COMMUNICATION METHOD AND APPARATUS

TECHNICAL FIELD

[0001] This application relates to the field of communication technologies, and in particular, to a communication method and apparatus.

BACKGROUND

[0002] When accessing a base station, a terminal device needs to select a network, and a network selection process is public land mobile network (public land mobile network, PLMN) selection. The PLMN is a network built and operated by a government or an operator authorized by the government, to provide land mobile communication services for the public. The terminal device identifies a network mainly based on a PLMN identifier (identifier, ID), or the terminal device determines, mainly based on a PLMN ID, an operator to which a network belongs.

[0003] Currently, there are a plurality of network types, for example, a long term evolution (long term evolution, LTE) system and a new radio (new radio, NR) system. With network evolution, a plurality of different branches may be derived from a base network. For example, the base network is an NR network, and an NR network used for an industry, for example, an NR network used for railways, may be derived from the base network. Compared with the base network (NR network), the NR network used for the industry is also referred to as a derived network. The derived network may also be used for a public network, for example, a public network in a satellite scenario. Currently, the derived network and the base network are distinguished mainly by using a frequency band.

[0004] However, a frequency band may be used for the derived network in one country, but may be used for the base network in another country. In a non-terrestrial network (non-terrestrial network, NTN), a satellite can broadcast PLMN IDs of a plurality of countries. If the terminal device distinguishes between networks based only on the PLMN IDs, the terminal device may select a PLMN that is not in a country in which the terminal device is located. Consequently, it is difficult to perform normal communication, and network access fails.

SUMMARY

[0005] Embodiments of this application provide a communication method and apparatus, to

resolve a problem that a terminal device may fail to access a network because the terminal device distinguishes between networks based only on PLMN IDs.

[0006] To achieve the foregoing objective, the following technical solutions are used in embodiments of this application.

[0007] According to a first aspect, an embodiment of this application provides a communication method, and the communication method may be performed by a first communication apparatus. The first communication apparatus may be a communication device or a communication apparatus, for example, a chip system, that can support the communication device in implementing a function required in the method. The first communication apparatus may be one of two communication ends. For example, the two communication ends include a network device and a terminal device. The first communication apparatus may be the terminal device or a unit, a functional module, or the like in the terminal device. For example, the first communication apparatus may be a chip disposed in the terminal device, or the first communication apparatus is another component configured to implement a function of a terminal apparatus. The following describes the method provided in the first aspect by using an example in which the first communication apparatus is the terminal device.

[0008] The communication method includes: The terminal device obtains network type information, where the network type information indicates that a first network is a derived network; and the terminal device camps on the first network.

[0009] The derived network is relative to a base network. The base network may be understood as a network constructed based on the 3rd generation partnership project (3rd generation partnership project, 3GPP) protocol, and the derived network may be understood as a branch derived from the base network and used for enterprises, and the like. For example, the base network is a new radio (new radio, NR) network, and the derived network may be an NR network used for railways. The first network may be a network that the terminal device is expected to access. In the method, a network type is indicated to the terminal device by using the network type information. For example, the first network is the derived network. In this way, based on the type of the first network, the terminal device camps on the first network by using an access mechanism that matches the first network, to reduce a failure caused by accessing the first network by using an access mechanism that does not match the first network.

[0010] The network type information includes but is not limited to the following implementations.

[0011] Manner 1: The network type information includes information about a first PLMN ID, and the first PLMN ID indicates that the first network is the derived network. In Manner 1, the network type is indicated by using the first PLMN ID. The first PLMN ID is different from an ID

of a network used to provide a service. The ID of the network used to provide a service may be, for example, an ID of a PLMN selected by a non-access stratum (non-access stratum, NAS) of the terminal device. The network type is indicated by using the first PLMN ID, so that no additional information element needs to be introduced, and few modifications are made to a system message.

[0012] Manner 2: The network type information further includes information about a first network identifier (network identifier, NID), and the first PLMN ID and the first NID indicate that the first network is the derived network. In Manner 2, the network type is indicated by using both the first PLMN ID and the first NID. The network type is indicated by using both the first PLMN ID and the first NID, so that different private networks can be further indicated, and an application scope is wider.

[0013] Optionally, the first PLMN ID is one of first-type PLMN IDs, and the first-type PLMN ID indicates that a network type is a derived network. As described above, the first PLMN ID is different from the ID of the network used to provide a service. In this solution, a new type of (for example, first-type) PLMN ID is introduced to indicate the derived network. Any one of first-type PLMN IDs may indicate that the network type is the derived network.

[0014] In a possible implementation, the method further includes: The terminal device obtains a second PLMN ID, where a PLMN corresponding to the second PLMN ID is a PLMN selected by the NAS of the terminal device.

[0015] The PLMN selected by the NAS of the terminal device may be the network used to provide a service. After obtaining the first PLMN ID and the second PLMN ID, the terminal device may camp on the PLMN corresponding to the second PLMN ID by using an access mechanism of the derived network. In comparison with distinguishing between networks based only on the second PLMN ID, this can avoid selecting a PLMN that is not in a country in which the terminal device is located, and a probability that normal communication cannot be performed is reduced.

[0016] Manner 3: The network type information includes information about a first sequence, and the first sequence indicates that the first network is the derived network. In Manner 3, the terminal device determines, by using the first sequence, that the first network is the derived network. An implementation of the first sequence is not limited in this application. For example, the first sequence may be a (pre)configured or predefined bit string. Alternatively, the first sequence may be a bit string generated according to a predefined rule. The network type information may be information indicating the first sequence, occupies few bit positions, and has low overheads.

[0017] Optionally, the network type information is carried in system information. For example, the network type information is carried in a system information block 1 (system information block 1, SIB1).

[0018] Manner 4: The network type information is in a late non-critical extension (lateNonCriticalExtension) field in a SIB1.

[0019] In Manner 4, the lateNonCriticalExtension field is reused to indicate the network type. For example, if the SIB1 includes the lateNonCriticalExtension field, the first network is the derived network; or if the SIB1 does not include the lateNonCriticalExtension field, the first network is the base network. Alternatively, the lateNonCriticalExtension field and another field may jointly indicate that the first network is the derived network. For example, if the SIB1 includes the lateNonCriticalExtension field and a first field, the first network is the derived network; or if the SIB1 includes the lateNonCriticalExtension field, and the SIB1 does not include a first field, the first network is the base network. The first field may be a newly added/newly defined field. In Manner 4, a field in the SIB1 is reused to indicate the network type, so that no additional information element needs to be introduced, and processing complexity of the terminal device can be reduced.

[0020] Manner 5: The network type information is a first value in two values included in a broadcast control channel (broadcast control channel, BCCH)-broadcast channel (broadcast channel, BCH) message. For example, the two values include the first value and a second value, the first value indicates a derived master information block (master information block, MIB), and the second value indicates a MIB.

[0021] It may be understood that the BCCH-BCH message in NR has two options. One of the options is a MIB, and the other option is reserved information. One of the two values included in the BCCH-BCH message corresponds to one option. For example, the first value indicates the reserved information, and the second value indicates the MIB. In Manner 5, the first value of the BCCH-BCH message is reused to indicate the derived network or the derived MIB. The derived MIB may implicitly indicate that a network type is a derived network. In Manner 5, the value included in the BCCH-BCH message is reused to indicate the network type, so that no additional information element needs to be introduced, and processing complexity of the terminal device can be reduced.

