content associated with the promotional target, including promotional content associated with the promoter and the like.

[00124] Operation S1305: Display, in a case that the message includes a push keyword having an emoji package associated therewith, push information associated with the push keyword.

[00125] Specifically, a push information display area is displayed on the message transmission interface. Displaying, in a case that the message includes a push keyword, push information associated with the push keyword may be specifically displaying an information component in the push information display area, and displaying the push information in the information component.

[00126] Operation S1306: Display, in response to a transmission operation triggered for the message, the message that has been transmitted in a case that the message includes no push keyword.

[00127] Specifically, in a case that the message includes no push keyword, it indicates that the current scenario does not involve promotional content presentation. In this case, a normal session process is to be performed. The message is transmitted to another user in response to the transmission operation triggered by the user for the message, and the message that has been transmitted is displayed.

[00128] Operation S1307: Display, in response to a transmission operation for the push information, the push information that has been transmitted.

[00129] Specifically, in a case that the push information associated with the push keyword is displayed, the user may trigger a transmission operation for the push information. In response to the transmission operation performed by the user for the push information, the terminal transmits the push information to another user, and displays the push information that has been transmitted.

[00130] Operation S1308: Display promotional content linked to the push information in response to a first trigger operation for the push information that has been transmitted.

[00131] Specifically, in a case that the push information that has been transmitted is displayed on the message transmission interface, the user may click/tap the push information that has been transmitted. When detecting the first trigger operation performed by the user for the push information that has been transmitted, the terminal jumps to display the promotional content linked to the push information in response to the first trigger operation for the push information that has been transmitted.

[00132] In the foregoing message-based interaction method, the message transmission interface is displayed; in response to the message input operation triggered on the message transmission interface, the message inputted through the message input operation is displayed; and phrase splitting is performed on the message, to obtain at least one phrase, so as to traverse the preset push keyword library based on the at least one phrase. Further, if it is determined that the preset push keyword library includes a push keyword matching the phrase, push information associated with the push keyword is obtained, and the push information associated with the push keyword is displayed in a case that the message includes the push keyword. The terminal displays, in response to a transmission operation for the push information, the push information that has been transmitted, and further displays promotional content linked to the push information in response to a first trigger operation for the push information that has been transmitted. This can incorporate presentation of the promotional content into daily social interaction of the user without interrupting user experience, improving fun and interactivity of content pushing, and increasing flexibility of presentation of the promotional content.

[00133] In an exemplary embodiment, as shown in FIG. 14, a message-based interaction method is provided, which specifically relates to processing platforms such as an input method frontend, an input method backend, an advertisement engine, a promoter platform, and a delivery end. The message-based interaction method specifically includes the following operations:

[00134] Operation S1401: A promoter platform transmits an advertisement delivery request to a delivery end, and transmits, to the delivery end, promotional content associated with the advertisement delivery request, push information associated with the promotional content, and a push keyword associated with the push information.

[00135] Specific content of the advertisement delivery request includes a promotion objective (for example, to improve brand popularity and increase product sales), a delivery time range, a delivery budget, and a target audience feature (for example, an age, a gender, and a region). In addition, the promoter platform transmits, to the delivery end, the promotional content (such as an advertisement picture, video, or copy) associated with the advertisement delivery request, the push information (such as an emoji package or a link) associated with the promotional content, and the push keyword (such as a keyword related to a special festival or activity) associated with the push information. After receiving the information, the delivery end first parses the advertisement delivery request, and formulates a delivery strategy, for example, selects an appropriate delivery channel and delivery time point, based on the promotion objective and the target audience feature. Then, the

promotional content, the push information, and the push keyword are organized and stored for subsequent feedback to the advertisement engine.

[00136] Specifically, the promoter platform transmits the advertisement delivery request to the delivery end, to deliver the promotional content through the delivery end. The promoter platform transmits, together with the advertisement delivery request, the promotional content (such as advertisement promotional content) associated with the advertisement delivery request, including materials and copies related to the promotional content, to the delivery end.

[00137] Further, the promoter platform further needs to configure the push information, such as an emoji package, associated with the promotional content, and transmits, together with the advertisement delivery request, the emoji package associated with the promotional content and a push keyword associated with the emoji package to the delivery end, to feed back the promotional content, the emoji package, and the push keyword to the advertisement engine through the delivery end.

[00138] Operation S1402: An advertisement engine receives the promotional content, the push information, and the push keyword that are fed back by the delivery end, establishes a link between the push information and the promotional content, and establishes an association between the push information and the push keyword.

[00139] Specifically, after receiving the promotional content, the push information, and the push keyword that are fed back by the delivery end, the advertisement engine establishes a link between the push information and the promotional content, that is, links the promotional content to the push information, to jump to display the promotional content linked to the push information when the push information is triggered. In addition, the advertisement engine further needs to establish an association between the push information and the push keyword, to feed back, to the input method backend, the push information that is associated with the push keyword and that has promotional content liked thereto when determining that a message inputted by a user hits the push keyword, and to present the push information on a message transmission interface on which the input method frontend is located after feeding back the push information to the input method frontend through the input method backend. The advertisement engine may store these association relationships by using a hash table. In a hash table for an association between push information and promotional content, a key is a unique identifier of the push information, and a value is a unique identifier of the corresponding promotional content. For example, in the hash table H_1, $H_1[id_{p_i}] = id_{c_j}$, id_{p_i} being an identifier of push information p_i, and id_{c_j} being an identifier of promotional content c_j. In a hash table H_2 for an association between push information and a push keyword, a

key is a unique identifier of the push keyword, and a value is a list of identifiers of push information associated with the key. For example, $H_2[id_{k_l}] = [id_{p_1}, id_{p_2}, \cdots]$, id_{k_l} being an identifier of a push keyword k_l, and $id_{p_1}, id_{p_2}, \cdots$ being identifiers of push information associated with the push keyword. Such a data storage structure enables quick association query and data retrieval.

