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- (71) **Applicant:** TENCENT TECHNOLOGY (SHENZHEN) COMPANY LIMITED [CN/CN]; Room 403, East Block 2, SEG Park, Zhenxing Road, Futian District, Shenzhen, Guangdong 518044 (CN).
- (72) **Inventor:** XIU, Yu; Room 403, East Block 2, SEG Park, Zhenxing Road, Futian District, Shenzhen, Guangdong 518044 (CN).
- (74) **Agent:** DEQI INTELLECTUAL PROPERTY LAW CORPORATION; 7/F, Xueyuan International Tower, No. 1 Zhichun Road, Haidian District, Beijing 100083 (CN).

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- (54) **Title:** METHOD, APPARATUS, AND SYSTEM FOR CONTROLLING A COMPUTER DEVICE THROUGH A MOBILE TERMINAL

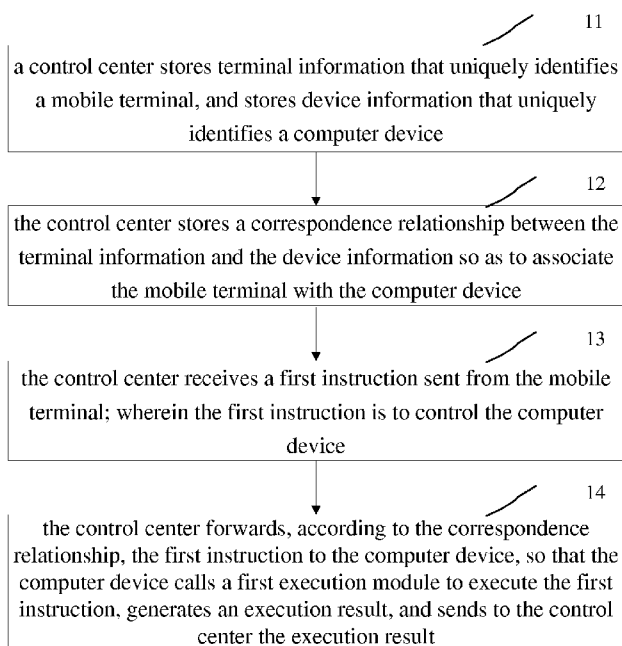


FIG. 1A

- (57) **Abstract:** According to an example of the present disclosure, a control center receives a control instruction sent from a mobile terminal, forwards the control instruction to a computer device associated with the mobile terminal, and the computer device calls an execution module to execute the control instruction.

METHOD, APPARATUS, AND SYSTEM FOR CONTROLLING A COMPUTER DEVICE THROUGH A MOBILE TERMINAL

PRIORITY STATEMENT

[0001] This application claims the benefit of Chinese Patent Application No. 2012104865181, filed on November 26, 2012, the disclosure of which is incorporated herein in its entirety by reference.

FIELD

[0002] The present disclosure relates to a computer technology field, and more particularly, to a method, an apparatus, and a system for controlling a computer device through a mobile terminal.

BACKGROUND

[0003] A simple and convenient channel is provided, with the popularity of mobile terminals, for a user to quickly obtain a message. The user is increasingly inclined to complete some daily operations in a mobile terminal. At the same time, security of a computer device becomes an issue which could not be ignored since the user cannot control the computer device anywhere and anytime.

SUMMARY

[0004] According to examples of the present disclosure, a method, an apparatus, and a system for controlling a computer device through a mobile terminal are provided, so that a user can conveniently control the computer

device anywhere and anytime.

[0005] According to an example of the present disclosure, a computer-implemented method for controlling a computer device through a mobile terminal is provided. The method includes:

- storing, by a control center, terminal information that uniquely identifies a mobile terminal, and storing device information that uniquely identifies a computer device;

- storing, by the control center, a correspondence relationship between the terminal information and the device information so as to associate the mobile terminal with the computer device;

- receiving, by the control center, a first instruction sent from the mobile terminal; wherein the first instruction is to control the computer device; and,

- forwarding, by the control center according to the correspondence relationship, the first instruction to the computer device, so that the computer device calls a first execution module to execute the first instruction, generates an execution result, and sends to the control center the execution result.

[0006] According to another example of the present disclosure, an apparatus for controlling a computer device through a mobile terminal is provided. The apparatus includes:

- a storage module, to store terminal information that uniquely identifies a mobile terminal, and store device information that uniquely identifies a computer device, and store a correspondence relationship between the terminal information and the device information so as to associate the mobile terminal with the computer device;

- a receiving module, to receive a first instruction sent from the mobile terminal; wherein the first instruction is to control the computer device; and,

a forwarding module, to forward the first instruction to the computer device according to the correspondence relationship, so that the computer device calls a first execution module to execute the first instruction, generates an execution result, and sends to the control center the execution result.

[0007] According to still another example of the present disclosure, a system for controlling a computer device through a mobile terminal is provided. The system includes:

a first transceiver module, embedded in a mobile terminal, to send a control instruction to a control center;

a second transceiver module, embedded in the control center, to forward the control instruction to a computer device; and,

an execution module, embedded in the computer device, to receive and execute the control instruction.

[0008] In examples of the present disclosure, a method, an apparatus, and a system for controlling a computer device through a mobile terminal are provided. In the examples of the present disclosure, a control center receives a control instruction sent from a mobile terminal, forwards the control instruction to a computer device associated with the mobile terminal, and the computer device calls an execution module to execute the control instruction. In this way, a user can conveniently control the computer device anywhere and anytime.

BRIEF DESCRIPTION OF THE DRAWINGS

[0009] Features of the present disclosure are illustrated by way of example and not limited in the following figures, in which like numerals indicate like elements, in which:

[0010] FIG. 1A is a schematic flowchart illustrating a method for controlling a computer device through a mobile terminal according to an

example of the present disclosure.

[0011] FIG. 1B is a schematic flowchart illustrating a method for controlling a computer device through a mobile terminal according to an example of the present disclosure.

[0012] FIG. 2 is a schematic diagram illustrating a scenario employing the method for controlling a computer device through a mobile terminal according to an example of the present disclosure.

[0013] FIG. 3 is a schematic flowchart illustrating a method for controlling a computer device through a mobile terminal according to an example of the present disclosure.

[0014] FIG. 4 is a schematic flowchart illustrating a method for controlling a computer device through a mobile terminal according to an example of the present disclosure.

[0015] FIG. 5 is a schematic diagram illustrating a structure of a system for controlling a computer device through a mobile terminal according to an example of the present disclosure.

[0016] FIG. 6A is a schematic diagram illustrating a structure of an apparatus for controlling a computer device through a mobile terminal according to an example of the present disclosure.

[0017] FIG. 6B is a schematic diagram illustrating a structure of an apparatus for controlling a computer device through a mobile terminal according to an example of the present disclosure.

[0018] FIG. 7A is a schematic diagram illustrating a hardware structure of an apparatus for controlling a computer device through a mobile terminal according to an example of the present disclosure.

[0019] FIG. 7B is a schematic diagram illustrating a hardware structure of an apparatus for controlling a computer device through a mobile terminal according to an example of the present disclosure.

DETAILED DESCRIPTION

[0020] Hereinafter, the present disclosure will be described in further detail with reference to the accompanying drawings and examples.

[0021] For simplicity and illustrative purposes, the present disclosure is described by referring to examples. In the following description, numerous specific details are set forth in order to provide a thorough understanding of the present disclosure. It will be readily apparent however, that the present disclosure may be practiced without limitation to these specific details. In other instances, some methods and structures have not been described in detail so as not to unnecessarily obscure the present disclosure. As used herein, the term “includes” means includes but not limited to, the term “including” means including but not limited to. The term “based on” means based at least in part on. In addition, the terms “a” and “an” are intended to denote at least one of a particular element.

[0022] In an example, when a user leaves his home, a computer in the home is still powered up and in an idle state. At this time, antivirus software installed on the computer may give an alarm if the computer is attacked or intruded by a computer virus. However, the user could not process the alarm immediately because the computer is not available for the user, which may cause great dangers and immeasurable losses to the security of user data.