[0022] According to a second aspect, an embodiment of this application provides a communication method, and the communication method may be performed by a second communication apparatus. The second communication apparatus may be a communication device or a communication apparatus, for example, a chip system, that can support the communication device in implementing a function required in the method. The second communication apparatus may be one of two communication ends. For example, the two communication ends include a network device and a terminal device. The second communication apparatus may be the network device or a unit, a functional module, or the like in the network device. For example, the second

communication apparatus may be a chip disposed in the network device, or the first communication apparatus is another component configured to implement a function of the network device. The following describes the method provided in the second aspect by using an example in which the second communication apparatus is the network device.

[0023] The communication method includes: The network device sends network type information, where the network type information indicates that a first network is a derived network.

[0024] In a possible implementation, the network type information includes information about a first PLMN ID, and the first PLMN ID indicates that the first network is the derived network.

[0025] In a possible implementation, the network type information further includes information about a first NID, and the first PLMN ID and the first NID indicate that the first network is the derived network.

[0026] In a possible implementation, the first PLMN ID is one of first-type PLMN IDs, and the first-type PLMN ID indicates that a network type is a derived network.

[0027] In a possible implementation, the network type information includes information about a first sequence, and the first sequence indicates that the first network is the derived network.

[0028] In a possible implementation, the network type information is system information. For example, the system information is a SIB1.

[0029] In a possible implementation, the network type information is in a late non-critical extension lateNonCriticalExtension field in the SIB1.

[0030] In a possible implementation, the network type information is a first value in two values included in a BCCH-BCH message.

[0031] In a possible implementation, the two values include the first value and a second value, the first value indicates a derived master information block MIB, and the second value indicates a MIB.

[0032] For technical effects brought by the second aspect and the possible implementations of the second aspect, refer to descriptions of technical effects of corresponding implementations of the first aspect.

[0033] According to a third aspect, an embodiment of this application provides a communication method, and the communication method may be performed by a first communication apparatus. The first communication apparatus may be a communication device or a communication apparatus, for example, a chip system, that can support the communication device in implementing a function required in the method. The first communication apparatus may be a receive end in two communication ends. For example, the two communication ends include a network device and a terminal device, a transmit end is the network device, and the receive end is the terminal device. The first communication apparatus may be the terminal device or a unit, a

functional module, or the like in an apparatus device. For example, the first communication apparatus may be a chip disposed in the apparatus device, or the first communication apparatus is another component configured to implement a function of the network apparatus. The following describes the method provided in the third aspect by using an example in which the first communication apparatus is the apparatus device.

[0034] The communication method includes: The terminal device determines, depending on whether a SIB1 includes a lateNonCriticalExtension field, whether a first network is a derived network.

[0035] In this embodiment of this application, whether a network is a base network or a derived network may be determined depending on whether the SIB1 includes the lateNonCriticalExtension field. For example, if the SIB1 includes the lateNonCriticalExtension field, the first network is the derived network. Otherwise, if the SIB1 does not include the lateNonCriticalExtension field, the first network is the base network. Alternatively, whether a network is a base network or a derived network may be determined depending on whether the lateNonCriticalExtension field appears. For example, if the lateNonCriticalExtension field appears, the first network is the derived network. Otherwise, if the lateNonCriticalExtension field does not appear, the first network is the base network.

[0036] In a possible implementation, the terminal device further determines, depending on whether system information includes a first field, whether the first network is the derived network. The first field may be a newly added/defined field, and whether the network is the base network or the derived network may be determined depending on whether the lateNonCriticalExtension field appears and the first field appears. For example, if the lateNonCriticalExtension field appears and the first field appears, the first network is the derived network. Otherwise, if the lateNonCriticalExtension field appears and the first field does not appear, the first network is the base network.

[0037] According to a fourth aspect, an embodiment of this application provides a communication method, and the communication method may be performed by a second communication apparatus. The second communication apparatus may be a communication device or a communication apparatus, for example, a chip system, that can support the communication device in implementing a function required in the method. The second communication apparatus may be a transmit end in two communication ends. For example, the two communication ends include a network device and a terminal device, and the transmit end is the network device. The second communication apparatus may be the network device or a unit, a functional module, or the like in the network device. For example, the second communication apparatus may be a chip disposed in the network device, or the first communication apparatus is another component

configured to implement a function of the network device. The following describes the method provided in the fourth aspect by using an example in which the second communication apparatus is the network device.

[0038] The communication method includes: The network device sends system information, where the system information indicates whether a first network is a derived network.

[0039] In a possible implementation, if the system information includes a SIB1, and the SIB1 includes a lateNonCriticalExtension field, the first network is the derived network.

[0040] In a possible implementation, if the system information further includes a first field, the first network is the derived network.

[0041] For technical effects brought by the fourth aspect and the possible implementations of the fourth aspect, refer to descriptions of technical effects of corresponding implementations of the third aspect.

[0042] According to a fifth aspect, an embodiment of this application provides a communication method, and the method may be performed by two communication ends. The two communication ends may be a transmit end and a receive end, may be the transmit end and a unit in the receive end, may be a unit in the transmit end and the receive end, or may be a unit in the transmit end and a unit in the receive end. The unit in the transmit end may be a chip or a functional module disposed in the transmit end. The unit in the receive end may be a chip or a functional module disposed in the receive end. For ease of description, the following describes the method provided in the fifth aspect by using an example in which the transmit end is a network apparatus and the receive end is a terminal apparatus.

[0043] The communication method includes: A network device sends network type information, where the network type information indicates that a first network is a derived network; and a terminal device obtains the network type information, and camps on the first network based on the network type information.

[0044] For technical effects brought by the fifth aspect and the possible implementations of the fifth aspect, refer to descriptions of technical effects of corresponding implementations of the first aspect.

[0045] According to a sixth aspect, an embodiment of this application provides a communication apparatus. The communication apparatus has a function of implementing behavior in the method examples in any one of the first aspect to the fourth aspect. For beneficial effects, refer to descriptions of the first aspect to the fourth aspect. Details are not described herein again. The communication apparatus may be the first communication apparatus in the first aspect or the third aspect. For example, the communication apparatus may be a terminal device. Alternatively, the communication apparatus may be an apparatus that can support the terminal device in the first

aspect or the third aspect in implementing a function required in the method provided in the first aspect or the third aspect. For example, the communication apparatus may be a chip or a chip system in the terminal device. Alternatively, the communication apparatus may be the second communication apparatus in the second aspect or the fourth aspect. For example, the communication apparatus may be a network device. Alternatively, the communication apparatus may be an apparatus that can support the network device in the second aspect or the fourth aspect in implementing a function required in the method provided in the second aspect or the fourth aspect. For example, the communication apparatus may be a chip or a chip system in the network device.