[00140] In a specific example, the advertisement engine receives the promotional content, the push information, and the push keyword that are fed back by the delivery end. To establish the link between the push information and the promotional content, the advertisement engine assigns a unique identifier id_{p_i} to each piece of push information p_i ($i = 1,2,\cdots,s$, s being a quantity of push information), and assigns a unique identifier id_{c_j} to each piece of promotional content c_j ($j = 1,2,\cdots,t$, t being a quantity of promotional content). Then the advertisement engine establishes a mapping table that associates the identifier id_{p_i} of the push information with the identifier id_{c_j} of the corresponding promotional content, that is, $Map_{p-c}(id_{p_i}) = id_{c_j}$, to achieve the link between the push information and the promotional content. To establish the association between the push information and the push keyword, the advertisement engine similarly assigns a unique identifier id_{k_k} to each push keyword k_k ($k = 1,2,\cdots,u$, u being a quantity of push keywords), and creates another mapping table that associates the identifier id_{p_i} of the push information with the identifier id_{k_k} of the corresponding push keyword, that is, $Map_{p-k}(id_{p_i}) = id_{k_k}$, to achieve the association between the push information and the push keyword.

[00141] Operation S1403: The input method frontend obtains a message inputted by a user, and transmits the message to the input method backend.

[00142] Operation S1404: The input method backend performs phrase splitting on the message to obtain at least one phrase, and traverses a preset push keyword library based on the at least one phrase.

[00143] Specifically, the input method backend performs phrase splitting on the received message to obtain at least one phrase, for example, performs phrase splitting on "Hello, happy new year", to obtain phases "Hello" and "Happy new year", so as to traverse the preset push keyword library based on the phrases obtained through splitting, for example, "Hello" or "Happy new year", to determine whether the preset push keyword library includes a push keyword matching the phrase.

[00144] Operation S1405: The input method backend triggers, if determining that the preset push keyword library includes a push keyword matching the phrase, a push information obtaining

request based on the push keyword, and transmits the push information obtaining request to the advertisement engine.

[00145] The push information obtaining request may be in a JSON format, and includes the following specific content: a request type "push information obtaining", an identifier id_k of a matched push keyword, and partial identification information (such as a hash value $hash_{msg}$) of a message inputted by a user. An example is as follows:

{

"request_type": "push information obtaining",

"keyword_id": "id_k",

"message_hash": "$hash_{msg}$"

}

[00146] Specifically, if determining that the preset push keyword library includes a push keyword matching the phrase, the input method backend may perform phrase splitting on, for example, "Hello, happy new year", to obtain phrases "Hello" and "Happy new year", and traverse the preset push keyword library based the phrase, for example, "Hello" or "Happy new year" obtained through splitting. When it is determined that the preset push keyword library includes a push keyword "Happy new year and good health" matching the phrase "Happy new year", a push information obtaining request is triggered based on the push keyword, and the push information obtaining request is transmitted to the advertisement engine.

[00147] Operation S1406: The advertisement engine transmits, to the input method backend, the push information that is associated with the push keyword and that has promotional content linked thereto in response to the received push information obtaining request.

[00148] Specifically, the advertisement engine transmits, to the input method backend, the push information that is associated with the push keyword "Happy new year and good health" matching the phrase "Happy new year" and that has promotional content linked thereto in response to the received push information obtaining request.

[00149] In a specific example, in response to the received push information obtaining request, the advertisement engine obtains, from the previously established mapping table, the identifier id_k of the push keyword carried in the request, and searches the mapping table Map_{p-k} for an identifier id_p of push information associated with the push keyword. For the identifier id_p of each piece of push information that is found, it is further determined through the mapping table

Map_{p-c} whether the push information has promotional content linked thereto. All push information that is associated with the push keyword and that has promotional content linked thereto is selected, and is packaged in a JSON format, including information such as specific content of the push information and an identifier id_c of corresponding promotional content, which is transmitted to the input method backend. An example is as follows:

{

"push_infos": [

{

"push_info_id": "id_{p1}",

"push_info_content": "specific push information content 1",

"promotion_content_id": "id_{c1}"

},

{

"push_info_id": "id_{p2}",

"push_info_content": "specific push information content 2",

"promotion_content_id": "id_{c2}"

}

]

}

[00150] Operation S1407. The input method backend feeds back the push information to the input method frontend, to display the push information on a message transmission interface.

[00151] Specifically, the input method backend feeds back the received push information to the input method frontend, to display the push information on a message transmission interface on which the input method frontend is located. A push information display area is displayed on the message transmission interface, which is located at a top of the message input area (for example, an input method). Specifically, the push information is displayed in the push information display area.

[00152] Operation S1408: The input method frontend displays, when detecting a transmission operation triggered for the push information, the push information that has been transmitted in response to the transmission operation for the push information.

