

NEAR FIELD COMMUNICATION INTERACTION METHOD, USER TERMINAL, CARD READING TERMINAL, MEDIUM, AND PRODUCT

CROSS-REFERENCE TO RELATED APPLICATIONS

The present application claims priority to Chinese Patent Application No. 202310955678.4, filed on July 31, 2023, titled "NEAR FIELD COMMUNICATION INTERACTION METHOD, USER TERMINAL, CARD READING TERMINAL, MEDIUM, AND PRODUCT", the entire content of which is incorporated herein by reference for all purposes.

TECHNICAL FIELD

The present application relates to the technical field of near field communication (NFC), and particularly relates to a NFC interaction method, a user terminal, a card reading terminal, a medium, and a product.

BACKGROUND

NFC technology is an emerging technology. With its increasing popularity, more and more electronic devices may support NFC function. Electronic devices using NFC technology may exchange data when they are close to each other.

At present, the electronic devices that support the NFC function are generally installed with multiple NFC simulated cards, such as bank cards, access cards, transit cards, etc. When reading a card, the device will use a default NFC simulated card for interaction. When other NFC simulated cards are to be used, the user usually needs to manually select the card on the display interface of the electronic device, which is time-consuming and affects the card reading efficiency and experience.

Accordingly, in order to improve card reading efficiency, a card reading solution of selecting a NFC simulated card based on geographic location is provided in related technologies. However, the accuracy of selecting the NFC simulated card based on geographic location is not high. For example, the applicable geographic location of a transit card is not fixed and is relatively wide. In this scenario, it is easy to match an incorrect NFC simulated card, resulting in the NFC simulated card not being accurately matched.

SUMMARY

Embodiments of the present application provide a NFC interaction method, a user terminal, a card reading terminal, a medium, and a product, which can solve the problem that the accuracy of selecting a NFC simulated card based on geographic location is not high and a correct NFC simulated card cannot be accurately matched.

In a first aspect, embodiments of the present application provide a NFC interaction method applied to a user terminal installed with a plurality of NFC simulated cards, the method comprising: acquiring a scenario message broadcast by a card reading terminal; parsing the scenario message to obtain a target scenario identifier of a scenario where the card reading terminal is located; on the condition that a NFC radio frequency signal is detected, invoking a NFC management application, and selecting, by the NFC management application, a target NFC simulated card matching the target scenario identifier from the plurality of NFC simulated cards; determining a current NFC communication object of the user terminal as the target NFC simulated card; and performing NFC interaction with the card reading terminal by the target NFC simulated card.

In a second aspect, embodiments of the present application provide a NFC interaction method applied to a card reading terminal, the method comprising: generating a scenario message based on a target scenario identifier of a scenario where the card reading terminal is located; broadcasting the scenario message by a preset broadcasting method, wherein the scenario message is used for instructing a user terminal to switch a current NFC communication object to a target NFC simulated card matching the target scenario identifier; and performing NFC interaction with the target NFC simulated card in the user terminal.

In a third aspect, embodiments of the present application provide a user terminal installed with a plurality of NFC simulated cards, the terminal comprising: an acquiring module, configured to acquire a scenario message broadcast by a card reading terminal; a parsing module, configured to parse the scenario message to obtain a target scenario identifier of a scenario where the card reading terminal is located; a selecting module, configured to, on the condition that a NFC radio frequency signal is detected, invoke a NFC management application, and select, by the NFC management application, a target NFC simulated card matching the target scenario identifier from the plurality of NFC simulated cards; a determining module, configured to determine a current NFC communication object of the user terminal as the target NFC simulated card; and a NFC module, configured to perform NFC interaction with the card reading terminal by the target NFC simulated card.

In a fourth aspect, embodiments of the present application provide a card reading terminal, the card reading terminal comprising: a generating module, configured to generate a scenario message based on a target scenario identifier of a scenario where the card reading terminal is located; a broadcasting module, configured to broadcast the scenario message by a preset broadcasting method, wherein the scenario message is used for instructing a user terminal to switch a current NFC communication object to a target NFC simulated card matching the target scenario identifier; and a NFC module, configured to perform NFC interaction with the target NFC simulated card in the user terminal.

In a fifth aspect, embodiments of the present application provide an electronic device, the device comprising: a processor; and a memory storing computer program instructions, wherein the processor, when executing the computer program instructions, implements the steps of the NFC interaction method of the first aspect or the second aspect.

In a sixth aspect, embodiments of the present application provide a computer-readable storage medium storing a program or instructions, wherein the program or instructions, when executed by a processor, implement the steps of the NFC interaction method of the first aspect or the second aspect.

In a seventh aspect, embodiments of the present application provide a computer program product stored in a non-volatile storage medium, wherein the computer program product, when executed by at least one processor, implements the steps of the NFC interaction method of the first aspect or the second aspect.

In an eighth aspect, embodiments of the present application provide a chip, the chip comprising a processor and a communication interface, wherein the communication interface is coupled with the processor, and the processor is used for running a program or instructions to implement the steps of the NFC interaction method of the first aspect or the second aspect.

Embodiments of the present application provide a NFC interaction method, a device, a card reading terminal, a medium, and a product. When the user terminal is in a scenario where the card reading terminal is located, the scenario message broadcast by the card reading terminal may be acquired. By parsing the scenario message, the target scenario identifier of the scenario where the card reading terminal is located can be obtained. Based on this, on the condition that a NFC radio frequency signal is detected by the user terminal, the NFC management application may, based on the target scenario identifier, select the target NFC simulated card matching the target scenario identifier from the plurality of installed NFC simulated cards, thereby matching the correct NFC simulated card for the scenario where the card reading terminal is located, i.e., the current scenario, and realizing rapid matching of the NFC simulated card. As such, by determining the current NFC communication object of the user terminal as the target NFC simulated card, an accurate selection of the NFC simulated card can be achieved, and further, the NFC interaction with the card reading terminal can be smoothly completed by the correct target NFC simulated card, avoiding the situation where a correct NFC simulated card cannot be matched, and improving the matching accuracy rate and card reading success rate of the NFC simulated card.

BRIEF DESCRIPTION OF DRAWINGS

To illustrate the technical solutions of the embodiments of the present application more clearly, the accompanying drawings required for describing the embodiments of the present application are briefly introduced below. For those skilled in the art, other drawings may also be obtained based on these drawings without exercise of inventive skill.