[0046] In a possible design, the communication apparatus includes a corresponding means (means) or module configured to perform the method according to any one of the first aspect to the fourth aspect. For example, the communication apparatus includes a processing unit (sometimes also referred to as a processing module or a processor) and/or a transceiver unit (sometimes also referred to as a transceiver module or a transceiver). The transceiver unit can implement a sending function and a receiving function. When implementing the sending function, the transceiver unit may be referred to as a sending unit (sometimes also referred to as a sending module). When implementing the receiving function, the transceiver unit may be referred to as a receiving unit (sometimes also referred to as a receiving module). The sending unit and the receiving unit may be a same functional unit, the functional unit is referred to as a transceiver unit, and the functional unit can implement the sending function and the receiving function. Alternatively, the sending unit and the receiving unit may be different functional units, and the transceiver unit is a general term for these functional units. These units (modules) may perform corresponding functions in the method example according to any one of the first aspect to the fourth aspect. For details, refer to the detailed descriptions in the method example. Details are not described herein.

[0047] According to a seventh aspect, an embodiment of this application provides a communication apparatus. The communication apparatus may be the communication apparatus in the sixth aspect of the foregoing embodiments, or may be a chip or a chip system disposed in the communication apparatus in the sixth aspect. The communication apparatus includes a communication interface and a processor, and optionally, further includes a storage. The storage is configured to store a computer program, instructions, or data. The processor is coupled to the storage and the communication interface. When the processor reads the computer program, the instructions, or the data, the communication apparatus is enabled to perform the method performed by the network device or the terminal device in the foregoing method embodiments. For example, the communication apparatus may be a network device or a functional module, for example, a

baseband chip and a radio frequency chip, in the network device. For another example, the communication apparatus may be a terminal device or a functional module, for example, a baseband chip and a radio frequency chip, in the terminal device.

[0048] According to an eighth aspect, an embodiment of this application provides a chip system. The chip system includes a processor, may further include a storage and/or a communication interface, and is configured to implement the method according to any one of the first aspect to the fourth aspect. Optionally, the chip system further includes the storage. The storage is configured to store a computer program (which may also be referred to as code or instructions). The processor is configured to invoke the computer program from the storage and run the computer program, to enable a device on which the chip system is installed to perform the method according to any one of the first aspect to the fourth aspect and the possible implementations of the first aspect to the fourth aspect. The chip system may include a chip, or may include a chip and another discrete device.

[0049] According to a ninth aspect, an embodiment of this application provides a communication apparatus. The communication apparatus includes an input/output interface and a logic circuit. The input/output interface is configured to input and/or output information. The input/output interface may be an interface circuit, an output circuit, an input circuit, a pin, a related circuit, or the like. The logic circuit is configured to perform the method according to any one of the first aspect to the fourth aspect.

[0050] In a specific implementation process, the communication apparatus may be a chip, the input circuit may be an input pin, the output circuit may be an output pin, and the logic circuit may be a transistor, a gate circuit, a trigger, various logic circuits, or the like. An input signal received by the input circuit may be received and input by, for example, but not limited to, a receiver, a signal output by the output circuit may be output to, for example, but not limited to, a transmitter and transmitted by the transmitter, and the input circuit and the output circuit may be a same circuit, where the circuit is used as the input circuit and the output circuit at different moments. Specific implementations of the input/output interface and the logic circuit are not limited in this application.

[0051] In an implementation, when the communication apparatus is a wireless communication device, the wireless communication device may be a terminal, for example, a smartphone, or may be a radio access network device, for example, a base station. The interface circuit may be a radio frequency processing chip in the wireless communication device, and a processing circuit may be a baseband processing chip in the wireless communication device.

[0052] According to a tenth aspect, an embodiment of this application provides a communication system. The communication system includes the communication apparatus in the sixth aspect configured to implement the function in the first aspect and the communication

apparatus in the sixth aspect configured to implement the function in the second aspect. Alternatively, the communication system includes the communication apparatus in the sixth aspect configured to implement the function in the third aspect and the communication apparatus in the sixth aspect configured to implement the function in the fourth aspect.

[0053] According to an eleventh aspect, this application provides a computer-readable storage medium. The computer-readable storage medium stores a computer program. When the computer program is run, the method according to any one of the first aspect to the fourth aspect is implemented.

[0054] According to a twelfth aspect, a computer program product is provided. The computer program product includes computer program code. When the computer program code is run, the method according to any one of the first aspect to the fourth aspect is performed.

[0055] For beneficial effects of the fifth aspect to the twelfth aspect and the implementations of the fifth aspect to the twelfth aspect, refer to the descriptions of the beneficial effects of the first aspect to the fourth aspect or the implementations of the first aspect to the fourth aspect.

BRIEF DESCRIPTION OF DRAWINGS

[0056] FIG. 1 is a diagram of an example structure of a communication system to which an embodiment of this application is applicable;

[0057] FIG. 2 is a schematic flowchart of a communication method according to an embodiment of this application;

[0058] FIG. 3 is a diagram of a structure of a communication apparatus according to an embodiment of this application; and

[0059] FIG. 4 is a diagram of another structure of a communication apparatus according to an embodiment of this application.

DESCRIPTION OF EMBODIMENTS

[0060] The technical solutions provided in embodiments of this application may be applied to a fifth generation (fifth generation, 5G) mobile communication system, may be applied to a long term evolution (long term evolution, LTE) system, or may be applied to a next generation mobile communication system, for example, a 6G mobile communication system or another similar communication system. Th another similar communication systems includes, for example: vehicle to everything (vehicle to everything, V2X), an internet of things (internet of things, IoT) system, and a narrow band internet of things (narrow band internet of things, NB-IoT) system. The IoT may be understood as IoT or a wearable Wi-Fi network based on wireless fidelity (wireless fidelity,

Wi-Fi). The wearable Wi-Fi network may be a Wi-Fi network includes a terminal device (for example, a mobile phone), which is used as a virtual access point, and an associated wearable device. In embodiments of this application, the 5G mobile communication system is used as an example for description. When the technical solutions in embodiments of this application are applied to another communication system, devices, components, modules, and the like in embodiments may be replaced with corresponding devices, components, and modules in the another communication system. This is not limited.

[0061] FIG. 1 is a diagram of an architecture of a 3rd generation partnership project (3rd generation partnership project, 3GPP) system in 5G, including a terminal, (radio) access network ((Radio) access network, (R)AN) elements, and core network elements.

[0062] The terminal is also referred to as a terminal device or a terminal apparatus, and includes user equipment (user equipment, UE), an access station, a UE station, a remote station, a wireless communication device, a user apparatus, a chip, or the like. The terminal device is configured to connect people, things, machines, and the like, and may be widely used in various scenarios, for example, including but not limited to the following scenarios: a terminal device for cellular communication, device-to-device communication (device-to-device, D2D), V2X, machine-to-machine/machine-type communication (machine-to-machine /machine-type communication, M2M/MTC), IoT, virtual reality (virtual reality, VR), augmented reality (augmented reality, AR), industrial control (industrial control), self-driving (self-driving), telemedicine (remote medical), smart grid (smart grid), smart furniture, smart office, smart wearables, smart transportation, smart city (smart city), uncrewed aerial vehicles, and robots. A specific technology and a specific device form that are used by the terminal device are not limited in embodiments of this application.