[00153] Specifically, in a case that the push information is displayed, the user may trigger a transmission operation for the push information. When detecting the transmission operation triggered for the push information, the input method frontend deployed on the terminal transmits the push information to another user in response to the transmission operation for the push information, and displays the push information that has been transmitted.

[00154] In a specific example, when the user clicks/taps an information transmission entry (for example, a transmission button) in the push information display area, a transmission operation is triggered. When detecting the clicking/tapping event, the input method frontend obtains related data (such as content of the push information and an identifier of associated promotional content) of the push information, encapsulates the data into a message data packet, and transmits the data packet to another user through a communications interface. In addition, the push information that has been transmitted is displayed on the message transmission interface. For example, the push information may be presented in a message list in a specific form (for example, a different color or icon), so as to distinguish the push information from a common message.

[00155] Operation S1409: The input method frontend jumps to display promotional content linked to the push information in response to a first trigger operation for the push information that has been transmitted.

[00156] Specifically, in a case that the push information that has been transmitted is displayed on the message transmission interface, the user may click/tap the push information that has been transmitted. When detecting the first trigger operation performed by the user for the push information that has been transmitted, the input method frontend deployed on the terminal jumps to display the promotional content linked to the push information in response to the first trigger operation for the push information that has been transmitted.

[00157] In this embodiment, the promoter platform may transmit, to the delivery end, the advertisement delivery request, the promotional content associated with the advertisement delivery request, the push information associated with the promotional content, and the push keyword associated with the push information to the delivery end, so as to feed back the promotional content, the push information, and the push keyword to the advertisement engine through the delivery end, thereby establishing, through the advertisement engine, a link between the push information and the promotional content and an association between the push information and the push keyword. In this way, when determining that the message inputted by the user includes a phrase matching the push keyword in the preset push keyword library, the input method backend obtains the push information associated with the push keyword matching the corresponding phrase, and displays the push

information associated with the push keyword. Further, the push information that has been transmitted is displayed on the message transmission interface in response to the transmission operation for the push information, and the promotional content linked to the push information is further displayed in response to the first trigger operation for the push information that has been transmitted. This can incorporate presentation of the promotional content into a daily social scenario of the user, improve interactivity and a dissemination effect of the promotional content, further enhance interaction between the user and the promotional content, and expand dissemination reach of the promotional content, thereby reducing wastes of promotional content resources, and further improving utilization of a promotional content resource.

[00158] Although the operations in the flowcharts involved in the foregoing embodiments are displayed in a sequence based on indication of arrows, the operations are not necessarily performed sequentially based on the sequence indicated by the arrows. Unless otherwise explicitly specified in this application, execution of these operations is not strictly limited, and these operations may be performed in another sequence. In addition, at least some operations in the flowcharts involved in the foregoing embodiments may include a plurality of operations or a plurality of stages. These operations or stages are not necessarily performed at a same moment, but instead may be performed at different moments. These operations or stages are not necessarily performed in sequence, but instead may be performed in turn or alternately with other operations or at least part of operations or stages in the other operations.

[00159] Based on the same inventive concept, an embodiment of this application further provides a session data processing apparatus configured to implement the foregoing message-based interaction method. An implementation provided by the apparatus for resolving the problem is similar to the implementation described in the foregoing method. Therefore, for specific limitations on one or more embodiments of the session data processing apparatus provided below, reference may be made to the limitations on the message-based interaction method in the foregoing text. Details are not described herein.

[00160] In an exemplary embodiment, as shown in FIG. 15, a message-based interaction apparatus is provided, including a message display module 1502, a push information display module 1504, and a push information transmission module 1506.

[00161] The message display module 1502 is configured to display a message transmission interface, and display, in response to a message input operation triggered on the message transmission interface, a message inputted through the message input operation.

[00162] The push information display module 1504 is configured to display, in a case that the message includes a push keyword, push information associated with the push keyword, the push information indicating a promotional target.

[00163] The push information transmission module 1506 is configured to display, in response to a transmission operation for the push information, the push information that has been transmitted, the push information being configured for triggering to display promotional content linked to the push information, the promotional content being associated with the promotional target.

[00164] In the foregoing message-based interaction apparatus, the message transmission interface is displayed, the message inputted through the message input operation is displayed in response to the message input operation triggered on the message transmission interface, and the push information associated with the push keyword is displayed in a case that the message includes the push keyword. Because the push information indicates the promotional target, and the promotional target is associated with the promotional content linked to the push information, presentation and transmission of the push information associated with the promotional target may be triggered when the inputted message hits the push keyword. This incorporates presentation of the promotional content into a daily message transmission scenario, improving interactivity and a dissemination effect of the promotional content, and increasing utilization of a promotional content resource. Further, in response to the transmission operation for the push information, the push information that has been transmitted is displayed, and the linked promotional content is triggered to be displayed through the push information, so that interaction between the message transmission object and the promotional content can be enhanced, dissemination reach of the promotional content can be expanded, and utilization of a promotional content resource can be increased.

[00165] In an exemplary embodiment, a message-based interaction apparatus is provided, further including a promotional content display module configured to: display a first promotional content obtaining entry associated with the push information in a case that the push information is displayed; and display the promotional content linked to the push information in response to a trigger operation for the first promotional content obtaining entry.

[00166] In an exemplary embodiment, the promotional content display module is further configured to: display the promotional content linked to the push information in response to a first trigger operation for the push information that has been transmitted.