FIG. 1 is a schematic architectural diagram of an example of an application scenario of a NFC interaction method provided by embodiments of the present application;

FIG. 2 is a flowchart of an embodiment of a NFC interaction method provided by a first aspect of the present application;

FIG. 3 is a flowchart of another embodiment of the NFC interaction method provided by the first aspect of the present application;

FIG. 4 is a flowchart of yet another embodiment of the NFC interaction method provided by the first aspect of the present application;

FIG. 5 is a flowchart of yet another embodiment of the NFC interaction method provided by the first aspect of the present application;

FIG. 6 is a flowchart of yet another embodiment of the NFC interaction method provided by the first aspect of the present application;

FIG. 7 is a flowchart of an embodiment of a NFC interaction method provided by a second aspect of the present application;

FIG. 8 is a flowchart of an example of a payment process provided by an embodiment of the present application;

FIG. 9 is a schematic structural diagram of an embodiment of a user terminal provided by a third aspect of the present application;

FIG. 10 is a schematic structural diagram of an embodiment of a card reading terminal provided by a fourth aspect of the present application.

DETAILED DESCRIPTION OF EMBODIMENTS

Features and exemplary embodiments of various aspects of the present application will be described in detail below. To make the objectives, technical solutions, and advantages of the present application clearer, the present application is further described in detail below with reference to the accompanying drawings and specific embodiments. It should be understood that the specific embodiments described herein are only intended to explain the present application, rather than to limit the present application. For those skilled in the art, the present application may be practiced without some of these specific details. The following description of the embodiments is merely to provide a better understanding of the present application by illustrating examples of the present application.

In related technologies, the electronic devices that support the NFC function are generally installed with multiple NFC simulated cards, such as bank cards, access cards, transit cards, etc. When reading a card, the device will use a default NFC simulated card for interaction. When other NFC simulated cards are to be used, the user usually needs to manually select the card on the display interface of the electronic device, which is time-consuming and affects the card reading efficiency and experience. Accordingly, in order to improve card reading efficiency, a card reading solution of selecting a NFC simulated card based on geographic location is provided. However, the accuracy of selecting the NFC simulated card based on geographic location is not high. For example, the applicable geographic location of a transit card is not fixed and is relatively wide. In this scenario, it is easy to match an incorrect NFC simulated card, resulting in the NFC simulated card not being accurately matched.

Based on the above-mentioned problems, embodiments of the present application provide a NFC interaction method, a user terminal, a card reading terminal, a medium, and a product. When the user terminal is in a scenario where the card reading terminal is located, a NFC management application may, based on a target scenario identifier of the scenario where the card reading terminal is located, select a target NFC simulated card matching the target scenario identifier from a plurality of installed NFC simulated cards, thereby matching the correct NFC simulated card for the scenario where the card reading terminal is located, i.e., the current scenario, and realizing rapid matching of the NFC simulated card. As such, by determining a current NFC communication

object of the user terminal as the target NFC simulated card, an accurate selection of the NFC simulated card can be achieved, and further, the NFC interaction with the card reading terminal can be smoothly completed by the correct target NFC simulated card, thus avoiding the situation where a correct NFC simulated card cannot be matched, and improving the matching accuracy rate and card reading success rate of the NFC simulated card.

The NFC interaction method in the embodiments of the present application may be applied to NFC scenarios. For example, the NFC scenarios may be application scenarios such as mobile payment, electronic ticketing, access control, mobile identification, and anti-counterfeiting performed through the NFC function. The NFC interaction method may involve a user terminal and a card reading terminal. The NFC interaction architecture in the embodiments of the present application will be described in detail below with reference to FIG. 1.

FIG. 1 is a schematic architectural diagram of an example of an application scenario of a NFC interaction method provided by embodiments of the present application.

As shown in FIG. 1, the architectural system of the NFC interaction method may include a user terminal 11 and a card reading terminal 12.

The user terminal 11 is a terminal device installed with NFC simulated cards. The user terminal may specifically include a mobile phone, a tablet computer, a smart wearable device, or the like. The specific type of the user terminal 11 is not limited herein. The user terminal 11 supports a card mode. The card mode refers to simulating an electronic device with a NFC function into a contactless radio frequency card that complies with relevant NFC standards. The contactless radio frequency card is a NFC simulated card. The user terminal 11 may use the NFC simulated card to perform NFC communication interaction and data interaction with the card reading terminal 12. The user terminal 11 may be installed with a NFC management application intended to manage NFC simulated cards. The NFC simulated cards may be displayed in the form of electronic cards on an application interface of the NFC management application. When a user needs to use a certain NFC simulated card, the user may directly open the NFC simulated card in the NFC management application and bring the user terminal 11 close to the card reading terminal 12 to read the card. For example, approaching the user terminal 11 to a card reader (i.e., the card reading terminal 12) on a gate may implement card reading to enter the gate. The user terminal 11 may include a NFC control chip integrating functions for contactless card readers, contactless cards, and peer-to-peer communication. As such, applications such as mobile payment, electronic ticketing, access control, mobile identification, and anti-counterfeiting may be realized through the user terminal 11.

The card reading terminal 12 is a card reading device intended for reading NFC tags, i.e., a card reader. The card reading terminal 12 may serve as a card reader to perform NFC communication interaction with the user terminal 11 and read the NFC simulated cards in the user terminal 11.

Based on the payment architecture provided by the embodiment of the present application shown in FIG. 1 above, the NFC interaction method provided by the embodiments of the present application will be described in detail.

A first aspect of the present application provides a NFC interaction method, which may be applied to a user terminal; that is, the NFC interaction method may be executed by the user terminal.

For specific details of the user terminal, reference may be made to the relevant descriptions in the above embodiments, which will not be repeated here.

FIG. 2 is a flowchart of an embodiment of a NFC interaction method provided by the first aspect of the present application. As shown in FIG. 2, the NFC interaction method may include steps 210-250.

Step 210, acquiring a scenario message broadcast by a card reading terminal;

Step 220, parsing the scenario message to obtain a target scenario identifier of a scenario where the card reading terminal is located;

Step 230, on the condition that a NFC radio frequency signal is detected, invoking a NFC management application, and selecting, by the NFC management application, a target NFC simulated card matching the target scenario identifier from the plurality of NFC simulated cards;

Step 240, determining a current NFC communication object of the user terminal as the target NFC simulated card;

Step 250, performing NFC interaction with the card reading terminal by the target NFC simulated card.

In the NFC interaction method provided by the embodiments of the present application, when the user terminal is in a scenario where a card reading terminal is located, the user terminal may acquire a scenario message broadcast by the card reading terminal. By parsing the scenario message, the user terminal can obtain a target scenario identifier of the scenario where the card reading terminal is located. Based on this, on the condition that a NFC radio frequency signal is detected by the user terminal, a NFC management application may, based on the target scenario identifier, select a target NFC simulated card matching the target scenario identifier from a plurality of installed NFC simulated cards, thereby matching the correct NFC simulated card for the scenario where the card reading terminal is located, i.e., the current scenario, and implementing rapid matching of the NFC simulated card. As such, by determining a current NFC communication object of the user terminal as the target NFC simulated card, an accurate selection of the NFC simulated card may be achieved, and further, the NFC interaction with the card reading terminal can be smoothly completed by the correct target NFC simulated card, avoiding the situation where a correct NFC simulated card cannot be matched, and improving the matching accuracy rate and card reading success rate of the NFC simulated card.