[0023] In various examples of the present disclosure, a method, an apparatus, and a system for controlling a computer device through a mobile terminal are provided. In the examples of the present disclosure, a control center receives a control instruction sent from a mobile terminal, forwards the control instruction to a computer device associated with the mobile terminal, and the computer device calls an execution module to execute the control instruction. In this way, a user can conveniently control the computer device anywhere and anytime.

[0024] FIG. 1A is a schematic flowchart illustrating a method for controlling a computer device through a mobile terminal according to an example of the present disclosure. FIG. 1A is a simplified diagram according to one example of the present disclosure. This diagram is an example, which should not unduly limit the scope of the claims. As shown in FIG. 1A, the method may include processes as follows.

[0025] In block 11, a control center stores terminal information that uniquely identifies a mobile terminal, and stores device information that uniquely identifies a computer device.

[0026] In block 12, the control center stores a correspondence relationship between the terminal information and the device information so as to associate the mobile terminal with the computer device.

[0027] In block 13, the control center receives a first instruction sent from the mobile terminal; wherein the first instruction is to control the computer device.

[0028] In block 14, the control center forwards, according to the correspondence relationship, the first instruction to the computer device, so that the computer device calls a first execution module to execute the first instruction, generates an execution result, and sends to the control center the execution result.

[0029] FIG. 1B is a schematic flowchart illustrating a method for controlling a computer device through a mobile terminal according to an example of the present disclosure. FIG. 1B is a simplified diagram according to one example of the present disclosure. This diagram is an example, which should not unduly limit the scope of the claims. As shown in FIG. 1B, the method may include processes as follows.

[0030] In block S101, a control center receives a control instruction sent from a mobile terminal, and forwards the control instruction to a computer device associated with the mobile terminal.

[0031] In the example of the present disclosure, the control center receives the control instruction sent from the mobile terminal, wherein the control instruction may be an antivirus instruction, or may be a power-up instruction or a power-down instruction, or may be an audio and/or video instruction. In an example, the control center may be a cloud control center, which may include a plurality of cloud servers. The cloud control center may send, using a cloud server, a cloud command to some clients on the computer device and the mobile terminal. After receiving the cloud command, the clients analyze and execute the command. A basic control process may be that the control center (e.g., a cloud server) sends a command to an application on a controlled device → the controlled device executes the command, as shown in FIG. 2.

[0032] Then, the control center forwards the control instruction to the computer device associated with the mobile terminal. In an example of the present disclosure, the computer device may be a personal computer (PC), or a server, or a portable computer (such as a laptop computer, a tablet computer, etc.).

[0033] In the example of the present disclosure, terminal information that uniquely identifies the mobile terminal is obtained and uploaded to the control center, and device information that uniquely identifies the computer device is obtained and uploaded to the control center. The control center stores the terminal information and the device information uploaded, and stores a correspondence relationship between the terminal information and the device information so as to associate the terminal information with the device information, so that the mobile terminal may be associated with the computer device to be controlled by the mobile terminal. In this case, the device information and the terminal information may be any one of a mobile terminal number registered in the control center, an instant messaging (IM) account, and a user e-mail address. For example, a mobile

terminal number 186****9689 is obtained and uploaded to the control center as registration information of a mobile terminal, i.e., the terminal information of the mobile terminal, and information of a computer device which is uniquely identified by the mobile terminal number 186****9689 is obtained and uploaded to the control center as registration information of the computer device, i.e., the device information of the computer device, and the computer device is associated with the mobile terminal through the mobile terminal number 186****9689.

[0034] In block S102, the computer device calls a corresponding execution module to execute the control instruction.

[0035] In the example of the present disclosure, the computer device calls, in response to receiving the control instruction, the corresponding execution module to execute the control instruction received. In an example, when the control instruction is an antivirus instruction, the computer device may call an antivirus module to perform an antivirus operation. In another example, when the control instruction is a power-down instruction, the computer device may call a power-down module to perform a power-down operation.

[0036] FIG. 3 is a schematic flowchart illustrating a method for controlling a computer device through a mobile terminal according to an example of the present disclosure. FIG. 3 is a simplified diagram according to one example of the present disclosure. This diagram is an example, which should not unduly limit the scope of the claims. In the method shown in FIG. 3, processes in the first two blocks S301 and S302 are the same as those in blocks S101 and S102 described above, respectively. As shown in FIG. 3, the method may further include processes as follows.

[0037] In block S303, the control center receives an execution result sent from the computer device, and forwards the execution result to the mobile terminal associated with the computer device.

[0038] Generally, the execution module described above may generate an execution result after executing the control instruction. At this time, the computer device sends the execution result to the control center, and then the control center forwards the execution result to the mobile terminal associated with the computer device, therefore the execution result generated by the computer device is returned to a user of the mobile terminal. For example, after the antivirus instruction is executed and there is not any Trojan found during the process of performing the antivirus instruction, an execution result expressed as “the computer is in a safe state” may be generated; the computer device may send the execution result to the control center, and the control center may forward the execution result to the mobile terminal, therefore the execution result, which is expressed as “the computer is in a safe state”, is returned to the user of the mobile terminal. In another example, there is a Trojan found during the process of performing the antivirus instruction, and an execution result expressed as “a Trojan is found” may be generated; the computer device may send to the control center the execution result together with an expression expressed as “how to handle”, which may be forwarded by the control center to the mobile terminal, therefore, an execution result, which is expressed as “a Trojan is found, how to handle”, may be returned to the user of the mobile terminal. Still in another example, after the power-down instruction is executed and there is not any document to be saved or program to be exited during the power-down process, an execution result expressed as “the computer is powered down” may be generated, the computer device may send to the control center the execution result, and the control center may forward the execution result to the mobile terminal, therefore, the execution result, which is expressed as “the computer is powered down”, may be returned to the user of the mobile terminal.

[0039] In block S304, the mobile terminal generates, according to the execution result received, an operating instruction to be executed by the computer device, and sends to the control center the operating instruction. The control center forwards the operating instruction to the computer device.

[0040] In the example of the present disclosure, when the execution result forwarded by the control center is received by the mobile terminal, the user of the mobile terminal may perform, according to the execution result received, a corresponding operation at the mobile terminal to determine an operation to be executed by the computer device. The mobile terminal may receive the determined operation, generate the corresponding operating instruction according to the determined operation, and send to the control center the operating instruction. For example, after the user determines to perform a “Quarantine” operation according to the received execution result, which is expressed as “a Trojan is found, how to handle”, the mobile terminal may generate an operating instruction, e.g., a “Quarantine” operating instruction according to the “Quarantine” operation determined, and send to the control center the “Quarantine” operating instruction. The control center may forward the “Quarantine” operating instruction to the computer device.

[0041] In block S305, the computer device calls, in response to receiving the operating instruction sent from the control center, a corresponding execution module to execute the operating instruction.

[0042] In the example of the present disclosure, the computer device may call, in response to receiving the operating instruction sent from the control center, the corresponding execution module to execute the operating instruction. For example, the computer device receives the “Quarantine” operating instruction, and calls the antivirus module to perform the “Quarantine” operating instruction.

[0043] In an example of the present disclosure, the method described above may be applied to computer security. FIG. 4 is a schematic flowchart illustrating a method for controlling, through a mobile terminal, a computer device to perform antivirus according to an example of the present disclosure. FIG. 4 is a simplified diagram according to one example of the present disclosure. This diagram is an example, which should not unduly limit the scope of the claims. As shown in FIG. 4, the method may include processes as follows.

[0044] In block S401, the control center receives an antivirus instruction sent from the mobile terminal, and forwards the antivirus instruction to the computer device associated with the mobile terminal.

[0045] In the example of the present disclosure, an antivirus control module may be installed on the mobile terminal (such as a mobile phone, a Personal Digital Assistant (PDA), etc.). Once a user of the mobile terminal calls the antivirus control module, the mobile terminal may be connected to the control center in a wireless manner, as shown in FIG. 2. In this case, the mobile terminal sends the antivirus instruction to the control center. The control center receives the antivirus instruction sent from the mobile terminal, and forwards the antivirus instruction to the computer device associated with the mobile terminal (e.g., a PC).