[00167] In an exemplary embodiment, the promotional content display module is further configured to: display received push information; and display, in a case that the received push

information has promotional content linked thereto, the promotional content linked to the received push information in response to a second trigger operation for the received push information.

[00168] In an exemplary embodiment, the promotional content display module is further configured to: display, in a case that the received push information has promotional content linked thereto, an information component associated with the received push information in response to the second trigger operation for the received push information; display a second promotional content obtaining entry in the information component; and display the promotional content linked to the received push information in response to a trigger operation for the second promotional content obtaining entry.

[00169] In an exemplary embodiment, a message-based interaction apparatus is provided, further including a received push information forwarding module configured to: display an information forwarding entry in the information component; display at least one session object item in response to a trigger operation for the information forwarding entry; and transmit, in response to a second object selection operation triggered for the at least one session object item, the received push information to a session object indicated by the second object selection operation.

[00170] In an exemplary embodiment, a message-based interaction apparatus is provided, further including a push information displaying stop module, configured to: display a close entry associated with the push information in a case that the push information is displayed; and stop displaying the push information in response to a trigger operation for the close entry.

[00171] In an exemplary embodiment, a message-based interaction apparatus is provided, further including a message transmission module configured to display, in response to a transmission operation triggered for the message, the message that has been transmitted in a case that the message includes no push keyword.

[00172] In an exemplary embodiment, a plurality of pieces of push information exist, and the push information display module is further configured to display, in response to a transmission operation for at least one piece of the plurality of pieces of push information, the at least one piece of push information that has been transmitted.

[00173] In an exemplary embodiment, a message-based interaction apparatus is provided, further including a push information obtaining module, configured to: perform phrase splitting on the message, to obtain at least one phrase; traverse a preset push keyword library based on the at least one phrase; and obtain, if it is determined that the preset push keyword library includes a push keyword matching the phrase, push information associated with the push keyword.

[00174] All or a part of the modules in the foregoing message-based interaction apparatus may be implemented by software, hardware, or a combination thereof. The foregoing modules may be embedded in or independent of a processor in a computer device in a form of hardware, or may be stored in a memory in the computer device in a form of software, for invoke by the processor to perform the operations corresponding to the foregoing modules.

[00175] In an exemplary embodiment, a computer device is provided. The computer device may be a terminal or a server. In a case that the computer device is a terminal, a diagram of an internal structure thereof may be shown in FIG. 16. The computer device includes a processor, a memory, an input/output interface, a communication interface, a display unit, and an input apparatus. The processor, the memory, and the input/output interface are connected through a system bus. The communication interface, the display unit, and the input apparatus are connected to the system bus through the input/output interface. The processor of the computer device is configured to provide computing and control capabilities. The memory of the computer device includes a non-volatile storage medium and an internal memory. The non-volatile storage medium has an operating system and a computer program stored therein. The internal memory provides an environment for running of the operating system and the computer program in the non-volatile storage medium. The input/output interface of the computer device is configured to exchange information between the processor and an external device. The communication interface of the computer device is configured to perform wired or wireless communication with an external terminal. The wireless communication may be implemented through wireless fidelity (Wi-Fi), a mobile cellular network, near field communication (NFC), or another technology. The computer program, when executed by the processor, implements a message-based interaction method. The display unit of the computer device is configured to form a visible image, and may be a display screen, a projection apparatus, or a VR imaging apparatus. The display screen may be a liquid crystal display screen or an e-ink display screen. The input apparatus of the computer device may be a touch layer covering the display screen, or may be a key, a trackball, or a touchpad arranged on a housing of the computer device, or may be an external keyboard, touchpad, mouse, or the like.

[00176] A person skilled in the art may understand that the structure shown in FIG. 16 is merely a block diagram of a partial structure related to the solution of this application, and does not constitute a limitation on the computer device to which the solution of this application is applied. Specifically, the computer device may include more or fewer components than those shown in the figure, or some merged components, or different component arrangements.

[00177] In an exemplary embodiment, a computer device is provided, including a memory and a processor, the memory having a computer program stored therein, and the processor implementing, when executing the computer program, the following operations: displaying a message transmission interface; and displaying, in response to a message input operation triggered on the message transmission interface, a message inputted through the message input operation; displaying, in a case that the message includes a push keyword, push information associated with the push keyword, the push information indicating a promotional target; and displaying, in response to a transmission operation for the push information, the push information that has been transmitted, the push information being configured for triggering to display promotional content linked to the push information, the promotional content being associated with the promotional target.

[00178] In an embodiment, the processor, when executing the computer program, further implements the following operations: displaying a first promotional content obtaining entry associated with the push information in a case that the push information is displayed; and displaying the promotional content linked to the push information in response to a trigger operation for the first promotional content obtaining entry.

[00179] In an embodiment, the processor, when executing the computer program, further implements the following operation: displaying the promotional content linked to the push information in response to a first trigger operation for the push information that has been transmitted.

[00180] In an embodiment, the processor, when executing the computer program, further implements the following operations: displaying at least one session object item in response to an information forwarding operation for the push information that has been transmitted; and transmitting, in response to a first object selection operation triggered for the at least one session object item, the push information to a session object indicated by the first object selection operation.

[00181] In an embodiment, the processor, when executing the computer program, further implements the following operations: displaying the received push information; and displaying, in a case that the received push information has promotional content linked thereto, the promotional content linked to the received push information in response to a second trigger operation for the received push information.