[0063] For example, the terminal device in embodiments of this application may be a mobile phone, a tablet computer, a computer having a wireless transceiver function, a VR terminal, an AR terminal, a wireless terminal in industrial control, an entire vehicle, a wireless communication module in an entire vehicle, a vehicle-mounted T-box (Telematics BOX), a road side unit (road side unit, RSU), or a wireless terminal in self-driving. If various terminal devices described above are located in a vehicle (for example, placed in the vehicle or mounted in the vehicle), the terminal devices may be all considered as vehicle-mounted terminal devices. For example, the vehicle-mounted terminal devices are also referred to as on-board units (on-board units, OBUs). The terminal device in this application may alternatively be a vehicle-mounted module, a vehicle-mounted assembly, a vehicle-mounted component, a vehicle-mounted chip, or a vehicle-mounted unit that is built in a vehicle as one or more components or units. The vehicle uses the vehicle-mounted module, the vehicle-mounted assembly, the vehicle-mounted component, the vehicle-

mounted chip, or the vehicle-mounted unit that is built in the vehicle, to implement a method in this application.

[0064] In embodiments of this application, the terminal device is an apparatus that may be configured to implement a function of the terminal device, or may be an apparatus, for example, a chip system, that can support the terminal device in implementing the function, where the apparatus may be installed in the terminal device. For example, the terminal device may alternatively be a vehicle detector. The chip system may include a chip, or may include a chip and another discrete device. The technical solutions provided in embodiments of this application are described by using an example in which the apparatus configured to implement the function of the terminal device is a terminal apparatus.

[0065] An access network device may be configured to provide a network access function for the terminal device. The access network device in embodiments of this application may be a base station (base station), an evolved NodeB (evolved NodeB, eNodeB), a transmission reception point (transmission reception point, TRP), a next generation NodeB (next generation NodeB, gNB) in a 5G mobile communication system, a next generation NodeB in a 6G mobile communication system, a base station in a future mobile communication system, an access node in a Wi-Fi system, or the like; or may be a module or a unit that implements some functions of the base station, for example, may be a central unit (central unit, CU), or may be a distributed unit (distributed unit, DU). The CU completes functions of a radio resource control protocol and a packet data convergence protocol (packet data convergence protocol, PDCP) of the base station, and may further complete a function of a service data adaptation protocol (service data adaptation protocol, SDAP). The DU completes functions of a radio link control layer and a medium access control (medium access control, MAC) layer of the base station, and may further complete some or all functions of a physical layer. For detailed descriptions of the foregoing protocol layers, refer to related technical specifications in 3GPP. The access network device may be a macro base station, may be a micro base station or an indoor base station, or may be a relay node, a donor node, or the like. A specific technology and a specific device form used by the access network device are not limited in embodiments of this application.

[0066] In embodiments of this application, the access network device is an apparatus that may be configured to implement a function of the access network device, or may be an apparatus, for example, a chip system, that can support the access network device in implementing the function, where the apparatus may be installed in the access network device. The chip system may include a chip, or may include a chip and another discrete device. The technical solutions provided in embodiments of this application are described by using an example in which the apparatus configured to implement the function of the access network device is an access network apparatus.

[0067] The access network device and the terminal device may be located in fixed locations, or may be movable. The access network device and the terminal device may be deployed on land, including indoors or outdoors, or may be handheld or vehicle-mounted; may be deployed on a water surface; or may be deployed on a plane, a balloon, or an artificial satellite in the sky. Application scenarios of the access network device and the terminal device are not limited in embodiments of this application.

[0068] A core network includes at least one core network device, for example, may include two types: a user plane function network element (which may be referred to as a user plane network element for short) and a control plane function network element (which may be referred to as a control plane network element for short). The control plane function network element may include an access management network element, a session management network element, a unified data management network element, a policy control network element, and the like.

[0069] The user plane network element is configured for packet routing and forwarding, quality of service (quality of service, QoS) processing of user plane data, and the like. As shown in FIG. 1, in a 5G communication system, the user plane network element may be a user plane function (user plane function, UPF) network element. In a future communication system, the user plane network element may still be the UPF network element, or may have another name. This is not limited in this application.

[0070] The access management network element is mainly configured for mobility management, access management, and the like, for example, may be configured to implement a function like access authorization/authentication. As shown in FIG. 1, in the 5G communication system, the access management network element may be an access and mobility management function (access and mobility management function, AMF) network element. In the future communication system, the access management network element may still be the AMF network element, or may have another name. This is not limited in this application.

[0071] The session management network element is mainly configured for session management, internet protocol (internet protocol, IP) address allocation and management for the terminal device, selection of a termination that can manage a plane function interface and a policy control and charging function interface of the terminal device, downlink data notification, and the like. As shown in FIG. 1, in the 5G communication system, the session management network element may be a session management function (session management function, SMF) network element. In the future communication system, the session management network element may still be the SMF network element, or may have another name. This is not limited in this application.

[0072] The policy control network element is a unified policy framework for guiding network behavior, and provides policy rule information and the like for the control plane function network

element (for example, the AMF network element and the SMF network element). As shown in FIG. 1, in the 5G communication system, the policy control network element may be a policy control function (policy control function, PCF) network element. In the future communication system, the policy control network element may still be the PCF network element, or may have another name. This is not limited in this application.

[0073] The data management network element is configured for terminal device identifier processing, access authentication, registration, mobility management, and the like. As shown in FIG. 1, in the 5G communication system, the data management network element may be a unified data management (unified data management, UDM) network element or a unified data repository (unified data repository, UDR) network element. In the future communication system, the unified data management may still be the UDM network element or the UDR network element, or may have another name. This is not limited in this application.

[0074] An application function network element may interact with a 5G system through an application function network element, and is configured to access a network exposure function network element, interact with a policy framework for policy control, and the like. As shown in FIG. 1, in the 5G communication system, the application function network element may be an AF (application function) network element. In the future communication system, the application function network element may still be the AF network element, or may have another name. This is not limited in this application.

[0075] A data network (data network, DN) is a network configured to provide data transmission. In the future communication system, the data network may still be the DN, or may have another name. This is not limited in this application. In the 5G communication system, after accessing a network, the terminal device may establish a protocol data unit (protocol data unit, PDU) session, access the DN by using the PDU session, and may interact with an application function network element (for example, an application server) deployed in the DN.

[0076] It should be understood that FIG. 1 shows interaction relationships between network function entities and corresponding interfaces. For example, the UE and the AMF may interact with each other through an N1 interface, the access network device and the AMF may interact with each other through an N2 interface, the access network device and the UPF may interact with each other through an N3 interface, the UPF and the DN may interact with each other through an N6 interface, the UPF and the SMF may interact with each other through an N4 interface, the AMF and the PCF may interact with each other through an N15 interface, the AMF and the SMF may interact with each other through an N11 interface, the SMF and the PCF may interact with each other through an N7 interface, the PCF and the AF may interact with each other through an N5 interface, the AMF and the UDM may interact with each other through an N8 interface, the SMF

and the UDM may interact with each other through an N10 interface, and the PCF and the UDM may interact with each other through an N25 interface. Interaction between other network function entities is similar, and is not described again.

[0077] It may be understood that the foregoing network elements or functions may be network elements in a hardware device, software functions running on dedicated hardware, or virtualized functions instantiated on a platform (for example, a cloud platform). One or more services may be obtained through division into the foregoing network elements or functions. Further, there may be a service that exists independently of a network function.