[0046] In this case, the control center may be a cloud control center. The cloud control center may send a cloud command to some clients on the computer device and the mobile terminal. After receiving the cloud command, the clients analyze and execute the command. A basic control process may be that the cloud control center sends a cloud command to an application on a controlled device → the controlled device executes the cloud command.

[0047] In the example of the present disclosure, in order to associate the mobile terminal with the computer device, device information that

uniquely identifies the computer device is obtained and uploaded to the control center, and terminal information that uniquely identifies the mobile terminal is obtained and uploaded to the control center. The control center stores the terminal information and the device information uploaded, and stores a correspondence relationship between the terminal information and the device information so as to associate the terminal information with the device information, so that the mobile terminal may be associated with the computer device to be controlled by the mobile terminal. In this case, the device information and the terminal information may be any one of a mobile terminal number registered in the control center, an IM account, a user e-mail address, and a serial number of the antivirus module.

[0048] For example, an IM account, e.g., a QQ account, is logged in at a computer device such as a PC, in this case, the computer device may be associated with a mobile terminal as long as the same QQ account is logged in at the mobile terminal. In other words, the computer device is associated with the mobile terminal through the QQ account.

[0049] In block S402, the computer device calls an antivirus module to perform an antivirus operation, and sends to the control center virus information if a virus is detected.

[0050] In the example of the present disclosure, the computer device is connected to the control center when the antivirus module on the computer device is called. Meanwhile, the antivirus module is configured to perform the antivirus operation. If the antivirus module detects the virus, the computer device may send to the control center the virus information.

[0051] In block S403, the control center forwards the virus information to the mobile terminal, so that the mobile terminal may generate, according to the virus information received, an operating instruction to be executed by the computer device, and send to the control center the operating instruction. The control center forwards the operating

instruction to the computer device.

[0052] In an example of the present disclosure, a communication system employing the example of the present disclosure may include a Push Notification Server (PNS), such as a mobile terminal using an iOS operating system. In this case, the control center may send to the PNS the virus information and the terminal information, wherein the terminal information of the mobile terminal is registered in the PNS. The PNS sends, according to the terminal information registered in the PNS, the virus information to the mobile terminal corresponding to the terminal information. Then, the antivirus control module installed on the mobile terminal may generate, according to the virus information received, an operating instruction (e.g., Delete, Quarantine, or Skip) to be executed by the computer device, and send to the control center the operating instruction.

[0053] Herein, notification systems which are commonly used in mobile terminals (represented by iPhone and Blackberry) are introduced briefly, taking a PNS with a iPhone version (i.e., Apple Push Notification Service, APNS) and the instant messaging tool QQ as an example. When a user closes the QQ of the user, but at this time another user sends a message to the QQ of the user, a Push service may be triggered. A notification process may be divided into three phases. Specifically, at the first phase, a QQ server sends to the APNS the message to be sent and an identifier of a destination iPhone. At the second phase, the APNS searches a list of iPhones that have already registered the Push service on the APNS for the destination iPhone with the identifier, and sends the message to the destination iPhone. At the third phase, the destination iPhone sends the message received to a corresponding application, and pops up a Push notification according to configuration.

[0054] In block S404, the computer device calls, in response to

receiving the operating instruction sent from the control center, the antivirus module to perform an appropriate operation, and then goes on with the antivirus until the antivirus is completed.

[0055] In an example, when the computer device receives a “Delete” operating instruction sent from the control center, the antivirus module is called to perform a “Delete” operation. In another example, when the computer device receives a “Quarantine” operating instruction sent from the control center, the antivirus module is called to perform a “Quarantine” operation. After performing the appropriate operation such as the “Delete” operation or the “Quarantine” operation, the computer device continues with the antivirus until the antivirus is completed.

[0056] As described above, in the example of the present disclosure, an uplink may be that the mobile terminal sends an antivirus instruction (e.g., killing a Trojan) → the control center → the computer device calls the antivirus module, and a downlink may be that the antivirus module sends virus information (e.g., a Trojan is found) → the control center → the PNS → the mobile terminal.

[0057] According to an example of the present disclosure, the method described above may be applied to a mobile terminal without a notification system, such as a mobile terminal employing a Symbian system or an Android system. In the example of the present disclosure, the uplink may be that the mobile terminal sends a control instruction → the control center → the computer device calls an execution module to perform the control instruction, but in the downlink, a notification is obtained by a service running in the background. Specifically, the antivirus control module installed on the mobile terminal queries the control center to determine whether there is virus information sent from the computer device associated with the mobile terminal. In an example of the present

disclosure, the antivirus control module may send a query message to the control center to query whether there is the virus information sent from the computer device. The control center sends the virus information to the mobile terminal if there is the virus information. In this case, the antivirus control module may generate, according to the virus information received, an operating instruction to be executed by the computer device, and send to the control center the operating instruction.

[0058] For example, after the mobile terminal calls the antivirus control module, the service running in the background queries the control center every two minutes to determine whether there is a notification sent from the computer device associated with the mobile terminal, and pops up, in response to determining that there is the notification, a prompt box to ask a holder of the mobile terminal about how to handle, otherwise, does not perform any processing.

[0059] According to an example of the present disclosure, the method described above may be applied to a non-intelligent mobile terminal. In the example of the present disclosure, the control of a computer device may be implemented in the form of a short message, rather than through machine readable instructions. Specifically, the mobile terminal may send to a Short Messaging Service (SMS) accessing server the antivirus instruction in the form of a short message. The SMS accessing server may send the antivirus instruction to the control center, and the control center may forward the antivirus instruction to a computer device associated with the mobile terminal. The computer device may call the antivirus module to perform the antivirus instruction, and send virus information to the control center. The control center may send to a SMS transmitting server the virus information and the terminal information of the mobile terminal. The SMS transmitting server may send, according to the terminal information, the virus information to the mobile terminal corresponding to the terminal

information. In this case, the antivirus control module installed on the mobile terminal may generate, according to the virus information received, an operating instruction to be executed by the computer device, and send to the SMS accessing server the operating instruction. The SMS accessing server may send the operating instruction to the control center, and the control center may forward the operating instruction to the computer device associated with the mobile terminal.

[0060] As described above, in the example of the present disclosure, the uplink may be that the mobile terminal sends a SMS instruction (e.g., killing a Trojan) -> the SMS accessing server -> the control center -> the computer device calls the antivirus module, and the downlink may be that the antivirus module sends virus information (e.g., a Trojan is found) -> the control center -> the SMS transmitting server -> the mobile terminal.

[0061] In an example of the present disclosure, a computer may execute a method, an apparatus, and a system of the present disclosure. The computer may, for example, be a device such as a personal desktop computer or a portable device, such as a laptop computer, a tablet computer, etc. The computer may include a processor coupled to a memory storing machine readable instructions for execution by the processor to perform all or part of the processes described above.

[0062] FIG. 5 is a schematic diagram illustrating a structure of a system for controlling a computer device through a mobile terminal according to an example of the present disclosure. FIG. 5 is a simplified diagram according to one example of the present disclosure. This diagram is an example, which should not unduly limit the scope of the claims. As show in FIG. 5, the system may include a first transceiver module 501 embedded in a mobile terminal, a second transceiver module 502 embedded in a control center, and an execution module 503 embedded in a

computer device. In the example, the first transceiver module 501 may be configured to send a control instruction to the control center. The second transceiver module 502 may be configured to forward the control instruction to the computer device. The execution module 503 may be configured to receive and execute the control instruction. In addition, both the first transceiver module 501 and the execution module 503 may be integrated in a client of an IM tool or a software management tool to facilitate the installation and usage of users.

[0063] Based on the above description, an example of the present disclosure further provides an apparatus for controlling a computer device through a mobile terminal.