[00182] In an embodiment, the processor, when executing the computer program, further implements the following operations: displaying, in a case that the received push information has promotional content linked thereto, an information component associated with the received push information in response to the second trigger operation for the received push information;

displaying a second promotional content obtaining entry in the information component; and displaying the promotional content linked to the received push information in response to a trigger operation for the second promotional content obtaining entry.

[00183] In an embodiment, the processor, when executing the computer program, further implements the following operations: displaying an information forwarding entry in the information component; displaying at least one session object item in response to a trigger operation for the information forwarding entry; and transmitting, in response to a second object selection operation triggered for the at least one session object item, the received push information to a session object indicated by the second object selection operation.

[00184] In an embodiment, the processor, when executing the computer program, further implements the following operations: displaying a close entry associated with the push information in a case that the push information is displayed; and stopping displaying the push information in response to a trigger operation for the close entry.

[00185] In an embodiment, the processor, when executing the computer program, further implements the following operation: displaying, in response to a transmission operation triggered for the message, the message that has been transmitted in a case that the message includes no push keyword.

[00186] In an embodiment, the processor, when executing the computer program, further implements the following operation: displaying, in response to a transmission operation for at least one piece of a plurality of pieces of push information, the at least one piece of push information that has been transmitted.

[00187] In an embodiment, the processor, when executing the computer program, further implements the following operation: performing phrase splitting on the message, to obtain at least one phrase; traversing a preset push keyword library based on the at least one phrase; and obtaining, if it is determined that the preset push keyword library includes a push keyword matching the phrase, push information associated with the push keyword.

[00188] In an embodiment, a computer-readable storage medium is provided, having a computer program stored therein. The computer program, when executed by a processor, implements the following operations: displaying a message transmission interface, and displaying, in response to a message input operation triggered on the message transmission interface, a message inputted through the message input operation; displaying, in a case that the message includes a push keyword, push information associated with the push keyword, the push information indicating a

promotional target; and displaying, in response to a transmission operation for the push information, the push information that has been transmitted, the push information being configured for triggering to display promotional content linked to the push information, the promotional content being associated with the promotional target.

[00189] In an embodiment, the computer program, when executed by the processor, further implements the following operations: displaying a first promotional content obtaining entry associated with the push information in a case that the push information is displayed; and displaying the promotional content linked to the push information in response to a trigger operation for the first promotional content obtaining entry.

[00190] In an embodiment, the computer program, when executed by the processor, further implements the following operation: displaying the promotional content linked to the push information in response to a first trigger operation for the push information that has been transmitted.

[00191] In an embodiment, the computer program, when executed by the processor, further implements the following operations: displaying at least one session object item in response to an information forwarding operation for the push information that has been transmitted; and transmitting, in response to a first object selection operation triggered for the at least one session object item, the push information to a session object indicated by the first object selection operation.

[00192] In an embodiment, the computer program, when executed by the processor, further implements the following operations: displaying received push information; and displaying, in a case that the received push information has promotional content linked thereto, the promotional content linked to the received push information in response to a second trigger operation for the received push information.

[00193] In an embodiment, the computer program, when executed by the processor, further implements the following operations: displaying, in a case that the received push information has promotional content linked thereto, an information component associated with the received push information in response to the second trigger operation for the received push information; displaying a second promotional content obtaining entry in the information component; and displaying the promotional content linked to the received push information in response to a trigger operation for the second promotional content obtaining entry.

[00194] In an embodiment, the computer program, when executed by the processor, further implements the following operations: displaying an information forwarding entry in the information

component; displaying at least one session object item in response to a trigger operation for the information forwarding entry; and transmitting, in response to a second object selection operation triggered for the at least one session object item, the received push information to a session object indicated by the second object selection operation.

[00195] In an embodiment, the computer program, when executed by the processor, further implements the following operations: displaying a close entry associated with the push information in a case that the push information is displayed; and stopping displaying the push information in response to a trigger operation for the close entry.

[00196] In an embodiment, the computer program, when executed by the processor, further implements the following operation: displaying, in response to a transmission operation triggered for the message, the message that has been transmitted in a case that the message includes no push keyword.

[00197] In an embodiment, the computer program, when executed by the processor, further implements the following operation: displaying, in response to a transmission operation for at least one piece of a plurality of pieces of push information, the at least one piece of push information that has been transmitted.

[00198] In an embodiment, the computer program, when executed by the processor, further implements the following operations: performing phrase splitting on the message, to obtain at least one phrase; traversing a preset push keyword library based on the at least one phrase; and obtaining, if it is determined that the preset push keyword library includes a push keyword matching the phrase, push information associated with the push keyword.

[00199] In an embodiment, a computer program product is provided, including a computer program. The computer program, when executed by a processor, implements the following operations: displaying a message transmission interface, and displaying, in response to a message input operation triggered on the message transmission interface, a message inputted through the message input operation; displaying, in a case that the message includes a push keyword, push information associated with the push keyword, the push information indicating a promotional target; and displaying, in response to a transmission operation for the push information, the push information that has been transmitted, the push information being configured for triggering to display promotional content linked to the push information, the promotional content being associated with the promotional target.

[00200] In an embodiment, the computer program, when executed by the processor, further implements the following operations: displaying a first promotional content obtaining entry associated with the push information in a case that the push information is displayed; and displaying the promotional content linked to the push information in response to a trigger operation for the first promotional content obtaining entry.