[0078] It should be noted that embodiments of this application are not limited to the foregoing system architecture, and may be further applied to another future communication system, for example, a 6G system architecture. In addition, in the future communication system, a function of each network element in this embodiment of this application may remain the same while a name of the network element may change.

[0079] The UE needs to select a network when accessing the base station. A network selection process is PLMN selection. A PLMN is a network built and operated by a government or an operator authorized by the government, to provide land mobile communication services for the public. Different PLMN networks may be distinguished by using different PLMN IDs. A PLMN identifier includes a mobile country code (mobile country code, MCC) and a mobile network code (mobile net code, MNC). The MCC uniquely identifies a country to which a mobile subscriber belongs. For example, an MCC of China is 460. The MNC uniquely identifies a network in the country. For example, an MNC of China Mobile is 00, and an MNC of China Unicom is 01.

[0080] There are a plurality of types of PLMNs. One UE usually needs to maintain a plurality of PLMN lists, and each PLMN list includes a plurality of PLMNs. The PLMNs include the following types:

[0081] (1) A registered PLMN (registered PLMN, RPLMN) is a PLMN registered before the UE is powered off or disconnected from a network last time. The RPLMN may be stored in a memory of a terminal.

[0082] (2) An equivalent PLMN (equivalent PLMN, EPLMN) is a PLMN that is equivalent to a PLMN currently selected by the UE. A priority of the EPLMN is the same as that of the PLMN currently selected by the UE.

[0083] (3) An equivalent home PLMN (equivalent home PLMN, EHPLMN) is a home PLMN that is equivalent to the PLMN currently selected by the UE. For example, the EHPLMN and the EPLMN are similar to a 158 network newly built by China Mobile, and the PLMN is similar to originally built 135 to 139 networks.

[0084] (4) A home PLMN (home PLMN, HPLMN) is a home PLMN of the UE. An MCC in

the HPLMN is consistent with an MCC included in an international mobile subscriber identity (International Mobile Subscriber Identity, IMSI) on a universal subscriber identity module (universal subscriber identity module, USIM) card of the UE. An MNC in the HPLMN is consistent with an MNC included in the IMSI on the USIM card of the UE. A subscriber has only one home PLMN.

[0085] (5) A visited PLMN (visited PLMN, VPLMN) is a PLMN visited by the UE. An MCC in the VPLMN is different from an MCC in an IMSI on a SIM card of the UE. An MNC in the VPLMN is different from the MCC in the IMSI on the SIM card of the UE. When the UE moves out of a coverage area, the UE selects a VPLMN.

[0086] (6) A user controlled PLMN (user controlled PLMN, UPLMN) is a parameter related to PLMN selection and is stored in the USIM card.

[0087] (7) An operator controlled PLMN (operator controlled PLMN, OPLMN) is a parameter related to PLMN selection and is stored in the USIM card.

[0088] (8) A forbidden PLMN (forbidden PLMN, FPLMN) is a PLMN that is forbidden to be accessed. Generally, if the UE attempts to access a PLMN but is rejected, the UE adds the PLMN to a list of forbidden PLMNs.

[0089] (9) An approve PLMN (approve PLMN, APLMN) is a PLMN in which the UE can find at least one cell and can read PLMN identity information of the APLMN.

[0090] Different types of PLMNs have different priorities. The terminal selects a PLMN in the following sequence: (1) the RPLMN, (2) the EPLMN, (3) the HPLMN, (4) the EHPLMN, (5) the UPLMN, (6) the OPLMN, and (7) another PLMN.

[0091] PLMN selection includes the following steps:

[0092] Step 11: An access stratum (access stratum, AS) of UE scans radio frequency (radio frequency, RF) channels (channels) of all bands (bands) to obtain an available PLMN. The UE finds a cell with highest reference signal received power (reference signal received power, RSRP) in each frequency, and obtains a SIB1 of the cell to obtain a PLMN ID.

[0093] Step 12: The AS of the UE reports a PLMN list (list) to a NAS of the UE, where the PLMN list includes PLMN IDs obtained by the AS of the UE. PLMNs obtained by the AS of the UE may include: an RPLMN, an EPLMN, an HPLMN, an EHPLMN, and the like.

[0094] Step 13: After receiving the PLMN list reported by the AS of the UE, the NAS of the UE selects one of the PLMN IDs as a PLMN used by the UE.

[0095] The NAS of the UE may select an expected PLMN from the PLMN list based on a PLMN priority sequence.

[0096] Step 14: After selecting the PLMN, the NAS of the UE indicates the selected PLMN to the AS of the UE, and the AS of the UE selects, based on the indicated PLMN, a corresponding

cell to camp on. After the AS of the UE successfully camps on the cell, the NAS of the UE initiates a registration process to a network.

[0097] Currently, there are a plurality of network types, for example, a universal mobile telecommunications system (universal mobile telecommunications system, UMTS), code division multiple access (code division multiple access, CDMA), time division duplex LTE (time division duplex, TDD-LTE), frequency division duplex LTE (frequency division duplex, TDD-LTE), and NR. The UE identifies a network mainly based on a PLMN ID, or the UE determines an operator to which the network belongs mainly based on a PLMN ID. Different types of networks have different synchronization channel search mechanisms. The UE uses a synchronization channel search mechanism that matches a network type to search for a network or obtain a PLMN ID.

[0098] With network evolution, a plurality of different branches are derived from a same type of network, for example, networks used for enterprises and factories. For example, based on an FDD-LTE network, there may be an FDD-LTE network used for railways; and based on an NR network, there may be an NR network used for an industry. For ease of distinguishing, the FDD-LTE network and the NR network may be considered as base (base) networks, and the FDD-LTE network used for railways and the NR network used for railways are considered as derived networks. Compared with the derived network, the base network is a network constructed based on the 3GPP protocol, and the derived network may be understood as a branch derived from the base network and used for an industry/enterprise. The derived network may also be used for a public network, for example, a public network provided by a satellite. The base network and the derived network may alternatively be considered as two types of networks. For example, the base network is referred to as a first-type network, and the derived network is referred to as a second-type network.

[0099] The derived network and the base network use a same design, for example, a same synchronization signal sequence or a same synchronization signal waveform. However, compared with the base network, the derived network may adaptively modify or add some functions.

[00100] For example, designs of some specific system information elements or dedicated signaling elements of the derived network and the base network are different. For example, the base network is an NR network, and a combination of time-frequency positions of a physical broadcast channel (physical broadcast channel, PBCH)/synchronization signal and PBCH block (Synchronization Signal and PBCH block, SSB) of the derived network is the same as that of the NR network. However, definitions of information elements in the PBCH are different. For example, four values included in a 2-bit information element are interpreted as 0, 1, 2, and 3 in NR, and are interpreted as 0, 2, 4, and 8 in the derived network.

[00101] For another example, the derived network may add some functions to a SIB1 or another

SIB and dedicated signaling of the base network. For example, some dedicated information elements may be added to the SIB1 or the another SIB and the dedicated signaling, and these dedicated information elements are for an industry to which the derived network is applicable. For another example, the derived network may perform modification on network processing logic of the base network. For example, the derived network may redefine a SIB, a master information block (master information block, MIB), or some information elements in the base network. Therefore, a SIB1 or another SIB of the derived network is different from that of the base network. For example, an Nth bit to an $(N+X)^{th}$ bit in the SIB1 of the base network indicate a tracking area (tracking area code, TAC), but an $(N–1)^{th}$ bit to an $(N+X–1)^{th}$ bit in the derived network indicate a TAC.