[0064] FIG. 6A is a schematic diagram illustrating a structure of the apparatus for controlling a computer device through a mobile terminal according to an example of the present disclosure. The apparatus shown in FIG. 6A may be applied to the control center described above. FIG. 6A is a simplified diagram according to one example of the present disclosure. This diagram is merely an example, which should not unduly limit the scope of the claims. As shown in FIG. 6A, the apparatus may include:

- a storage module 61, configured to store terminal information that uniquely identifies a mobile terminal, and store device information that uniquely identifies a computer device, and store a correspondence relationship between the terminal information and the device information so as to associate the mobile terminal with the computer device;

- a receiving module 62, configured to receive a first instruction sent from the mobile terminal; wherein the first instruction is to control the computer device; and,

- a forwarding module 63, configured to forward the first instruction to the computer device according to the correspondence relationship, so that the computer device calls a first execution module to execute the first

instruction, generates an execution result, and sends to the control center the execution result.

[0065] In an example of the present disclosure, the receiving module 62 is further configured to receive the execution result sent from the computer device; and, receive a second instruction sent from the mobile terminal; wherein the second instruction is to control the computer device. The forwarding module 63 is further configured to forward the execution result received by the receiving module to the mobile terminal, so that the mobile terminal generates the second instruction based on the execution result, and sends to the apparatus the second instruction; and, forward the second instruction received by the receiving module to the computer device, so that the computer device calls a second execution module to execute the second instruction.

[0066] In an example of the present disclosure, the first instruction may be an antivirus instruction. In this case, the receiving module 62 is configured to receive the antivirus instruction sent from the mobile terminal; receive virus information sent from the computer device; and, receive a second instruction sent from the mobile terminal; wherein the second instruction is to control the computer device. The forwarding module 63 is configured to forward the antivirus instruction received by the receiving module to the computer device, so that the computer device calls an antivirus module configured on the computer device to execute the antivirus instruction, and sends to the apparatus the virus information when a virus is detected during a process of executing the antivirus instruction; forward the virus information received by the receiving module to the mobile terminal, so that the mobile terminal generates the second instruction based on the virus information received, and sends to the apparatus the second instruction; and, forward the second instruction received by the receiving module to the computer device, so that the

computer device calls the antivirus module to execute the second instruction, and continues with antivirus until the antivirus is completed.

[0067] In an example of the present disclosure, an antivirus control module may be configured on the mobile terminal; the mobile terminal may be connected to the apparatus in a wireless manner when the antivirus control module configured on the mobile terminal is called; and, the computer device may be connected to the apparatus when the antivirus module configured on the computer device is called.

[0068] In an example of the present disclosure, the device information and the terminal information may be any one of a mobile terminal number registered in the control center, an instant messaging account, an e-mail address, and a serial number of the antivirus module.

[0069] In an example of the present disclosure, as shown in FIG. 6B, the apparatus may further include a sending module 64, configured to send the virus information and the terminal information to a Push Notification Server (PNS), so that the PNS sends to the mobile terminal the virus information according to the terminal information, and the antivirus control module configured on the mobile terminal generates the second instruction based on the virus information, and sends to the apparatus the second instruction.

[0070] In an example of the present disclosure, the receiving module 62 may be configured to receive a query message sent from the antivirus control module to query whether there is the virus information sent from the computer device; and, the forwarding module 63 may be configured to forward the virus information to the mobile terminal if there is the virus information, so that the antivirus control module configured on the mobile terminal generates the second instruction based on the virus information, and sends to the apparatus the second instruction.

[0071] In an example of the present disclosure, the antivirus

instruction may be sent by the mobile terminal to a Short Messaging Service (SMS) accessing server in the form of a short message, and the SMS accessing server sends to the control center the antivirus instruction. In this case, the receiving module 62 is configured to receive the antivirus instruction sent from the SMS accessing server, and receive the second instruction sent from the SMS accessing server; the forwarding module 63 is configured to forward the antivirus instruction to the computer device; and, the sending module 64 is configured to send the virus information and the terminal information to a SMS transmitting server, so that the SMS transmitting server sends to the mobile terminal the virus information according to the terminal information, and the antivirus control module configured on the mobile terminal generates the second instruction based on the virus information, and sends to the SMS accessing server the second instruction, and, the SMS accessing server sends to the apparatus the second instruction.

[0072] In an example of the present disclosure, the first instruction may be a power-down instruction. In this case, the receiving module 62 is configured to receive the power-down instruction sent from the mobile terminal; and, the forwarding module 63 is configured to forward the power-down instruction received by the receiving module to the computer device, so that the computer device calls a power-down module configured on the computer device to perform the power-down instruction.

[0073] The above-mentioned modules may be software (e.g. machine readable instructions stored in a computer readable medium and executable by a processor), hardware (e.g. the processor of an Application Specific Integrated Circuit (ASIC)), or a combination thereof.

[0074] The above-mentioned modules in the examples of the present disclosure may be deployed either in a centralized or a distributed

configuration; and may be either merged into a single module, or further split into a plurality of sub-modules.

[0075] FIG. 7A is a schematic diagram illustrating a hardware structure of the apparatus for controlling a computer device through a mobile terminal according to an example of the present disclosure. FIG. 7A is a simplified diagram according to one example of the present disclosure. This diagram is merely an example, which should not unduly limit the scope of the claims. As shown in FIG. 7A, the apparatus may include a processor 1, a first storage 2, an interconnection mechanism 3, at least one port 4, and a second storage 5. In this case, the processor 1, the first storage 2, the at least one port 4, and the second storage 5 are connected via the interconnection mechanism 3; and the apparatus may transmit and receive data information through the at least one port 4.

[0076] In the example of the present disclosure, the storage 2 can store machine readable instructions, and the processor 1 can execute the machine readable instructions to store, in the second storage 5, terminal information that uniquely identifies a mobile terminal, and store device information that uniquely identifies a computer device, and store a correspondence relationship between the terminal information and the device information so as to associate the mobile terminal with the computer device; to receive a first instruction sent from the mobile terminal; wherein the first instruction is to control the computer device; and, to forward the first instruction to the computer device according to the correspondence relationship, so that the computer device calls a first execution module to execute the first instruction, generates an execution result, and sends to the control center the execution result.

[0077] In the example of the present disclosure, the processor 1 can execute the machine readable instructions stored in the first storage 2 to perform all or part of the processes described in the aforementioned

method examples, which are not repeated herein.

[0078] As can be seen from the above description that, when the machine readable instructions stored in the first storage 2 are executed by the processor 1, functions of the aforementioned storing module 61, the receiving module 62, the forwarding module 63, and the sending module 64 are implemented. Therefore, an example of the hardware structure of the apparatus for controlling a computer device through a mobile terminal is shown in FIG. 7B.

[0079] It can be seen from the above descriptions that, in the examples of the present disclosure, a control center receives a control instruction sent from a mobile terminal, forwards the control instruction to a computer device associated with the mobile terminal, and the computer device calls an execution module to execute the control instruction. In this way, a user can conveniently control the computer device anywhere and anytime.

[0080] The above examples can be implemented by hardware, software or firmware or a combination thereof. For example the various methods, processes and functional units described herein may be implemented by a processor (the term processor is to be interpreted broadly to include a CPU, processing unit, ASIC, logic unit, or programmable gate array etc.). The processes, methods and functional units may all be performed by a single processor or split between several processors; reference in this disclosure or the claims to a 'processor' should thus be interpreted to mean 'one or more processors'. The processes, methods and functional units be implemented as machine readable instructions executable by one or more processors, hardware logic circuitry of the one or more processors or a combination thereof. Further the teachings herein may be implemented in the form of a software product. The computer software product is stored in a non-transitory storage medium and comprises a plurality of instructions for making a computer

apparatus (which can be a personal computer, a server or a network apparatus such as a router, switch, access point etc.) implement the method recited in the examples of the present disclosure.

[0081] Those skilled in the art may understand that all or part of the procedures of the methods of the above examples may be implemented by hardware modules following machine readable instructions. The machine readable instructions may be stored in a computer readable storage medium. When running, the machine readable instructions may provide the procedures of the method examples. The storage medium may be diskette, CD, ROM (Read-Only Memory) or RAM (Random Access Memory), and etc.