[00201] In an embodiment, the computer program, when executed by the processor, further implements the following operation: displaying the promotional content linked to the push information in response to a first trigger operation for the push information that has been transmitted.

[00202] In an embodiment, the computer program, when executed by the processor, further implements the following operations: displaying at least one session object item in response to an information forwarding operation for the push information that has been transmitted; and transmitting, in response to a first object selection operation triggered for the at least one session object item, the push information to a session object indicated by the first object selection operation.

[00203] In an embodiment, the computer program, when executed by the processor, further implements the following operations: displaying received push information; and displaying, in a case that the received push information has promotional content linked thereto, the promotional content linked to the received push information in response to a second trigger operation for the received push information.

[00204] In an embodiment, the computer program, when executed by the processor, further implements the following operations: displaying, in a case that the received push information has promotional content linked thereto, an information component associated with the received push information in response to the second trigger operation for the received push information; displaying a second promotional content obtaining entry in the information component; and displaying the promotional content linked to the received push information in response to a trigger operation for the second promotional content obtaining entry.

[00205] In an embodiment, the computer program, when executed by the processor, further implements the following operations: displaying an information forwarding entry in the information component; displaying at least one session object item in response to a trigger operation for the information forwarding entry; and transmitting, in response to a second object selection operation triggered for the at least one session object item, the received push information to a session object indicated by the second object selection operation.

[00206] In an embodiment, the computer program, when executed by the processor, further implements the following operations: displaying a close entry associated with the push information in a case that the push information is displayed; and stopping displaying the push information in response to a trigger operation for the close entry.

[00207] In an embodiment, the computer program, when executed by the processor, further implements the following operation: displaying, in response to a transmission operation triggered for the message, the message that has been transmitted in a case that the message includes no push keyword.

[00208] In an embodiment, the computer program, when executed by the processor, further implements the following operation: displaying, in response to a transmission operation for at least one piece of a plurality of pieces of push information, the at least one piece of push information that has been transmitted.

[00209] In an embodiment, the computer program, when executed by the processor, further implements the following operations: performing phrase splitting on the message, to obtain at least one phrase; traversing a preset push keyword library based on the at least one phrase; and obtaining, if it is determined that the preset push keyword library includes a push keyword matching the phrase, push information associated with the push keyword.

[00210] In conclusion, this application provides a message-based interaction method and apparatus, a computer device, a computer-readable storage medium, and a computer program product. The message transmission interface is displayed, the message is displayed in response to the message input operation, and the push information associated with the push keyword is displayed when the message includes the push keyword. In this process, a system monitors message content in real time by using a text recognition technology, and achieves automatic association between the message and the push information based on a keyword matching algorithm. Compared with conventional promotion manners that require manual screening and pushing, this method reduces labor costs and improves automation and accuracy of information processing. Because the push information indicates the promotional target and is associated with the promotional content, presentation of the promotional information has clear directionality, reducing interference from irrelevant information, reducing resource consumption of the system in an information storage, transmission, and processing process is reduced, and improving utilization of system resources in information matching and presentation. Then the push information that has been transmitted is displayed in response to the transmission operation for the push information, so that a user can trigger to display the linked promotional content by using the push information, achieving seamless

connection between exchange of the message and presentation of the promotional content, improving information continuity and interactivity of the system, enabling system resources to flow among different functional modules more efficiently, and improving overall resource utilization.

[00211] Further, when the push information is displayed, the first promotional content obtaining entry associated with the push information is displayed, so that the user can click/tap the entry to display the promotional content linked to the push information. This design optimizes the obtaining process of the promotional content by incorporating a clear entry in the interface layout, thereby reducing user operations for finding the promotional content and reducing a response latency of the system. From a perspective of system resources, this avoids unnecessary interface rendering and data transmission, reduces occupancy of a graphics processing unit (GPU) and network bandwidth, improves system efficiency in information presentation and exchange, and enables the system to utilize computing resources more effectively.

[00212] When the push information that has been transmitted is displayed, the promotional content linked to the push information is displayed in response to the first trigger operation for the push information. This enhances interactivity of the system and dynamic natures of information. The system presents the promotional content in real time based on user operations through an event-driven mechanism, which achieves pushing without an additional timed task or complex algorithm, thereby reducing a computing load of a central processing unit (CPU) and system resource consumption, and improving utilization of system resources in information presentation.

[00213] The at least one session object item is displayed in response to the information forwarding operation for the push information that has been transmitted, and the push information is transmitted to the selected session object in response to the first object selection operation for the session object item. This process achieves automatic dissemination and spreading of the push information by using the network communication capability and the data processing capability of the computer devices. Through information forwarding between users, a dissemination range of the promotional content is expanded, resource consumption required for active promotion by the system is reduced, dissemination efficiency of the promotional content is improved, scalability of the system in terms of information dissemination is enhanced, and a resource bottleneck of the system during large-scale promotion is reduced.

[00214] The received push information is displayed, and in a case that the received push information has promotional content linked thereto, the linked promotional content is displayed in response to the second trigger operation for the push information. The system monitors and processes the received push information in real time, and automatically determines whether to

present the promotional content by determining a status and a link condition of the information, thereby avoiding unnecessary resource wastes. During the data processing, read and write operations on a storage device are reduced, and utilization of system resources in information processing and presentation is improved.