The specific implementation of the above steps will be described in detail below with reference to embodiments, as follows.

Regarding Step 210, acquiring a scenario message broadcast by a card reading terminal.

In Step 210, the card reading terminal may broadcast the scenario message by a preset broadcasting method. The preset broadcasting method may include, but is not limited to: Bluetooth, wireless communication technology WIFI, Ultra Wide Band (UWB), Radio Frequency Identification (RFID) technology; accordingly, the user terminal may also acquire the scenario message through an information acquisition method same as the preset broadcasting method.

Regarding Step 220, parsing the scenario message to obtain a target scenario identifier of a scenario where the card reading terminal is located.

In Step 220, the scenario message may carry a scenario identifier of the scenario where the card reading terminal is located, i.e., the target scenario identifier. Based on the different scenario where the card reading terminal is located, the scenario message broadcast by the card reading terminal also varies.

Exemplarily, for an access control card reading terminal, the target scenario identifier carried in the scenario message broadcast by the access control card reading terminal located in a "company" scenario is "company-access control", and the target scenario identifier carried in the scenario message broadcast by the access control card reading terminal located in a "home" scenario is "home-access control".

In some embodiments of the present application, the scenario identifier may be stored in a payload of the scenario message. Accordingly, the user terminal may obtain the target scenario identifier carried in the scenario message by parsing the payload of the scenario message.

In some embodiments of the present application, standard codes or naming rules may be employed to determine the scenario identifier.

Regarding Step 230, on the condition that a NFC radio frequency signal is detected, invoking a NFC management application, and selecting, by the NFC management application, a target NFC simulated card matching the target scenario identifier from the plurality of NFC simulated cards.

In Step 230, when the user terminal approaches the card reading terminal, a card reading operation is started and, meanwhile, the user terminal may detect the NFC radio frequency signal emitted by the card reading terminal. The NFC radio frequency signal is used to read a NFC simulated card in the user terminal. Accordingly, when the NFC radio frequency signal is detected, the user terminal starts the NFC management application. The NFC management application is used to manage NFC simulated cards, and includes a plurality of NFC simulated cards. The plurality of NFC simulated cards may be integrated into the NFC management application. The NFC management application may be, for example, a wallet application. The NFC management application may be invoked by a NFC controller and, upon being invoked, may select a target NFC simulated card matching the target scenario identifier from the plurality of NFC simulated cards to perform NFC interaction with the card reading terminal.

It should be noted that the present application does not specifically limit the execution order of Step 210, Step 220, and Step 230. Step 210 may precede Step 230, or follow Step 230.

In some other embodiments of the present application, the method may include: invoking a NFC management application on the condition that a NFC radio frequency signal is detected; acquiring a scenario message broadcast by a card reading terminal; parsing the scenario message to obtain a target scenario identifier of a scenario where the card reading terminal is located; and selecting, by the NFC management application, a target NFC simulated card matching the target scenario identifier from the plurality of NFC simulated cards.

In yet some other embodiments of the present application, the method may include: invoking a NFC management application on the condition that a scenario message broadcast by a card reading

terminal is acquired; parsing, by the NFC management application, the scenario message to obtain a target scenario identifier of a scenario where the card reading terminal is located; and on the condition that a NFC radio frequency signal is detected, selecting, by the NFC management application, a target NFC simulated card matching the target scenario identifier from the plurality of NFC simulated cards.

In some embodiments of the present application, to ensure that the selected target NFC simulated card is adapted to the scenario of the card reading terminal, FIG. 3 is a flowchart of another embodiment of the NFC interaction method provided by the first aspect of the present application. Before Step 210, the method may include Steps 310-330 shown in FIG. 3.

Step 310, acquiring scenario types associated with the plurality of NFC simulated cards;

Step 320, obtaining a plurality of scenario groups by dividing the NFC simulated cards associated with a same scenario type into a same scenario group; and

Step 330, setting corresponding group identifiers for the plurality of scenario groups based on the scenario types associated with the NFC simulated cards in the scenario groups.

Exemplarily, the plurality of NFC simulated cards may include Card A, Card B, Card C, and Card D. Among them, the scenario type associated with Card A and Card B is "consumption - bank card", the scenario type associated with Card C is "transportation - bus card", and the scenario type associated with Card D is "home - access control". Accordingly, Card A, Card B, Card C, and Card D are divided into three groups accordingly.

In the embodiment of the present application, by pre-dividing the NFC simulated cards associated with the same scenario type into the same scenario group, a scenario group may be assigned to each scenario. As such, in different scenarios, by selecting the target NFC simulated card in the scenario group adapted to it, it can make sure that the selected target NFC simulated card is adapted to the scenario where the card reading terminal is located, thereby ensuring the correctness of the NFC simulated card read by the card reading terminal.

In some other embodiments of the present application, the user terminal may display an application interface of the NFC management application, and by receiving user input on the application interface, may group the plurality of NFC simulated cards and set corresponding group identifiers.

In some embodiments of the present application, to improve the accuracy of selecting the correct NFC simulated card from the plurality of NFC simulated cards, FIG. 4 is a flowchart of yet another embodiment of the NFC interaction method provided by the first aspect of the present application. Step 230, wherein the selection, by the NFC management application, of the target NFC simulated card matching the target scenario identifier from the plurality of NFC simulated cards, may include Steps 410-430 shown in FIG. 4.

Step 410, filtering, by the NFC management application, a target scenario group whose group identifier is consistent with the target scenario identifier from the plurality of scenario groups;

Step 420, on the condition that a unique NFC simulated card exists in the target scenario group, determining, by the NFC management application, the unique NFC simulated card as the target NFC simulated card;

Step 430, on the condition that a number of the NFC simulated cards in the target scenario group is greater than 1, determining, by the NFC management application, the NFC simulated card with a highest priority in the target scenario group as the target NFC simulated card.

In the embodiment of the present application, by comparing the group identifier with the target scenario identifier, a target scenario group matching the scenario where the card reading terminal is located can be filtered. When only one unique NFC simulated card exists in the target scenario group, the NFC management application may directly determine the unique NFC simulated card as the target NFC simulated card; when the target scenario group includes two or more NFC simulated cards, by determining the NFC simulated card with the highest priority as the target NFC simulated card, the accuracy of filtering the correct NFC simulated card from the plurality of NFC simulated cards can be improved.