[0082] The figures are only illustrations of examples, wherein the modules or procedure shown in the figures are not necessarily essential for implementing the present disclosure. The modules in the aforesaid examples can be combined into one module or further divided into a plurality of sub-modules.

[0083] The above are examples of the present disclosure along with some of its variations. The terms, descriptions and figures used herein are set forth by way of illustration only and are not meant as limitations. Many variations are possible within the spirit and scope of the disclosure, which is intended to be defined by the following claims -- and their equivalents -- in which all terms are meant in their broadest reasonable sense unless otherwise indicated.

CLAIMS

What is claimed is:

1. A computer-implemented method for controlling a computer device
5 through a mobile terminal, comprising:

storing, by a control center, terminal information that uniquely identifies a mobile terminal, and storing device information that uniquely identifies a computer device;

10 storing, by the control center, a correspondence relationship between the terminal information and the device information so as to associate the mobile terminal with the computer device;

receiving, by the control center, a first instruction sent from the mobile terminal; wherein the first instruction is to control the computer device; and,

15 forwarding, by the control center according to the correspondence relationship, the first instruction to the computer device, so that the computer device calls a first execution module to execute the first instruction, generates an execution result, and sends the execution result to the control center.

20

2. The computer-implemented method of claim 1, further comprising:

receiving, by the control center, the execution result sent from the computer device, and forwarding the execution result to the mobile terminal, so that the mobile terminal generates a second instruction based
25 on the execution result, and sends the second instruction to the control center; wherein the second instruction is to control the computer device; and,

receiving, by the control center, the second instruction sent from the mobile terminal, and forwarding the second instruction to the computer

device, so that the computer device calls a second execution module to execute the second instruction.

3. The computer-implemented method of claim 1, wherein the first
5 instruction is an antivirus instruction;

the control center receiving the first instruction sent from the mobile terminal, forwarding the first instruction to the computer device, so that the computer device calls the first execution module to execute the first instruction, generates an execution result, and sends to the control center
10 the execution result comprises:

receiving, by the control center, the antivirus instruction sent from the mobile terminal, and forwarding the antivirus instruction to the computer device, so that the computer device calls an antivirus module configured on the computer device to execute the antivirus instruction, and when a virus
15 is detected during a process of executing the antivirus instruction, the antivirus module sends virus information to the control center;

the method further comprising:

receiving, by the control center, the virus information sent from the computer device, and forwarding the virus information to the mobile
20 terminal, so that the mobile terminal generates a second instruction based on the virus information received, and sends the second instruction to the control center; wherein the second instruction is to control the computer device; and,

receiving, by the control center, the second instruction sent from the
25 mobile terminal, and forwarding the second instruction to the computer device, so that the computer device calls the antivirus module to execute the second instruction, and continues with antivirus until the antivirus is completed.

4. The computer-implemented method of claim 3, wherein an antivirus control module is configured on the mobile terminal;

the mobile terminal is connected to the control center in a wireless manner when the antivirus control module configured on the mobile
5 terminal is called; and

the computer device is connected to the control center when the antivirus module configured on the computer device is called.

5. The computer-implemented method of claim 4, wherein the device
10 information and the terminal information comprise any one of a mobile terminal number registered in the control center, an instant messaging account, an e-mail address, and a serial number of the antivirus module.

6. The computer-implemented method of claim 5, wherein the control
15 center forwarding the virus information to the mobile terminal, so that the mobile terminal generates a second instruction based on the virus information received, and sends the second instruction to the control center comprises:

sending, by the control center, the virus information and the terminal
20 information to a Push Notification Server (PNS), so that the PNS sends to the mobile terminal the virus information according to the terminal information, and the antivirus control module configured on the mobile terminal generates the second instruction based on the virus information, and sends the second instruction to the control center.

25

7. The computer-implemented method of claim 5, wherein the control center forwarding the virus information to the mobile terminal, so that the mobile terminal generates a second instruction based on the virus information received, and sends to the control center the second instruction

comprises:

receiving, by the control center, a query message sent from the antivirus control module to query whether there is the virus information sent from the computer device; and,

- 5 forwarding, by the control center, the virus information to the mobile terminal if there is the virus information, so that the antivirus control module configured on the mobile terminal generates the second instruction based on the virus information, and sends the second instruction to the control center.

10

8. The computer-implemented method of claim 5, wherein the antivirus instruction is sent by the mobile terminal to a Short Messaging Service (SMS) accessing server in the form of a short message, and the SMS accessing server sends to the control center the antivirus instruction;

- 15 the control center receiving the antivirus instruction sent from the mobile terminal, and forwarding the antivirus instruction to the computer device comprises:

receiving, by the control center, the antivirus instruction sent from the SMS accessing server, and forwarding the antivirus instruction to the
20 computer device;

the control center forwarding the virus information to the mobile terminal, so that the mobile terminal generates a second instruction based on the virus information received, and sends to the control center the second instruction comprises:

- 25 sending, by the control center, the virus information and the terminal information to a SMS transmitting server, so that the SMS transmitting server sends to the mobile terminal the virus information according to the terminal information, and the antivirus control module configured on the mobile terminal generates the second instruction based on the virus

information, and sends to the SMS accessing server the second instruction, and, the SMS accessing server sends to the control center the second instruction; and,

the control center receiving the second instruction sent from the mobile terminal comprises:

receiving, by the control center, the second instruction sent from the SMS accessing server.

9. The computer-implemented method of claim 1, wherein the first instruction is a power-down instruction;

the control center receiving a first instruction sent from the mobile terminal, forwarding the first instruction to the computer device, so that the computer device calls a first execution module to execute the first instruction comprises:

receiving, by the control center, the power-down instruction sent from the mobile terminal, and forwarding the power-down instruction to the computer device, so that the computer device calls a power-down module configured on the computer device to perform the power-down instruction.

10. An apparatus for controlling a computer device through a mobile terminal, comprising:

a storage module, to store terminal information that uniquely identifies a mobile terminal, and store device information that uniquely identifies a computer device, and store a correspondence relationship between the terminal information and the device information so as to associate the mobile terminal with the computer device;

a receiving module, to receive a first instruction sent from the mobile terminal; wherein the first instruction is to control the computer device; and,

a forwarding module, to forward the first instruction to the computer device according to the correspondence relationship, so that the computer device calls a first execution module to execute the first instruction, generates an execution result, and sends the execution result to the control
5 center.

11. The apparatus of claim 10, wherein
the receiving module is further to
receive the execution result sent from the computer device; and,
10 receive a second instruction sent from the mobile terminal;
wherein the second instruction is to control the computer device;
and,
the forwarding module is further to
forward the execution result received by the receiving module to
15 the mobile terminal, so that the mobile terminal generates the second
instruction based on the execution result, and sends the second
instruction to the apparatus; and,
forward the second instruction received by the receiving module
to the computer device, so that the computer device calls a second
20 execution module to execute the second instruction.

12. The apparatus of claim 10, wherein
the first instruction is an antivirus instruction;
the receiving module is to
25 receive the antivirus instruction sent from the mobile terminal;
receive virus information sent from the computer device; and,
receive a second instruction sent from the mobile terminal;
wherein the second instruction is to control the computer device;
and,

the forwarding module is to

forward the antivirus instruction received by the receiving module to the computer device, so that the computer device calls an antivirus module configured on the computer device to execute the antivirus instruction, and when a virus is detected during a process of executing the antivirus instruction, the antivirus module sends the virus information to the apparatus;

forward the virus information received by the receiving module to the mobile terminal, so that the mobile terminal generates the second instruction based on the virus information received, and sends the second instruction to the apparatus; and,

forward the second instruction received by the receiving module to the computer device, so that the computer device calls the antivirus module to execute the second instruction, and continues with antivirus until the antivirus is completed.