[00215] In response to the second trigger operation for the received push information, in a case that the received push information has promotional content linked thereto, the information component associated with the received push information is displayed, and the second promotional content obtaining entry is displayed in the component, so that the user can click/tap the entry to display the promotional content. This design optimizes presentation and processing processes of the received push information by centrally displaying the information component, thereby reducing interface complexity, and reducing rendering pressure of the GPU. The system rapidly locates and presents the promotional content by using an index technology based on the clicking/tapping operation of the user, reducing data search and a transmission time, and improving utilization of system resources in information presentation and exchange.

[00216] When the information component associated with the received push information is displayed, the information forwarding entry is displayed, the session object item is displayed in response to the trigger operation for the entry, and the received push information is transmitted to the selected session object in response to the second object selection operation for the session object item. This further facilitates dissemination and spreading of the push information, and achieves multi-level dissemination of the promotional content between different users by using the network communication capability and the data management capability of the computer device. Technically, a dissemination range and speed of the promotional content are improved, resource consumption for active promotion by the system is reduced, flexibility and scalability of the system in information dissemination are enhanced, and a packet loss rate and a latency of the system in an information dissemination process are reduced.

[00217] When the push information is displayed, the close entry associated with the push information is displayed, and the displaying of the push information is stopped in response to the trigger operation for the close entry. This provides the system with a capability of autonomously controlling presentation of the promotional information. With an event monitoring mechanism, the system releases related resources in time based on user operations, reducing occupation of the CPU, the GPU, and the storage device, reducing a processing load of the system, and improving utilization of system resources in information presentation and resource management.

[00218] When the message includes no push keyword, the message that has been transmitted is displayed in response to the transmission operation for the message. The system analyzes the message content in real time based on a content determining mechanism, and automatically adjusts the processing process, to avoid interference to the promotional content. Technically, stability and reliability of the system are improved, unnecessary resource consumption is reduced, enabling the system to perform normal message exchange more efficiently by using a computing resource and a network bandwidth, and an error rate of the system in the message processing process is reduced.

[00219] When a plurality of pieces of push information exist, the push information that has been transmitted is displayed in response to the transmission operation for at least one piece of push information. This provides diversified information transmission policies for the system, enabling the system to transmit the push information based on user selection, thereby avoiding unnecessary push information transmission, reducing resource consumption in data storage, transmission, and processing processes, and improving utilization of system resources in information transmission and presentation.

[00220] Phrase splitting is performed on the message to obtain at least one phrase, the preset push keyword library is traversed based on the phrase, and if a matched push keyword exists, push information associated with the matched push keyword is obtained. This technology achieves precise analysis of the message content and intelligent matching of the promotional information by using a word segmentation algorithm and a character string matching algorithm in natural language processing (NLP). Performing phrase splitting on the message reduces matching granularity and improves matching accuracy and efficiency. When traversing the preset push keyword library, the system performs a rapid search by using a data structure such as a hash table, reducing a search time, improving an information processing capability of the system and accurate delivery efficiency of the promotional content, and reducing time complexity of the system in the keyword matching process.

[00221] The message transmission interface includes at least one of a session interface of a communication application, a bullet screen message display interface of a multimedia application, or a communication session interface of a game application. This widens application scenarios and user groups of the system, and improves universality and compatibility of the system. The system achieves presentation of the promotional content in different application scenarios through adaptation and optimization on different interfaces and a cross-platform development technology, expanding a coverage range of the promotional content, improving comprehensive utilization of

system resources in different application scenarios, and reducing costs for the system in different platforms development and maintenance processes.

[00222] Further, the input method management module maintains an input method list, and selects, based on user settings or historical usage habits, an appropriate input method to load. The input method has a lexicon and a rule engine inside for intelligent word prediction and error correction. This embodiment improves efficiency and accuracy of the system in message input. The input method management module stores the input method list by using a cache mechanism, reducing a query time during each input and improving a system response speed. The lexicon and the rule engine perform intelligent word prediction and error correction by using the machine learning algorithm, reducing user input errors, improving input efficiency, reducing consumption of system resources caused by repeated processing due to input errors, and improving utilization of system resources in message input processing. In addition, different types of input methods are combined with various types of social software and communication applications, to implement cross-platform presentation of the promotional content, and user foundations and traffic of existing social and communications platforms are used, improving dissemination reach of the promotional content, expanding promotion scope without adding a large amount of additional resource investment, and improving comprehensive utilization of system resources.

[00223] User information (including but not limited to user equipment information, user personal information) and data (including but not limited to data for analysis, stored data, and displayed data) involved in this application are all information and data authorized by users or fully authorized by all parties, and collection, use, and processing of related data need to conform to related regulations.

[00224] A person of ordinary skill in the art may understand that all or some of the processes of the methods in the foregoing embodiments may be implemented by a computer program instructing relevant hardware. The computer program may be stored in a non-volatile computer-readable storage medium. When the computer program is executed, the processes of the foregoing method embodiments may be implemented. Any reference to a memory, a database, or another medium used in the embodiments provided in this application may include at least one of a non-volatile memory or a volatile memory. The non-volatile memory may include a read-only memory (ROM), a magnetic tape, a floppy disk, a flash memory, an optical memory, a high-density embedded non-volatile memory, a resistive random access memory (ReRAM), a magnetoresistive random access memory (MRAM), a ferroelectric random access memory (FRAM), a phase change memory (PCM), a graphene memory, and the like. The volatile memory may include a random

access memory (RAM), an external cache, or the like. As an illustration rather than a limitation, the RAM is available in various forms, such as a static random access memory (SRAM) or a dynamic random access memory (DRAM). The database involved in the embodiments provided in this application may include at least one of a relational database or a non-relational database. The non-relational database may include a distributed database based on a blockchain, but is not limited thereto. The processor involved in the embodiments provided in this application may be a general-purpose processor, a CPU, a GPU, a digital signal processor, a programmable logic unit, a data processing logic unit based on quantum computing, an artificial intelligence (AI) processor, or the like, but is not limited thereto.