In some embodiments of the present application, the priority may be determined based on one or more of: user settings, a geographic location, user behavior habit data.

Among them, the users may set the priority of the NFC simulated cards themselves, for example, setting the priority order of multiple NFC simulated cards, or, by setting a certain NFC simulated card as a default NFC simulated card, making the priority of the default NFC simulated card higher than other NFC simulated cards not set as default. Each NFC simulated card may be associated with geographic location information. The closer the geographic location information is to the address location information of the card reading terminal, the higher the similarity of the NFC simulated card. The user behavior habit data may include user card reading behavior data. The user card reading behavior data includes information such as the card type of the NFC simulated card used by the user, whether the card reading was successful, and the card reading time. The information may be obtained through applications on the user terminal or calling logs, etc.

In related technologies, the user terminal, when detecting a NFC radio frequency signal, will invoke the NFC management application. In a scenario where the user terminal is set with the default NFC simulated card, the NFC management application will directly read the default NFC simulated card and use the default NFC simulated card as the current NFC communication object to perform NFC interaction with the card reading terminal. As such, when the default NFC simulated card does not match the scenario where the current card reading terminal is located, for example, the default NFC simulated card is an access card and the card reading terminal is a subway station gate, a card reading failure will occur.

In some embodiments of the present application, the plurality of NFC simulated cards comprise the default NFC simulated card. To avoid the card reading failure situation in related technologies, FIG. 5 is a flowchart of yet another embodiment of the NFC interaction method provided by the first aspect of the present application. Step 230 may include Steps 510-540 shown in FIG. 5.

Step 510, on the condition that the NFC radio frequency signal is detected, receiving, by a NFC controller, NFC application interaction data sent by the card reading terminal and invoking the NFC management application;

Step 520, forwarding, by the NFC controller, the NFC application interaction data to the NFC management application, such that the NFC management application, on the condition that the NFC application interaction data is received, acquires the group identifier of the default NFC simulated card and compares the group identifier of the default NFC simulated card with the target scenario identifier;

Step 530, on the condition that the group identifier matches the target scenario identifier, determining, by the NFC management application, the target NFC simulated card as the default NFC simulated card, and directly forwarding the NFC application interaction data to a card application of the default NFC simulated card;

Step 540, on the condition that the group identifier does not match the target scenario identifier, filtering, by the NFC management application, a target scenario group whose group identifier is consistent with the target scenario identifier from the plurality of scenario groups, and directly forwarding the NFC application interaction data to the card application of the target NFC simulated card in the target scenario group.

Specifically, the NFC controller may be a NFC control chip. The NFC application interaction data is intended for the user terminal to perform the NFC interaction with the card reading terminal through the NFC simulated card according to the application specification. The application specification is a specification of the card application of the NFC simulated card.

Exemplarily, in a scenario where the NFC simulated card is a financial IC card, the above application specification may be the PBOC specification. The PBOC specification includes standard interaction commands such as PPSE.

In the embodiment of the present application, in receipt of the NFC application interaction data sent by the card reading terminal, the NFC controller does not directly send the NFC application interaction data to the card application of the default NFC simulated card, but sends the NFC application interaction data to the NFC management application; and the NFC management application performs data forwarding. Based on this, the NFC management application may acquire and compare the group identifier of the default NFC simulated card with the target scenario identifier before forwarding the data, thus being capable of: directly forwarding the NFC application interaction data to the card application of the default NFC simulated card on the condition that the group identifier matches the target scenario identifier; or, on the condition that the group identifier does not match the target scenario identifier, filtering, by the NFC management application, a target scenario group whose group identifier is consistent with the target scenario identifier from the plurality of scenario groups, and directly forwarding the NFC application interaction data to the card application of the target NFC simulated card in the target scenario group. In this way, the NFC management application can avoid the situation where the default NFC simulated card fails to read due to the default NFC simulated card not being adapted to the scenario where the card reading terminal is located when performing the NFC interaction with the card reading terminal, thereby improving the reliability of NFC card reading.

In some embodiments of the present application, the plurality of NFC simulated cards comprise the default NFC simulated card. To timely switch to the correct NFC simulated card after the card reading failure situation in related technologies occurs, FIG. 6 is a flowchart of yet another

embodiment of the NFC interaction method provided by the first aspect of the present application. Step 230 may include Steps 610-640 shown in FIG. 6.

Step 610, on the condition that the NFC radio frequency signal is detected, receiving, by a NFC controller, NFC application interaction data sent by the card reading terminal and invoking the NFC management application;

Step 620, directly forwarding, by the NFC controller, the NFC application interaction data to a card application of the default NFC simulated card, and determining the current NFC communication object of the user terminal as the default NFC simulated card;

Step 630, on the condition that the group identifier of the default NFC simulated card does not match the target scenario identifier, receiving a card reading failure message sent by the card reading terminal;

Step 640, on the condition that the NFC radio frequency signal is detected again, filtering, by the NFC management application, a target scenario group whose group identifier is consistent with the target scenario identifier from the plurality of scenario groups, and directly forwarding, by the NFC management application, the NFC application interaction data to the card application of the target NFC simulated card in the target scenario group.

Among them, the NFC application interaction data is intended for the user terminal to perform the NFC interaction with the card reading terminal through the NFC simulated card according to an application specification.

In the embodiment of the present application, in receipt of the NFC application interaction data sent by the card reading terminal, the NFC controller will directly send the NFC application interaction data to the card application of the default NFC simulated card so that the user terminal performs the NFC interaction with the card reading terminal through the default NFC simulated card, which will lead to card reading failure when the default NFC simulated card is not adapted to the scenario where the card reading terminal is located. Based on this, upon receiving the card reading failure message, the user terminal, when the user holds the user terminal and again contacts the card reading terminal to perform a card reading operation, will detect the NFC radio frequency signal again, and then filter, through the NFC management application, a target scenario group whose group identifier is consistent with the target scenario identifier, and directly forward the NFC application interaction data to the card application of the target NFC simulated card in the target scenario group, so that the user terminal may timely switch to the target NFC simulated card matching the card reading terminal, i.e., the correct NFC simulated card, ensuring that subsequent card reading operations proceed smoothly.

It should be noted that, in Step 540 and Step 640, after the NFC management application filters out the target scenario group, the solutions corresponding to the above Step 420 and Step 430 may be employed to select the target NFC simulated card from the target scenario group. For brevity, details are not repeated here.

Regarding Step 240, determining a current NFC communication object of the user terminal as the target NFC simulated card.

In Step 240, although the user terminal includes a plurality of NFC simulated cards, at the same moment, only one unique NFC simulated card exists as the current NFC communication object that may perform the NFC interaction with the card reading terminal.