[00102] It can be learned that, although the derived network and the base network use the same design, for example, the same synchronization signal sequence or the same synchronization signal waveform, access mechanisms or network processing logic of the derived network and the base network may be different. Therefore, when accessing a network, the terminal device needs to use network processing logic that matches the network. Otherwise, the terminal device fails to access the network. For example, if a network that provides a service is the base network, and the terminal device accesses, by using the access mechanism or the network processing logic of the derived network, the network that provides a service, the access definitely fails. Similarly, if a network that provides a service is the derived network, and the terminal device accesses, by using the access mechanism or the network processing logic of the base network, the network that provides a service, the access also definitely fails.

[00103] Therefore, the terminal device needs to identify a type of the network that provides a service, to be specific, needs to determine whether the network that provides a service is the base network or the derived network. Currently, the derived network and the base network are distinguished mainly by using a frequency band. For example, the derived network is in a specific frequency band, and the terminal device determines, based on a found frequency band, whether a network is the derived network or the base network. However, a frequency band may be used for the derived network in a specific area, but may be used for the base network in another area. For example, a frequency band is used for the derived network in a specific area of a country, but in another country, the frequency band is used for the base network. In an NTN, a higher orbit of a satellite indicates a larger coverage area of the satellite. A satellite may cover areas of a plurality of countries and may be shared by core networks of the plurality of countries. Therefore, a satellite can broadcast PLMN IDs of the plurality of countries. If the UE distinguishes between networks based only on the PLMN IDs, the UE may select a PLMN that is not in a country in which the UE is located. Consequently, it is difficult to perform normal communication, and network access fails.

[00104] To resolve the foregoing problems, the technical solutions in embodiments of this application are provided. In embodiments of this application, a network side may indicate, to a terminal apparatus, whether a network that provides a service is a derived network, so that based on an indication of the network side, the terminal apparatus accesses the network by using network processing logic that matches the network that provides a service, to reduce a network access failure of the terminal apparatus.

[00105] In embodiments of this application, "system" and "network" may be used interchangeably. "A plurality of" means two or more. In view of this, "a plurality of" may also be understood as "at least two" in embodiments of this application. "At least one" may be one or more, for example, at least one is one, two, or more. For example, including at least one means that one, two, or more are included, and which one or ones are included is not limited. For example, if at least one of A, B, and C is included, A, B, C, A and B, A and C, B and C, or A, B, and C may be included. Similarly, understandings of descriptions such as "at least one" are also similar. "At least one of the following items (pieces)" or a similar expression thereof indicates any combination of the items, including one of the items (pieces) or any combination of a plurality of items (pieces). For example, "at least one of A, B, and C" includes A, B, C, AB, AC, BC, or ABC. "And/or" describes an association relationship for describing associated objects and represents that three relationships may exist. For example, A and/or B may represent the following three cases: Only A exists, both A and B exist, and only B exists. In addition, unless otherwise specified, the character "/" generally indicates an "or" relationship between the associated objects.

[00106] Unless otherwise specified, ordinal numbers such as "first" and "second" mentioned in embodiments of this application are used to distinguish a plurality of objects, and are not used to limit a sequence, a time sequence, a priority, or an importance degree of the plurality of objects. In addition, descriptions of "first" and "second" do not mean that objects are necessarily different. For example, a first PLMN and a second PLMN indicate that there are two PLMNs, and priorities or importance degrees of the two PLMNs are not limited. In embodiments of this application, "if" and "assuming that" may be interchangeable, and unless otherwise specified, "when" and "in a case in which..." may be interchangeable.

[00107] A communication method provided in embodiments of this application relates to interaction between two communication apparatuses. The two communication apparatuses are, for example, a first communication apparatus and a second communication apparatus. For example, the first communication apparatus is an access network apparatus, and the second communication apparatus is a terminal apparatus. Steps performed by the access network apparatus may be implemented by an access network device, or may be implemented by a component (for example, a module such as a chip, a processing unit, or a processor) in the access network device. For

example, the access network apparatus may be the (R)AN network element in FIG. 1, or may be a chip (system) in the (R)AN network element in FIG. 1. Steps performed by the terminal apparatus may be implemented by a terminal device, or may be implemented by a component (for example, a module such as a chip, a processing unit, or a processor) in the terminal device. The terminal apparatus may be the UE shown in FIG. 1, or may be a chip (system) in the UE in FIG. 1. Unless otherwise specified, a network device in embodiments of this application is an access network device, for example, a base station. Correspondingly, a network apparatus is an access network apparatus, for example, a chip system in a base station.

[00108] In embodiments of this application, the network side may indicate a network type or identify whether a network is a derived network by using a specific PLMN, a specific sequence, a specific field, or specific information. The following describes in detail the solutions provided in embodiments of this application with reference to embodiments.

[00109] FIG. 2 is a schematic flowchart of a communication method according to an embodiment of this application. FIG. 2 describes the method from a perspective of interaction between a network apparatus and a terminal apparatus. As shown in FIG. 2, a procedure of the communication method includes the following steps.

[00110] S201: The terminal apparatus obtains first information, where the first information may indicate that a first network is a derived network.

[00111] S202: Camp on the first network.

[00112] The first network is a network that provides a service. For example, the first network is a network corresponding to an ID of a PLMN selected by a NAS of the terminal apparatus. It may be understood that an AS of the terminal apparatus finds an available PLMN by scanning radio frequency RF channels (channel) of all bands. The terminal apparatus finds a cell with highest RSRP in each frequency, and obtains a SIB of the cell to obtain a PLMN ID. The AS of the terminal apparatus reports a PLMN list (list) to the NAS of the terminal apparatus, where the PLMN list includes PLMN IDs obtained by the AS of the terminal apparatus. PLMNs obtained by the AS of the terminal apparatus may include: an RPLMN, an EPLMN, an HPLMN, an EHPLMN, and the like. After receiving the PLMN list reported by the AS of the terminal apparatus, the NAS of the terminal apparatus selects one of the PLMN IDs as a PLMN used by the terminal apparatus. In this embodiment of this application, an example in which the ID of the PLMN selected by the NAS of the terminal apparatus is a second PLMN ID is used. The first network is a PLMN corresponding to the second PLMN ID.

[00113] Considering that, in an NTN scenario, a satellite may cover areas of a plurality of countries and may be shared by core networks of the plurality of countries. Therefore, a satellite can broadcast PLMN IDs of the plurality of countries. If the terminal apparatus distinguishes

between networks based only on the PLMN IDs, the terminal apparatus may select a PLMN that is not in a country in which the terminal apparatus is located. Consequently, it is difficult to perform normal communication.

[00114] Therefore, in this embodiment of this application, a type of a network that currently provides a service is indicated to the terminal apparatus by using the first information. In other words, a type of the PLMN selected by the NAS of the terminal apparatus is indicated by using the first information. Optionally, if the network that currently provides a service is a base network, a network side does not need to additionally indicate the type of the network that provides a service, to reduce signaling overheads. If the network that currently provides a service is a derived network, the first information may indicate that the network that currently provides a service is the derived network. For ease of description, the following uses an example in which the network that currently provides a service is the first network. The first information may indicate that the first network is the derived network.