[00225] The technical features of the foregoing embodiments may be combined in different manners. To make the description concise, not all possible combinations of the technical features in the foregoing embodiments are described. However, the combinations of these technical features are considered to fall within the scope recorded in this specification provided that no conflict exists.

[00226] The foregoing embodiments describe only some implementations of this application, which are described specifically and in detail, but cannot be construed as a limitation on the scope of the invention patent. A person of ordinary skill in the art may further make various transformations and improvements without departing from the ideas of this application. These transformations and improvements all fall within the protection scope of this application. Therefore, the protection scope of the patent of this application shall be subject to the appended claims.

CLAIMS

What is claimed is:

1. A message-based interaction method, performed by a computer device, the method comprising:

displaying a message transmission interface, and displaying, in response to a message input operation triggered on the message transmission interface, a message inputted through the message input operation;

displaying, in response to the message comprising a push keyword, push information associated with the push keyword, the push information indicating a promotional target; and

displaying, in response to a transmission operation for the push information, the push information that has been transmitted, the push information being configured for triggering to display promotional content linked to the push information, the promotional content being associated with the promotional target.

2. The method according to claim 1, further comprising:

displaying a first promotional content obtaining entry associated with the push information in response to the push information being displayed; and

displaying the promotional content linked to the push information in response to a trigger operation for the first promotional content obtaining entry.

3. The method according to claim 1 or 2, further comprising:

displaying the promotional content linked to the push information in response to a first trigger operation for the push information that has been transmitted.

4. The method according to any one of claims 1 to 3, further comprising:

displaying at least one session object item in response to an information forwarding operation for the push information that has been transmitted; and

transmitting, in response to a first object selection operation triggered for the at least one session object item, the push information to a session object indicated by the first object selection operation.

5. The method according to any one of claims 1 to 4, further comprising:

displaying received push information; and

displaying, in response to the received push information having promotional content linked

thereto, the promotional content linked to the received push information in response to a second trigger operation for the received push information.

6. The method according to claim 5, wherein the displaying, in response to the received push information having promotional content linked thereto, the promotional content linked to the received push information in response to a second trigger operation for the received push information comprises:

displaying, in response to the received push information having promotional content linked thereto, an information component associated with the received push information in response to the second trigger operation for the received push information;

displaying a second promotional content obtaining entry in the information component; and

displaying the promotional content linked to the received push information in response to a trigger operation for the second promotional content obtaining entry.

7. The method according to claim 6, further comprising:

displaying an information forwarding entry in the information component;

displaying at least one session object item in response to a trigger operation for the information forwarding entry; and

transmitting, in response to a second object selection operation triggered for the at least one session object item, the received push information to a session object indicated by the second object selection operation.

8. The method according to any one of claims 1 to 7, further comprising:

displaying a close entry associated with the push information in response to the push information being displayed; and

stopping displaying the push information in response to a trigger operation for the close entry.

9. The method according to any one of claims 1 to 8, further comprising:

displaying, in response to a transmission operation triggered for the message, the message that has been transmitted in response to the message comprising no push keyword.

10. The method according to any one of claims 1 to 9, wherein a plurality of pieces of push information exist, and the displaying, in response to a transmission operation for the push information, the push information that has been transmitted comprises:

displaying, in response to a transmission operation for at least one piece of the plurality of

pieces of push information, the at least one piece of push information that has been transmitted.

11. The method according to claim 10, further comprising:

performing phrase splitting on the message, to obtain at least one phrase;

traversing a preset push keyword library based on the at least one phrase; and

obtaining, if it is determined that the preset push keyword library comprises a push keyword matching the phrase, push information associated with the push keyword.

12. The method according to any one of claims 1 to 11, wherein the message transmission interface comprises at least one of a session interface of a communication application, a bullet screen message display interface of a multimedia application, or a communication session interface of a game application.

13. A message-based interaction apparatus, comprising:

a message display module, configured to display a message transmission interface, and display, in response to a message input operation triggered on the message transmission interface, a message inputted through the message input operation;

a push information display module, configured to display, in response to the message comprising a push keyword, push information associated with the push keyword, the push information indicating a promotional target; and

a push information transmission module, configured to display, in response to a transmission operation for the push information, the push information that has been transmitted, the push information being configured for triggering to display promotional content linked to the push information, the promotional content being associated with the promotional target.

14. A computer device, comprising a memory and a processor, the memory having a computer program stored therein, the processor, when executing the computer program, implementing the operations of the method according to any one of claims 1 to 12.

15. A computer-readable storage medium, having a computer program stored therein, the computer program, when executed by a processor, implementing the operations of the method according to any one of claims 1 to 12.

16. A computer program product, comprising a computer program, the computer program, when executed by a processor, implementing operations of the method according to any one of claims 1 to 12.