In some embodiments of the present application, after the above Step 640, the determination of the current NFC communication object of the user terminal as the target NFC simulated card may specifically include:

switching the current NFC communication object of the user terminal from the default NFC simulated card to the target NFC simulated card.

In the embodiment of the present application, when failing to read the card for the first time through the default NFC simulated card, the user terminal may switch the current NFC communication object to the correct target NFC simulated card by invoking the NFC management application, to ensure that subsequent card reading operations proceed smoothly.

Regarding Step 250, performing NFC interaction with the card reading terminal by the target NFC simulated card.

In Step 250, the user terminal uses the target NFC simulated card to perform NFC command interaction with the card reading terminal, thereby completing the entire card reading process.

A second aspect of the present application provides a NFC interaction method, which may be applied to a card reading terminal; that is, the NFC interaction method may be executed by the card reading terminal. For specific details of the card reading terminal, reference may be made to the relevant descriptions in the above embodiments, which will not be repeated here.

FIG. 7 is a flowchart of an embodiment of a NFC interaction method provided by the second aspect of the present application. As shown in FIG. 7, the NFC interaction method may include steps 710-730.

Step 710, generating a scenario message based on a target scenario identifier of a scenario where the card reading terminal is located;

Step 720, broadcasting the scenario message by a preset broadcasting method, wherein the scenario message is used for instructing a user terminal to switch a current NFC communication object to a target NFC simulated card matching the target scenario identifier;

Step 730, performing NFC interaction with the target NFC simulated card in the user terminal.

In the NFC interaction method provided by embodiments of the present application, the card reading terminal may broadcast the scenario identifier of the scenario where the card reading terminal is located. As such, the user terminal, after entering the scenario where the card reading terminal is located, may acquire the scenario identifier of the current scenario, i.e., the target scenario identifier. Based on this, the NFC management application in the user terminal may, by using the target scenario identifier, select the target NFC simulated card matching the target scenario identifier from the plurality of installed NFC simulated cards, thereby matching the correct NFC simulated card for the scenario where the card reading terminal is located, i.e., the current scenario, and implementing rapid matching of the NFC simulated card. In this way, by determining the current NFC communication object of the user terminal as the target NFC

simulated card, an accurate selection of the NFC simulated card can be achieved, and further, the NFC interaction with the card reading terminal can be smoothly completed by the correct target NFC simulated card, avoiding the situation where a correct NFC simulated card cannot be matched, and improving the matching accuracy rate and card reading success rate of a NFC simulated card.

In Step 710, the card reading terminal may broadcast the scenario message by a preset broadcasting method. The preset broadcasting method may include at least one of: Bluetooth, wireless communication technology, Ultra Wide Band (UWB), Radio Frequency Identification (RFID) technology.

In some embodiments of the present application, Step 710 may include: adding the target scenario identifier in a payload of the scenario message.

In some other embodiments, the card reading terminal may set a non-connectable attribute and a broadcast interval in a message header of the scenario message.

In some embodiments of the present application, Step 710 may specifically include: the card reading terminal continuously broadcasting the scenario message.

For example, in an access control scenario, the card reading terminal may be an access control device, and the access control device may continuously broadcast a scenario message indicating that the current scenario is an "access control scenario".

In some other embodiments of the present application, the card reading terminal non-continuously broadcasts the scenario message. Step 720 may specifically include: on the condition that a card reading operation is started, broadcasting the scenario message by the preset broadcasting method.

For example, in a transaction scenario, the card reading terminal may be a POS terminal. The POS terminal may start broadcasting the scenario message after receiving a card reading operation from a user, to avoid resource waste caused by continuous broadcasting.

To facilitate understanding of the NFC interaction method in the embodiments of the present application, the communication interaction flow between the user terminal and the card reading terminal will be described below using a NFC scenario as an example.

FIG. 8 is a flowchart of an example of a NFC interaction method provided by an embodiment of the present application.

As shown in FIG. 8, the NFC interaction flow may include steps 801 to 806.

Step 801, the card reading terminal generates a scenario message based on a target scenario identifier of a scenario where the card reading terminal is located.

Step 802, the card reading terminal broadcasts the scenario message by a preset broadcasting method.

Step 803, the user terminal parses the scenario message to obtain a target scenario identifier of a scenario where the card reading terminal is located.

Step 804, the user terminal, on the condition that a NFC radio frequency signal is detected, invokes a NFC management application, and selects, by the NFC management application, a target NFC simulated card matching the target scenario identifier from the plurality of NFC simulated cards.

Step 805, the user terminal determines a current NFC communication object as the target NFC simulated card.

Step 806, the user terminal performs NFC interaction with the card reading terminal by the target NFC simulated card.

For specific details of the above steps 801 to 806, reference may be made to the relevant descriptions in the above embodiments, which will not be repeated here.

In summary, embodiments of the present application provide a NFC interaction method. When the user terminal is in a scenario where the card reading terminal is located, the user terminal may acquire the scenario message broadcast by the card reading terminal. By parsing the scenario message, the user terminal can obtain the target scenario identifier of the scenario where the card reading terminal is located. Based on this, on the condition that the NFC radio frequency signal is detected by the user terminal, the NFC management application may, based on the target scenario identifier, select the target NFC simulated card matching the target scenario identifier from the plurality of installed NFC simulated cards, thereby matching the correct NFC simulated card for the scenario where the card reading terminal is located, i.e., the current scenario, and implementing rapid matching of the NFC simulated card. As such, by determining the current NFC communication object of the user terminal as the target NFC simulated card, an accurate selection of the NFC simulated card can be achieved, and further, the NFC interaction with the card reading terminal can be smoothly completed by the correct target NFC simulated card, avoiding the situation where a correct NFC simulated card cannot be matched, and improving the matching accuracy rate and card reading success rate of the NFC simulated card.

Based on the same inventive concept, a third aspect of the present application provides a user terminal. FIG. 9 is a schematic structural diagram of an embodiment of a user terminal provided by the third aspect of the present application.

As shown in FIG. 9, a user terminal 900 may be the user terminal 11 as shown in FIG. 1. The user terminal 900, installed with a plurality of NFC simulated cards, may specifically include: an acquiring module 910, configured to acquire a scenario message broadcast by a card reading terminal; a parsing module 920, configured to parse the scenario message to obtain a target scenario identifier of a scenario where the card reading terminal is located; a selecting module 930, configured to, on the condition that a NFC radio frequency signal is detected, invoke a NFC management application, and select, by the NFC management application, a target NFC simulated card matching the target scenario identifier from the plurality of NFC simulated cards; a determining module 940, configured to determine a current NFC communication object of the user terminal as the target NFC simulated card; and a NFC module 950, configured to perform NFC interaction with the card reading terminal by the target NFC simulated card.