[00115] Optionally, the first information is carried in an SSB, and the terminal apparatus may obtain the first information from the SSB. For example, the first information may be carried in a SIB1, a MIB, or another SIB.

[00116] A specific name of the first information is not limited in this embodiment of this application, provided that the first information can indicate a network type. For example, the first information may be referred to as network type indication information, and indicate the network type. The first information may explicitly or implicitly indicate that the first network is the derived network. For example, the first information is 1-bit information. If a value of the 1-bit is "0", it indicates the derived network, and if the value of the 1-bit is "1", it indicates the base network; or if a value of the 1-bit is "1", it indicates the derived network, and if the value of the 1-bit is "0", it indicates the base network. It should be noted that, if the SSB does not include the first information, it may implicitly indicate that a network type of a first PLMN is the base network.

[00117] Content and a meaning of the first information may be one or more of the following:

[00118] (1) The first information may include information about a first PLMN ID, and the first PLMN ID may indicate that the first network is the derived network.

[00119] The first PLMN ID is different from an ID of a PLMN used to provide a service. Alternatively, the first PLMN ID is not an ID of a PLMN that can be selected by the NAS of the terminal apparatus. The first PLMN ID may be a (pre)configured or predefined PLMN ID. Alternatively, a new type of PLMN ID may be introduced, and the type of PLMN ID is referred to as a first-type PLMN ID. Any one of first-type PLMNs may indicate that the network type is the derived network. The first PLMN ID may be one of the first-type PLMN IDs. The first-type PLMN ID is different from the ID of the PLMN used to provide a service. For example, the ID of the

PLMN used to provide a service may be considered as a type of PLMN ID (for example, referred to as a second-type PLMN ID). The first-type PLMN ID may be used to distinguish between network types, and the second-type PLMN ID may be used to provide a service for the terminal apparatus.

[00120] A derived network may have at least one first-type PLMN ID and at least one second-type PLMN ID. In different areas or countries, network types are identified by using one first-type PLMN ID, and networks that provide services in different areas or countries use different second-type PLMN IDs. Alternatively, different second-types PLMN IDs are used to provide services in different countries or areas, and network types are identified by using one first-type PLMN ID.

[00121] The terminal apparatus obtains the first information, and may determine, based on the information about the first PLMN ID included in the first information, that a network corresponding to the second PLMN ID (that is, the first network) is the derived network, and further, the terminal apparatus subsequently decodes a received message based on an access mechanism that matches the derived network. Then, the terminal apparatus determines, based on the second PLMN ID, whether a to-be-accessed network is a PLMN with which the terminal apparatus is registered or a PLMN equivalent to the PLMN with which the terminal apparatus is registered, to determine whether to select a cell corresponding to the second PLMN ID to camp on, or whether a registration process or a location update operation can be initiated.

[00122] That the terminal apparatus obtains the first information may alternatively be replaced with that the terminal apparatus determines that the PLMN list includes the first PLMN ID, or the terminal apparatus determines that the PLMN list includes at least one first-type PLMN ID. If determining that the PLMN list includes the first PLMN ID, the terminal apparatus decodes the received message based on the access mechanism that matches the derived network. Then, the terminal apparatus may determine whether the PLMN list includes the second PLMN ID, and if the PLMN list includes the second PLMN ID, the terminal apparatus may determine that camping on the cell corresponding to the second PLMN is allowed.

[00123] Optionally, if the terminal apparatus determines that the PLMN list includes the first PLMN ID, it may be determined whether a network type of a cell is consistent with the network type indicated by the first PLMN ID. If the network type of the cell is consistent with the network type indicated by the first PLMN ID, the terminal apparatus may determine whether a PLMN list broadcast by the cell includes the second PLMN ID, and if the PLMN list broadcast by the cell includes the second PLMN ID, the terminal apparatus may determine that camping on the cell corresponding to the second PLMN is allowed.

[00124] In this embodiment of this application, the network type is indicated by using the first PLMN ID, so that no additional information element needs to be introduced, and few modifications

are made to a system message.

[00125] To support a non-public network (non-public network, NPN), an NID is introduced. The NPN can provide a non-public network service for an enterprise, a factory, and the like. The NID may identify an NPN, or the NID and the PLMN ID jointly identify an NPN. For example, a private network may be identified by using a third PLMN ID and an NID. When the third PLMN ID is 999, the third PLMN ID indicates a non-public network. In this case, the NID may independently identify the private network.

[00126] In this embodiment of this application, the network type may alternatively be indicated by using both the first PLMN ID and the NID. For example, the first information may include the first PLMN ID and a first NID, indicating that the first network is the derived network. The first NID may be an NID defined before this embodiment of this application. Alternatively, in this embodiment of this application, an NID dedicated to identifying a network type may be defined, and the first NID may be the NID dedicated to identifying a network type. Alternatively, in this embodiment of this application, there are two types of NIDs, for example, referred to as a first-type NID and a second-type NID. The first-type NID identifies a private network, and the second-type NID identifies whether a network is the base network or the derived network. The first NID is the second-type NID. If the terminal apparatus can obtain the first PLMN ID and the first NID from the system message, it may indicate that the PLMN selected by the terminal apparatus is the derived network. Otherwise, if the terminal apparatus does not obtain the first PLMN ID and the first NID from the system message, it indicates that the PLMN selected by the terminal apparatus is the base network.

[00127] Different NIDs may further indicate different private networks, and the network type are indicated by using the first PLMN ID and the first NID, so that different private networks can be further indicated, and an application scope is wider.

[00128] (2) The first information includes information about a specific sequence. For example, the specific sequence is referred to as a first sequence. The first sequence may indicate that the first network is the derived network, so that the terminal apparatus accesses the network by using an access mechanism that matches the derived network, to reduce a network access failure.

[00129] The first sequence may be carried in the SIB1, the MIB, or another SIB. For example, the first sequence is carried in a field A of the SIB1, the MIB, or the another SIB, and the field A may be a field newly defined in this embodiment of this application. Optionally, the field A may be located before a 1st field or after a last field of the SIB1, the MIB, or the another SIB. Alternatively, the field A may be a field defined before this embodiment of this application. Optionally, the first sequence may be carried in a newly defined bit position in the field A, and the newly defined bit position may be a 1st bit position or a last bit position in the field A.

[00130] In an implementation, a specific sequence may be (pre)configured or predefined, for identifying the network type. For example, the specific sequence is a bit string with a length of 16, for example, 1011010110110101. After the terminal apparatus obtains the first information, in other words, after the terminal apparatus obtains the first sequence, the first sequence may be compared with the specific sequence. If the first sequence is the same as the specific sequence, it may be considered that the PLMN selected by the NAS of the terminal apparatus (that is, the first network) is the derived network; or if the first sequence is the same as the specific sequence, it may be considered that the PLMN selected by the NAS of the terminal apparatus is the base network.

[00131] The first sequence may be predefined. Network type information may be information indicating the first sequence, and occupies fewer bits. For example, the network type information may be 1-bit information, indicating the first sequence, and has low overheads.