13. The apparatus of claim 12, wherein an antivirus control module is configured on the mobile terminal;

the mobile terminal is connected to the apparatus in a wireless manner when the antivirus control module configured on the mobile terminal is called; and,

the computer device is connected to the apparatus when the antivirus module configured on the computer device is called.

14. The apparatus of claim 13, wherein the device information and the terminal information comprises any one of a mobile terminal number registered in the control center, an instant messaging account, an e-mail address, and a serial number of the antivirus module.

15. The apparatus of claim 14, further comprising:

a sending module, to send the virus information and the terminal information to a Push Notification Server (PNS), so that the PNS sends to the mobile terminal the virus information according to the terminal
5 information, and the antivirus control module configured on the mobile terminal generates the second instruction based on the virus information, and sends the second instruction to the apparatus.

16. The apparatus of claim 14, wherein the receiving module is to
10 receive a query message sent from the antivirus control module to query whether there is the virus information sent from the computer device; and,
the forwarding module is to forward the virus information to the mobile terminal if there is the virus information, so that the antivirus control module configured on the mobile terminal generates the second
15 instruction based on the virus information, and sends the second instruction to the apparatus.

17. The apparatus of claim 14, wherein the antivirus instruction is sent by the mobile terminal to a Short Messaging Service (SMS) accessing
20 server in the form of a short message, and the SMS accessing server sends to the control center the antivirus instruction;

the receiving module is to receive the antivirus instruction sent from the SMS accessing server, and receive the second instruction sent from the SMS accessing server;

25 the forwarding module is to forward the antivirus instruction to the computer device; and,

the sending module is to send the virus information and the terminal information to a SMS transmitting server, so that the SMS transmitting server sends to the mobile terminal the virus information according to the

terminal information, and the antivirus control module configured on the mobile terminal generates the second instruction based on the virus information, and sends to the SMS accessing server the second instruction, and, the SMS accessing server sends to the apparatus the second
5 instruction.

18. The apparatus of claim 10, wherein the first instruction is a power-down instruction;

the receiving module is to receive the power-down instruction sent
10 from the mobile terminal; and,

the forwarding module is to forward the power-down instruction received by the receiving module to the computer device, so that the computer device calls a power-down module configured on the computer device to perform the power-down instruction.

15

19. A system for controlling a computer device through a mobile terminal, comprising:

a first transceiver module, embedded in a mobile terminal, to send a control instruction to a control center;

20 a second transceiver module, embedded in the control center, to forward the control instruction to a computer device; and,

an execution module, embedded in the computer device, to receive and execute the control instruction.