In the user terminal provided by the embodiment of the present application, when the user terminal is in a scenario where the card reading terminal is located, the user terminal may acquire

the scenario message broadcast by the card reading terminal and, by parsing the scenario message, can obtain the target scenario identifier of the scenario where the card reading terminal is located. Based on this, on the condition that the NFC radio frequency signal is detected by the user terminal, the NFC management application may, based on the target scenario identifier, select the target NFC simulated card matching the target scenario identifier from the plurality of installed NFC simulated cards, thereby matching the correct NFC simulated card for the scenario where the card reading terminal is located, i.e., the current scenario, and implementing rapid matching of the NFC simulated card. As such, by determining the current NFC communication object of the user terminal as the target NFC simulated card, an accurate selection of the NFC simulated card can be achieved, and further, the NFC interaction with the card reading terminal can be smoothly completed by the correct target NFC simulated card, avoiding the situation where a correct NFC simulated card cannot be matched, and improving the matching accuracy rate and card reading success rate of the NFC simulated card.

The user terminal 900 provided by the embodiments of the present application will be described in detail below.

In some embodiments of the present application, the user terminal further comprises: the acquiring module 910, configured to, before the acquisition of the scenario message broadcast by the card reading terminal, acquire scenario types associated with the plurality of NFC simulated cards; a grouping module, configured to obtain a plurality of scenario groups by dividing the NFC simulated cards associated with a same scenario type into a same scenario groups; and a setting module, configured to set corresponding group identifiers for the plurality of scenario groups based on the scenario types associated with the NFC simulated cards in the scenario groups.

In some embodiments of the present application, the plurality of NFC simulated cards comprise a default NFC simulated card; the selecting module 930 comprises: a filtering unit, configured to filter, by the NFC management application, a target scenario group whose group identifier is consistent with the target scenario identifier from the plurality of scenario groups; a determining unit, configured to, on the condition that a unique NFC simulated card exists in the target scenario group, determine, by the NFC management application, the unique NFC simulated card as the target NFC simulated card, wherein the determining unit is further configured to, on the condition that a number of the NFC simulated cards in the target scenario group is greater than 1, determine, by the NFC management application, the NFC simulated card with a highest priority in the target scenario group as the target NFC simulated card.

In some embodiments of the present application, the priority is determined based on a geographic location, user behavior habit data.

In some embodiments of the present application, the plurality of NFC simulated cards comprise the default NFC simulated card, the selecting module 930 comprises: an invoking unit, configured to, on the condition that the NFC radio frequency signal is detected, receive, by a NFC controller, NFC application interaction data sent by the card reading terminal and invoke the NFC management application, wherein the NFC application interaction data is used for the user terminal to perform the NFC interaction with the card reading terminal through a NFC simulated card according to an application specification; a forwarding unit, configured to forward, by the NFC controller, the NFC application interaction data to the NFC management application, such that the

NFC management application, on the condition that the NFC application interaction data is received, acquires the group identifier of the default NFC simulated card and compares the group identifier of the default NFC simulated card with the target scenario identifier; the forwarding unit, configured to, on the condition that the group identifier matches the target scenario identifier, determine, by the NFC management application, the target NFC simulated card as the default NFC simulated card, and directly forward the NFC application interaction data to a card application of the default NFC simulated card; the forwarding unit, further configured to, on the condition that the group identifier does not match the target scenario identifier, filter, by the NFC management application, a target scenario group whose group identifier is consistent with the target scenario identifier from the plurality of scenario groups, and directly forward the NFC application interaction data to the card application of the target NFC simulated card in the target scenario group.

In some embodiments of the present application, the plurality of NFC simulated cards comprise the default NFC simulated card, the selecting module 930 comprises: an invoking unit, configured to, on the condition that the NFC radio frequency signal is detected, receive, by a NFC controller, NFC application interaction data sent by the card reading terminal and invoke the NFC management application, wherein the NFC application interaction data is used for the user terminal to perform the NFC interaction with the card reading terminal through a NFC simulated card according to an application specification; a forwarding unit, configured to directly forward, by the NFC controller, the NFC application interaction data to a card application of the default NFC simulated card, and determine the current NFC communication object of the user terminal as the default NFC simulated card; a receiving unit, configured to, on the condition that the group identifier of the default NFC simulated card does not match the target scenario identifier, receive a card reading failure message sent by the card reading terminal; the forwarding unit, further configured to, on the condition that the NFC radio frequency signal is detected again, filter, by the NFC management application, a target scenario group whose group identifier is consistent with the target scenario identifier from the plurality of scenario groups, and directly forward, by the NFC management application, the NFC application interaction data to the card application of the target NFC simulated card in the target scenario group.

In some embodiments of the present application, the determining module is specifically configured to: switch the current NFC communication object of the user terminal from the default NFC simulated card to the target NFC simulated card.

Based on the same inventive concept, a fourth aspect of the present application provides a card reading terminal. FIG. 10 is a schematic structural diagram of an embodiment of a card reading terminal provided by the fourth aspect of the present application.

As shown in FIG. 10, a card reading terminal 1000 may be the card reading terminal 12 as shown in FIG. 1. The card reading terminal 1000 may specifically include: a generating module 1010, configured to generate a scenario message based on a target scenario identifier of a scenario where the card reading terminal is located; a broadcasting module 1020, configured to broadcast the scenario message by a preset broadcasting method, wherein the scenario message is used for instructing a user terminal to switch a current NFC communication object to a target NFC

simulated card matching the target scenario identifier; and a NFC module 1030, configured to perform NFC interaction with the target NFC simulated card in the user terminal.

In the card reading terminal provided by embodiments of the present application, the card reading terminal may broadcast the scenario identifier of the scenario where the card reading terminal is located. As such, the user terminal, after entering the scenario where the card reading terminal is located, may acquire the scenario identifier of the current scenario, i.e., the target scenario identifier. Based on this, the NFC management application in the user terminal may, by using the target scenario identifier, select the target NFC simulated card matching the target scenario identifier from the plurality of installed NFC simulated cards, thereby matching the correct NFC simulated card for the scenario where the card reading terminal is located, i.e., the current scenario, and implementing rapid matching of the NFC simulated card. In this way, by determining the current NFC communication object of the user terminal as the target NFC simulated card, an accurate selection of the NFC simulated card can be achieved, and further, the NFC interaction with the card reading terminal can be smoothly completed by the correct target NFC simulated card, avoiding the situation where a correct NFC simulated card cannot be matched, and improving the matching accuracy rate and card reading success rate of the NFC simulated card.

The card reading terminal 1000 provided by the embodiments of the present application will be described in detail below.

In some embodiments of the present application, the generating module 1010 is specifically configured to: add the target scenario identifier in a payload of the scenario message.