1/7

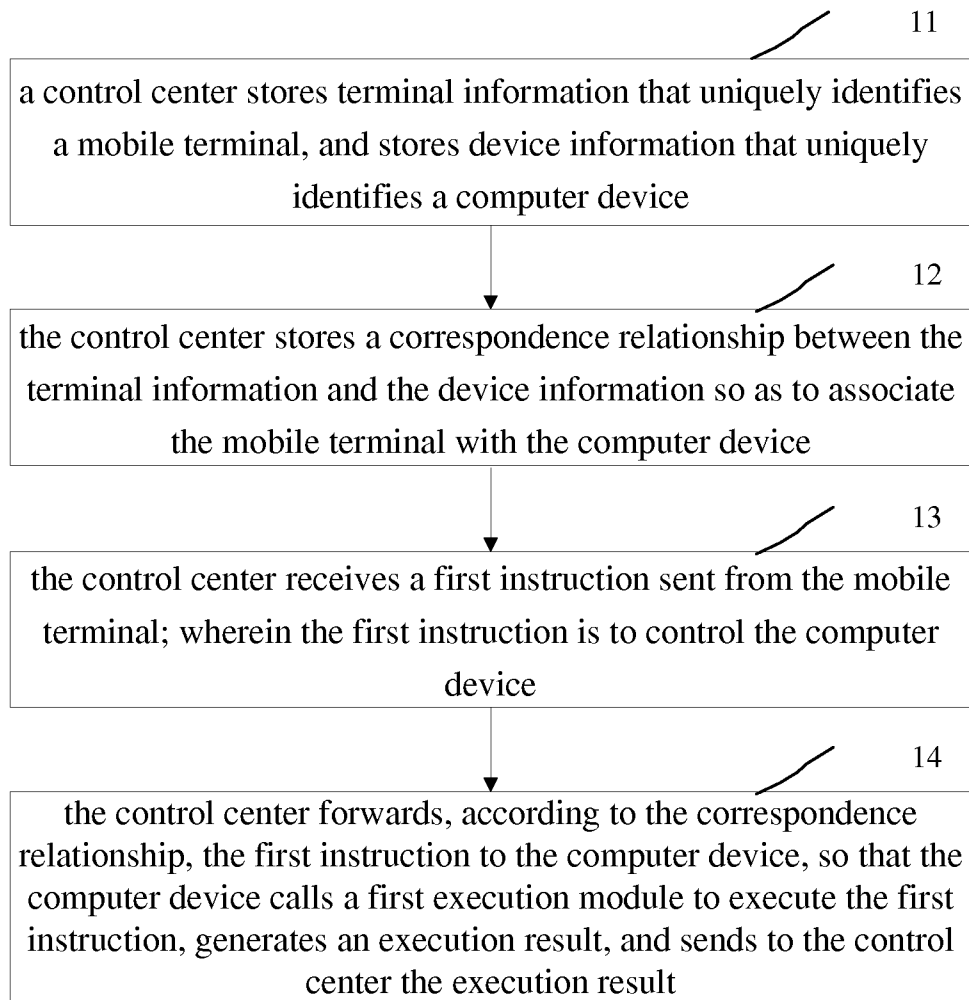


FIG. 1A

2/7

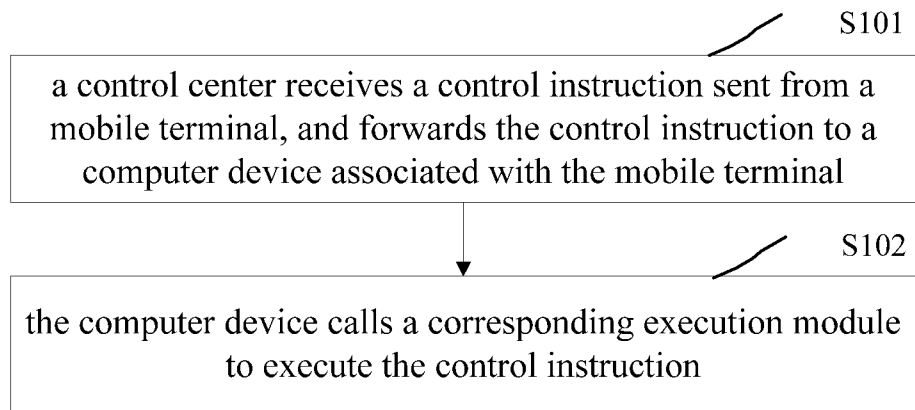


FIG. 1B

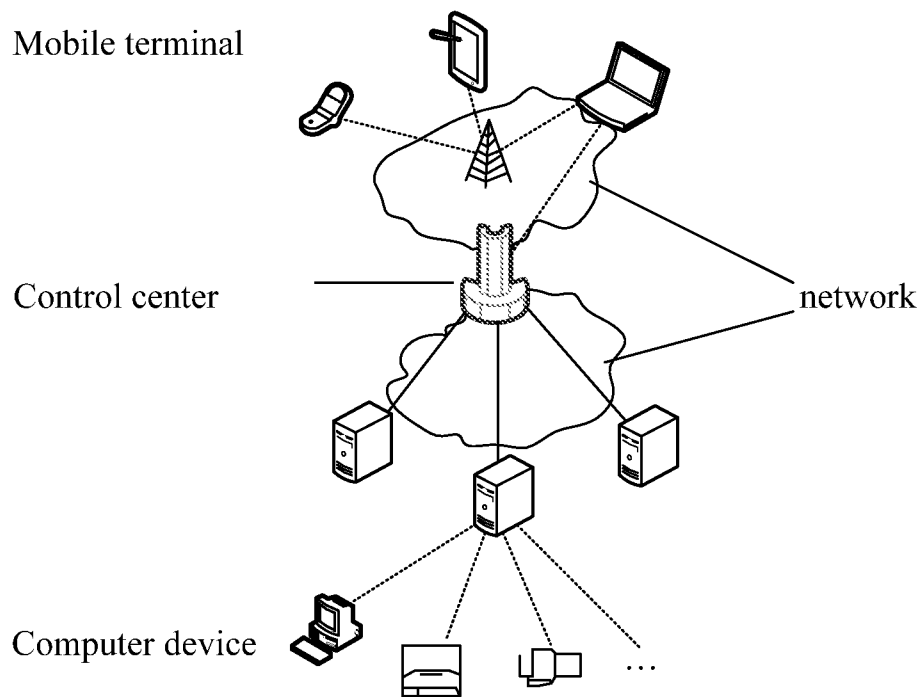


FIG. 2

3/7

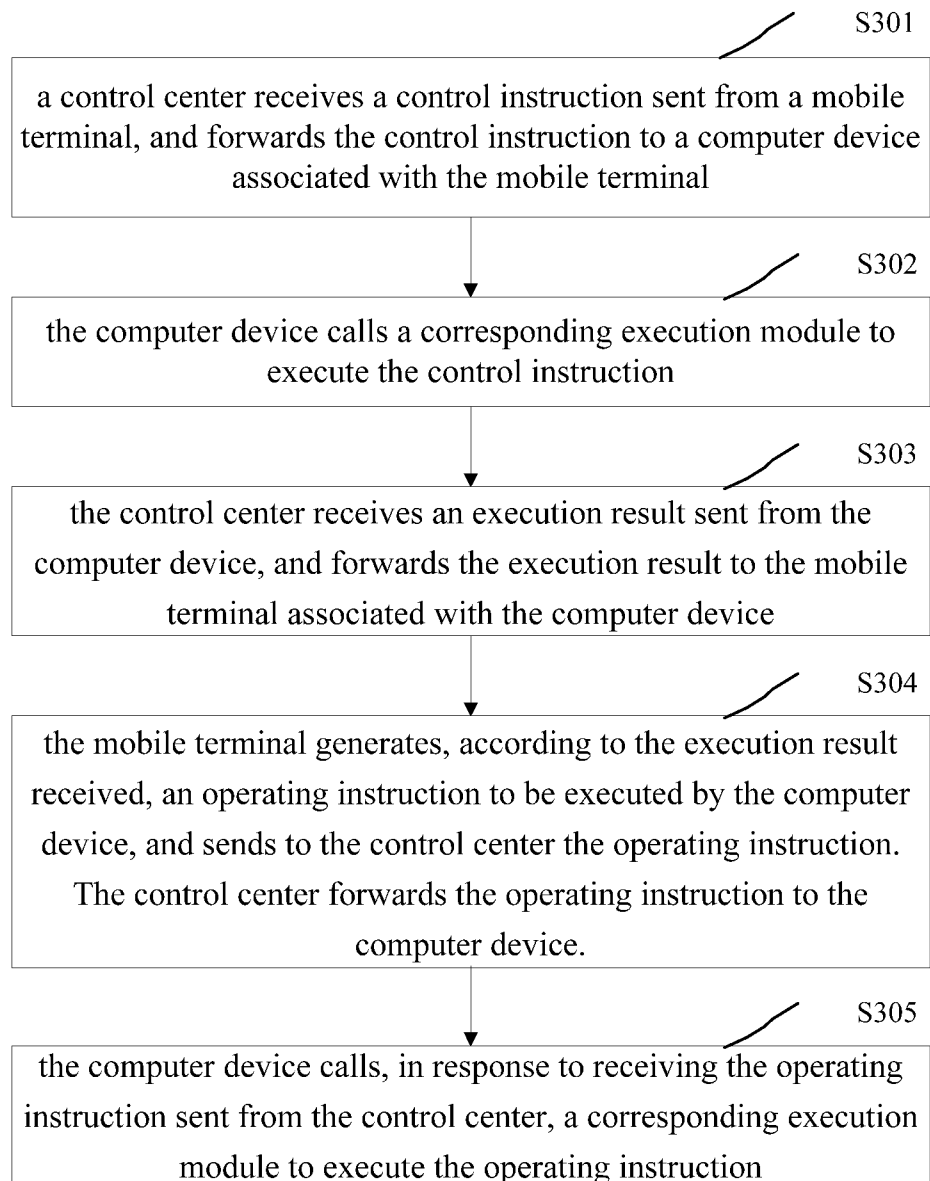


FIG. 3

4/7

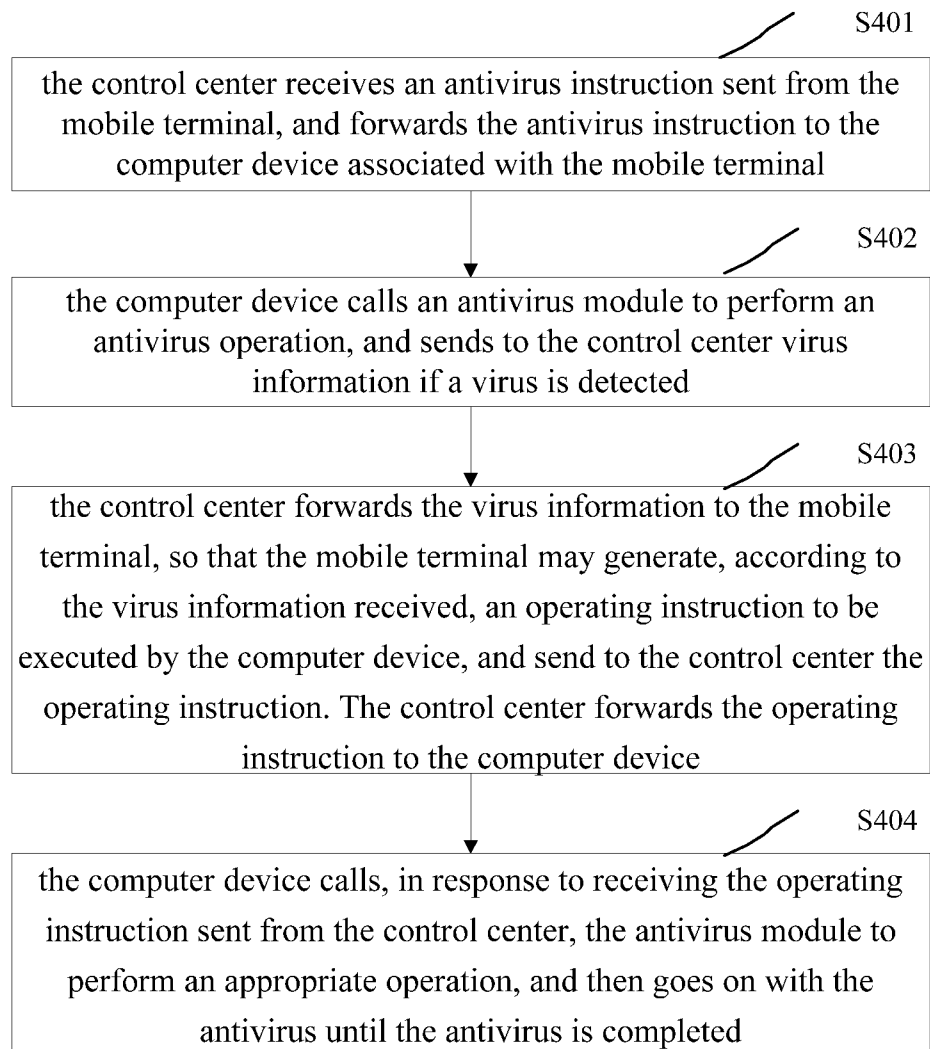


FIG. 4

5/7

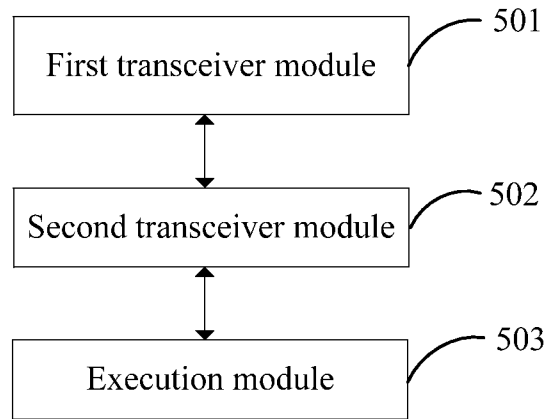


FIG. 5

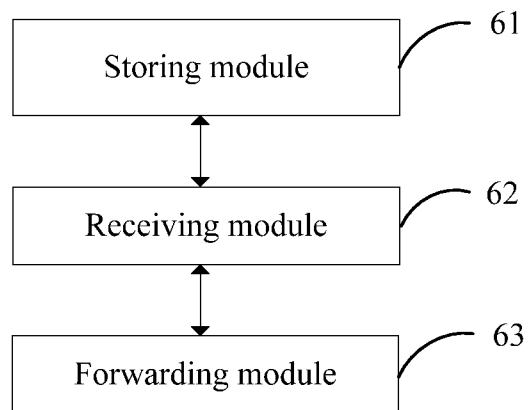


FIG. 6A

6/7

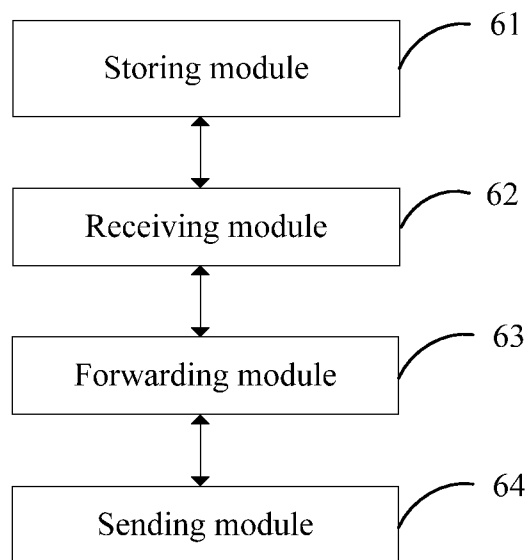


FIG. 6B

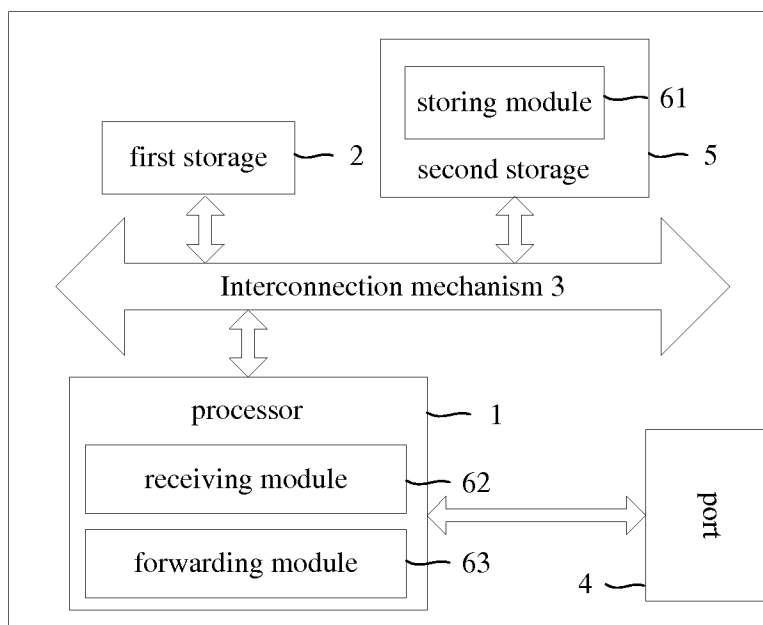


FIG. 7A

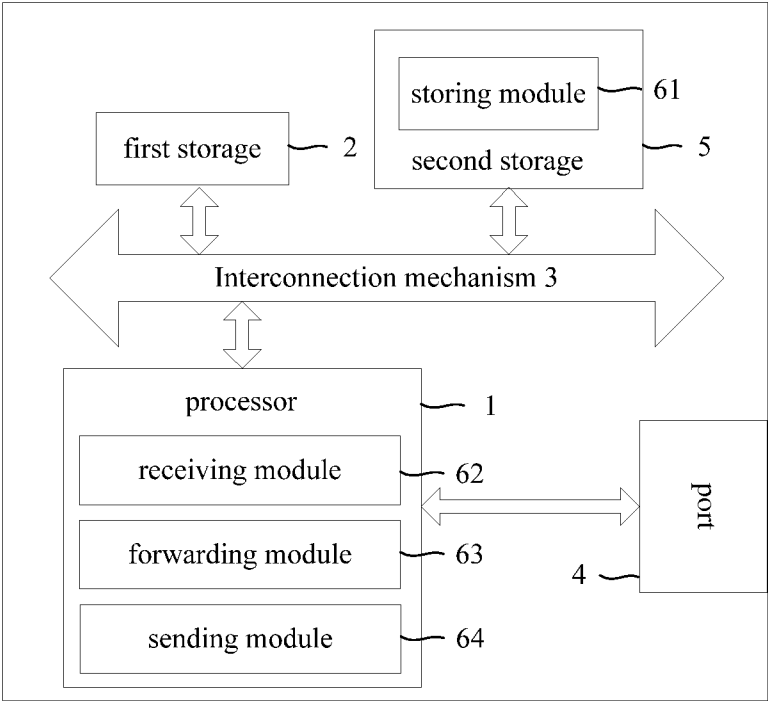


FIG. 7B

INTERNATIONAL SEARCH REPORT

International application No.

PCT/CN2013/086819

A. CLASSIFICATION OF SUBJECT MATTER

See the extra sheet

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC: G06F, H04W, H04Q

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

CNABS, CNKI, VEN: mobile, terminal, UE, phone, telephone, cellular, handset, control, computer, notebook, power, down, off

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	CN 1801047 A (LENOVO BEIJING CO., LTD.) 12 July 2006 (12.07.2006) the abstract, description, page 5, line 5 to page 7, line 9 and page 8, line 18 to page 10, line 17 and figures 1-4	1-19
X	CN 1794212 A (WANG H) 28 June 2006 (28.06.2006) the abstract, description, page 2, line 14 to page 4, line 25 and figure 1	1-19
A	CN 1677382 A (LENOVO BEIJING CO., LTD.) 05 October 2005 (05.10.2005) the whole document	1-19

☐ Further documents are listed in the continuation of Box C.☒ See patent family annex.

* Special categories of cited documents:	“T” later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
“A” document defining the general state of the art which is not considered to be of particular relevance	“X” document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
“E” earlier application or patent but published on or after the international filing date	“Y” document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
“L” document which may throw doubts on priority claim (S) or which is cited to establish the publication date of another citation or other special reason (as specified)	“&” document member of the same patent family
“O” document referring to an oral disclosure, use, exhibition or other means	
“P” document published prior to the international filing date but later than the priority date claimed	

Date of the actual completion of the international search 22 January 2014 (22.01.2014)	Date of mailing of the international search report 20 Feb. 2014 (20.02.2014)
Name and mailing address of the ISA/CN The State Intellectual Property Office, the P.R.China 6 Xitucheng Rd., Jimen Bridge, Haidian District, Beijing, China 100088 Facsimile No. 86-10-62019451	Authorized officer CAI, Guoli Telephone No. (86-10)62411422

International application No.
PCT/CN2013/086819

Form PCT/ISA /210 (patent family annex) (July 2009)

INTERNATIONAL SEARCH REPORT

International application No.

PCT/CN2013/086819

A. CLASSIFICATION OF SUBJECT MATTER

G06F 3/00 (2006.01) i

H04W 92/16 (2009.01) i