In some embodiments of the present application, the broadcasting module 1020 is specifically configured to: on the condition that a card reading operation is started, broadcast the scenario message by the preset broadcasting method; wherein the preset broadcasting method comprises at least one of: Bluetooth, wireless communication technology, Ultra Wide Band (UWB), Radio Frequency Identification (RFID) technology.

A fifth aspect of the present application also provides an electronic device. The electronic device comprises: a memory, a processor, and a computer program stored on the memory and executable on the processor.

In an example, the processor may include a Central Processing Unit (CPU), or an Application Specific Integrated Circuit (ASIC), or may be configured as one or more integrated circuits that implement the embodiments of the present application.

The memory may include Read-Only Memory (ROM), Random Access Memory (RAM), a disk storage medium device, an optical storage medium device, a flash memory device, an electrical, optical, or other physical/tangible memory storage device. Accordingly, typically, the memory includes one or more tangible (non-transitory) computer-readable storage media (e.g., memory devices) encoded with software including computer-executable instructions; and when the software is executed (e.g., by one or more processors), it is operable to perform the operations described with reference to the NFC interaction method in the embodiments of the first aspect or the second aspect of the present application.

The processor runs a computer program corresponding to executable program code by reading the executable program code stored in the memory, to implement the NFC interaction method in the embodiments of the first aspect or the second aspect described above.

In some examples, the electronic device may further include a communication interface and a bus, wherein, the memory, the processor, and the communication interface are connected via the bus and complete communication with each other.

The communication interface is intended mainly for implementing communication between various modules, apparatuses, units, and/or devices in the embodiments of the present application. Input devices and/or output devices may also be accessed via the communication interface.

The bus includes hardware, software or both, coupling components of the user terminal to each other. By way of example rather than limitation, the bus may include an Accelerated Graphics Port (AGP) or other graphics bus, an Enhanced Industry Standard Architecture (EISA) bus, a Front Side Bus (FSB), a Hyper Transport (HT) interconnect, an Industry Standard Architecture (ISA) bus, an Unlimited Bandwidth Interconnect, a Low Pin Count (LPC) bus, a memory bus, a Micro Channel Architecture (MCA) bus, a Peripheral Component Interconnect (PCI) bus, a PCI-Express (PCI-E) bus, a Serial Advanced Technology Attachment (SATA) bus, a Video Electronics Standards Association Local Bus (VLB) bus, or other suitable bus, or a combination of two or more thereof. Where appropriate, the bus may include one or more buses. Although the embodiments of the present application describe and show specific buses, the present application contemplates any suitable bus or interconnect.

A sixth aspect of the present application provides a computer-readable storage medium, storing a program or instructions, wherein the program or instructions, when executed by a processor, may implement the NFC interaction method as shown in the first aspect or the second aspect above, and can achieve the same technical effect. To avoid repetition, details are not repeated here. In this case, the computer-readable storage medium may include a non-transitory computer-readable storage medium, such as Read-Only Memory (ROM), Random Access Memory (RAM), a magnetic disk, or an optical disc, etc., which is not limited herein.

A seventh aspect of the present application provides a chip. The chip comprises a processor and a communication interface, wherein the communication interface and the processor are coupled, and the processor is intended for running a program or instructions to implement the steps of the NFC interaction method as shown in the first aspect or the second aspect. Specific details of the NFC interaction method may be referred to in the relevant descriptions in the above embodiments, and are not repeated here.

An eighth aspect of the present application provides a computer program product, wherein the computer program product is stored in a non-volatile storage medium, and wherein the computer program product, when executed by at least one processor, implements the steps of the NFC interaction method as shown in the first aspect or the second aspect. Specific details of the NFC interaction method may be referred to in the relevant descriptions in the above embodiments, and are not repeated here.

The present application may also provide a NFC interaction system. The NFC interaction system may include the user terminal and the card reading terminal in the above embodiments.

Specific details of the user terminal and the card reading terminal may be referred to in the relevant descriptions in the above embodiments, and are not repeated here.

It should be clarified that the embodiments in this specification are described in a progressive manner. The same or similar parts between the embodiments may be referred to each other. Each embodiment focuses on the differences from other embodiments. For the apparatus embodiments, user terminal embodiments, device embodiments, system embodiments, and computer-readable storage medium embodiments, relevant parts may be referred to the description parts of the method embodiments. The present application is not limited to the specific steps and structures described above and shown in the drawings. Those skilled in the art may make various changes, modifications and additions, or change the order between steps, after comprehending the spirit of the present application. Further, for brevity, detailed descriptions of known method techniques are omitted here.

Aspects of the present application are described above with reference to flowcharts and/or block diagrams of methods, apparatuses (systems), and computer program products according to embodiments of the present application. It should be understood that each block in the flowcharts and/or block diagrams, and combinations of blocks in the flowcharts and/or block diagrams, may be implemented by computer program instructions. These computer program instructions may be provided to a processor of a general-purpose computer, a special-purpose computer, or other programmable data processing apparatus to produce a machine, such that the instructions, when executed via the processor of the computer or other programmable data processing apparatus, enable the implementation of the functions/actions specified in one or more blocks of the flowcharts and/or block diagrams. Such a processor may be, but is not limited to, a general-purpose processor, a special-purpose processor, a special application processor, or a field-programmable logic circuit. It may also be understood that each block in the block diagrams and/or flowcharts, and combinations of blocks in the block diagrams and/or flowcharts, may also be implemented by dedicated hardware that performs the specified functions or actions, or may be implemented by a combination of dedicated hardware and computer instructions.

Those skilled in the art should understand that the above embodiments are exemplary and not limiting. Different technical features appearing in different embodiments may be combined to achieve beneficial effects. Those skilled in the art, based on studying the drawings, specification and claims, should be able to understand and implement other variations of the disclosed embodiments. In the claims, the term "comprising" does not exclude other devices or steps; the article "a" or "an" does not exclude a plurality; the terms "first" and "second" are intended to indicate names and not to indicate any specific order. Any reference signs in the claims should not be construed as limiting the scope of protection. The functions of multiple parts appearing in the claims may be implemented by a single hardware or software module. The appearance of certain technical features in different dependent claims does not mean that these technical features cannot be combined to achieve beneficial effects.

CLAIMS

1. A near-field communication (NFC) interaction method applied to a user terminal installed with a plurality of NFC simulated cards, the method comprising:
 - acquiring a scenario message broadcast by a card reading terminal;
 - parsing the scenario message to obtain a target scenario identifier of a scenario where the card reading terminal is located;
 - on the condition that a NFC radio frequency signal is detected, invoking a NFC management application, and selecting, by the NFC management application, a target NFC simulated card matching the target scenario identifier from the plurality of NFC simulated cards;
 - determining a current NFC communication object of the user terminal as the target NFC simulated card; and
 - performing NFC interaction with the card reading terminal by the target NFC simulated card.
2. The method according to claim 1, wherein, prior to acquiring the scenario message broadcast by the card reading terminal, the method further comprises:
 - acquiring scenario types associated with the plurality of NFC simulated cards;
 - obtaining a plurality of scenario groups by dividing the NFC simulated cards associated with a same scenario type into a same scenario group; and
 - setting corresponding group identifiers for the plurality of scenario groups based on the scenario types associated with the NFC simulated cards in the scenario groups.
3. The method according to claim 2, wherein selecting, by the NFC management application, the target NFC simulated card matching the target scenario identifier from the plurality of NFC simulated cards, comprises:
 - filtering, by the NFC management application, a target scenario group whose group identifier is consistent with the target scenario identifier from the plurality of scenario groups;
 - on the condition that a unique NFC simulated card exists in the target scenario group, determining, by the NFC management application, the unique NFC simulated card as the target NFC simulated card; and
 - on the condition that a number of the NFC simulated cards in the target scenario group is greater than 1, determining, by the NFC management application, the NFC simulated card with a highest priority in the target scenario group as the target NFC simulated card.
4. The method according to claim 3, wherein the priority is determined based on one or more of: user settings, a geographic location, user behavior habit data.
5. The method according to claim 2, wherein the plurality of NFC simulated cards comprise a default NFC simulated card, and on the condition that the NFC radio frequency signal is detected, invoking the NFC management application, and selecting, by the NFC management application, the target NFC simulated card matching the target scenario identifier from the plurality of NFC simulated cards, comprises:
 - on the condition that the NFC radio frequency signal is detected, receiving, by a NFC controller, NFC application interaction data sent by the card reading terminal and invoking the NFC

management application, wherein the NFC application interaction data is used for the user terminal to perform the NFC interaction with the card reading terminal through the NFC simulated card according to an application specification;

forwarding, by the NFC controller, the NFC application interaction data to the NFC management application, such that the NFC management application, on the condition that the NFC application interaction data is received, acquires the group identifier of the default NFC simulated card and compares the group identifier of the default NFC simulated card with the target scenario identifier;

on the condition that the group identifier matches the target scenario identifier, determining, by the NFC management application, the target NFC simulated card as the default NFC simulated card, and directly forwarding the NFC application interaction data to a card application of the default NFC simulated card; and

on the condition that the group identifier does not match the target scenario identifier, filtering, by the NFC management application, a target scenario group whose group identifier is consistent with the target scenario identifier from the plurality of scenario groups, and directly forwarding the NFC application interaction data to the card application of the target NFC simulated card in the target scenario group.

6. The method according to claim 2, wherein the plurality of NFC simulated cards comprise a default NFC simulated card, and on the condition that the NFC radio frequency signal is detected, invoking the NFC management application, and selecting, by the NFC management application, the target NFC simulated card matching the target scenario identifier from the plurality of NFC simulated cards, comprises:

on the condition that the NFC radio frequency signal is detected, receiving, by a NFC controller, NFC application interaction data sent by the card reading terminal and invoking the NFC management application, wherein the NFC application interaction data is used for the user terminal to perform the NFC interaction with the card reading terminal through the NFC simulated card according to an application specification;

directly forwarding, by the NFC controller, the NFC application interaction data to a card application of the default NFC simulated card, and determining the current NFC communication object of the user terminal as the default NFC simulated card;

on the condition that the group identifier of the default NFC simulated card does not match the target scenario identifier, receiving a card reading failure message sent by the card reading terminal; and

on the condition that the NFC radio frequency signal is detected again, filtering, by the NFC management application, a target scenario group whose group identifier is consistent with the target scenario identifier from the plurality of scenario groups, and directly forwarding, by the NFC management application, the NFC application interaction data to the card application of the target NFC simulated card in the target scenario group.

7. The method according to claim 6, wherein determining the current NFC communication object of the user terminal as the target NFC simulated card, comprises:

switching the current NFC communication object of the user terminal from the default NFC simulated card to the target NFC simulated card.

8. A near-field communication (NFC) interaction method applied to a card reading terminal, the method comprising:

- generating a scenario message based on a target scenario identifier of a scenario where the card reading terminal is located;

- broadcasting the scenario message by a preset broadcasting method, wherein the scenario message is used for instructing a user terminal to switch a current NFC communication object to a target NFC simulated card matching the target scenario identifier; and

- performing NFC interaction with the target NFC simulated card in the user terminal.

9. The method according to claim 8, wherein generating the scenario message based on the target scenario identifier of the scenario where the card reading terminal is located, comprises:

- adding the target scenario identifier in a payload of the scenario message.

10. The method according to claim 8, wherein broadcasting the scenario message by the preset broadcasting method, comprises:

- on the condition that a card reading operation is started, broadcasting the scenario message by the preset broadcasting method, wherein the preset broadcasting method comprises at least one of: Bluetooth, wireless communication technology, Ultra Wide Band (UWB), Radio Frequency Identification (RFID) technology.

11. A user terminal installed with a plurality of NFC simulated cards, the terminal comprising: an acquiring module, configured to acquire a scenario message broadcast by a card reading terminal;

- a parsing module, configured to parse the scenario message to obtain a target scenario identifier of a scenario where the card reading terminal is located;

- a selecting module, configured to, on the condition that a NFC radio frequency signal is detected, invoke a NFC management application, and select, by the NFC management application, a target NFC simulated card matching the target scenario identifier from the plurality of NFC simulated cards;

- a determining module, configured to determine a current NFC communication object of the user terminal as the target NFC simulated card; and

- a NFC module, configured to perform NFC interaction with the card reading terminal by the target NFC simulated card.

12. A card reading terminal, the card reading terminal comprising:

- a generating module, configured to generate a scenario message based on a target scenario identifier of a scenario where the card reading terminal is located;

- a broadcasting module, configured to broadcast the scenario message by a preset broadcasting method, wherein the scenario message is used for instructing a user terminal to switch a current NFC communication object to a target NFC simulated card matching the target scenario identifier; and

- a NFC module, configured to perform NFC interaction with the target NFC simulated card in the user terminal.

13. An electronic device, the device comprising: a processor; and a memory storing computer program instructions, wherein the processor, when executing the computer program instructions, implements the NFC interaction method according to any one of claims 1 to 10.

14. A computer-readable storage medium storing a program or instructions, wherein the program or instructions, when executed by a processor, implement the NFC interaction method according to any one of claims 1 to 10.

15. A computer program product stored in a non-volatile storage medium, wherein the computer program product, when executed by at least one processor, implements the NFC interaction method according to any one of claims 1 to 10.