[00132] In another implementation, a rule for generating a specific sequence may be (pre)configured or predefined, and the specific sequence may identify the network type. For example, the rule may be a rule for generating the specific sequence based on specific content in the system information. For example, the rule is a rule for generating the specific sequence based on a part or all of content included in the SIB1. For example, the first sequence identifies the derived network, and the first sequence may be a sequence generated according to the rule and based on a part or all of the content included in the SIB1. There are a plurality of rules for generating the specific sequence based on the specific content. A rule to be used is not limited in this embodiment of this application.

[00133] For example, the rule is performing cyclic shift based on specific content included in the SIB1. It may be stipulated in the rule that a length of bits occupied by the specific content (for example, referred to as a second sequence) included in the SIB1 is K, a length of the first sequence is R, and a cyclic shift parameter P, where P=R+1. The second sequence may be predefined. A process of generating the first sequence based on the second sequence is: adding R 0s after K bits, in other words, shifting the second sequence to the left by R bits, to obtain a third sequence with a length of K+R; dividing the third sequence by P; performing cyclic calculation (to be specific, dividing a previous quotient by P) until a length of a remainder (a sequence starting with a most significant bit being 1) is less than or equal to R, where the remainder is the first sequence; and if the length is less than R, adding a 0 before the most significant bit.

[00134] After obtaining the first information, that is, obtaining the first sequence, the terminal apparatus may perform, according to the foregoing cyclic shift rule, cyclic shift on the specific content included in the SIB1, to obtain a final sequence. If the final sequence is the same as the first sequence, the terminal apparatus may determine that the PLMN selected by the NAS of the

terminal apparatus is the derived network; or if the final sequence is different from the first sequence, the terminal apparatus may determine that the PLMN selected by the NAS of the terminal apparatus is the base network.

[00135] The first sequence may be generated according to the predefined rule, and the network type information may indicate the generation rule of the first sequence to indirectly indicate the first sequence. For example, the network type information may be 1-bit information, indicating the generation rule of the first sequence, and has low overheads.

[00136] (3) The first information is carried in one or more fields in the SIB1, or the first information is one or more fields in the SIB1. The one or more fields in the SIB1 are reused to indicate the network type, so that no additional information element needs to be introduced, and processing complexity of the terminal device can be reduced.

[00137] In a possible implementation, the first information is carried in a lateNonCriticalExtension field in the SIB1. It may be understood that, in NR, the lateNonCriticalExtension field in the SIB1 is a reserved field, and is not used. In this embodiment of this application, the lateNonCriticalExtension field may be defined to indicate the network type. For example, if the SIB1 includes the lateNonCriticalExtension field or includes the lateNonCriticalExtension field that is not empty, the terminal apparatus may determine that the PLMN selected by the NAS of the terminal apparatus is the derived network; or if the SIB1 does not include the lateNonCriticalExtension field or includes the lateNonCriticalExtension field that is empty, the terminal apparatus may determine that the PLMN selected by the NAS of the terminal apparatus is the base network.

[00138] That "the SIB1 includes the lateNonCriticalExtension field" may be replaced with "the lateNonCriticalExtension field appears in the SIB1"; and "the SIB1 does not include the lateNonCriticalExtension field" may be replaced with "the lateNonCriticalExtension field does not appear in the SIB1".

[00139] Alternatively, in this embodiment of this application, a part of bits included in the lateNonCriticalExtension field may be defined to indicate that the network type is the derived network. The first information is carried in the part of bits, and may indicate that the PLMN selected by the NAS of the terminal apparatus is the derived network.

[00140] In another possible implementation, whether specific information exists may be used as a determining basis. For example, the first information is the specific information, and the specific information may be referred to as a SIB1bis. It may be predefined or agreed that there is a mapping relationship between a time-frequency resource occupied by the SIB1bis and a time-frequency resource occupied by the SIB1. In this case, the SIB1bis indicates that the network type is the derived network. The mapping relationship may be (pre)configured or predefined. For

example, the mapping relationship includes a relationship in which an interval between a start time domain position of the SIB1bis and a start time domain position of the SIB1 is N time units, or the mapping relationship includes a relationship in which the SIB1bis and the SIB1 are adjacent in time domain.

[00141] If the terminal apparatus determines that the SIB1bis appears on the time-frequency resource having the mapping relationship with the time-frequency resource occupied by the SIB1, the terminal apparatus may determine that the PLMN selected by the NAS of the terminal apparatus is the derived network; or if the terminal apparatus determines that the SIB1bis does not appear on the time-frequency resource having the mapping relationship with the time-frequency resource occupied by the SIB1, the terminal apparatus may determine that the PLMN selected by the NAS of the terminal apparatus is the base network. Whether the SIB1bis "appears" is determined mainly depending on whether downlink control information (downlink control information, DCI) for scheduling the SIB1bis is received. For example, if the DCI for scheduling the SIB1bis is received, the SIB1bis appears; or if the DCI for scheduling the SIB1bis is not received, the SIB1bis does not appear. The SIB1bis and the SIB1 may be separately sent.

[00142] It should be noted that, in this embodiment of this application, whether the PLMN selected by the NAS of the terminal apparatus is the derived network may be indicated by using both the lateNonCriticalExtension field and the SIB1bis. For example, if the lateNonCriticalExtension field does not appear in the SIB1, the terminal apparatus may determine that the PLMN selected by the NAS of the terminal apparatus is the base network. If the lateNonCriticalExtension field appears in the SIB1, the terminal apparatus may determine whether the SIB1bis appears. If the SIB1bis appears, the terminal apparatus determines that the PLMN selected by the NAS of the terminal apparatus is the derived network. If the SIB1bis does not appear, the terminal apparatus determines that the PLMN selected by the NAS of the terminal apparatus is the base network. "Whether the SIB1bis appears" may be replaced with "whether a first field appears". The first field may be a newly added/newly defined field. Whether the network is the base network or the derived network may be determined depending on whether the lateNonCriticalExtension field appears and the first field appears. For example, if the lateNonCriticalExtension field appears and the first field appears, the PLMN selected by the NAS of the terminal apparatus is the derived network. Otherwise, if the lateNonCriticalExtension field appears and the first field does not appear, the PLMN selected by the NAS of the terminal apparatus is the base network.

[00143] (4) The first information is a first value in two values included in a BCCH-BCH message, and the first value indicates that the first network is the derived network. The value included in the BCCH-BCH message is reused to indicate the network type, so that no additional

information element needs to be introduced, and processing complexity of the terminal device can be reduced.

[00144] The BCCH-BCH message in NR has two options. One of the options is a MIB, and the other option is reserved information. It may be understood that the BCCH-BCH message includes two values. One of the values may indicate the MIB, and the other value indicates the reserved information. For example, the two values include the first value and a second value, where the first value corresponds to the reserved information option, and the second value corresponds to the MIB option. The two options may be indicated by using 1-bit information. For example, when the BCCH-BCH message is encoded, if a value of the 1-bit is 0, it indicates that the MIB option is selected. For example, if current MIB code is 101010101111, an actually sent bit sequence is **0**101010101111, where the 1st 0 indicates that the first option, that is, the MIB option, is selected currently.

[00145] Currently, in NR, the first MIB option is sent fixedly, and the second option is not used. For example, BCCH-BCH-MessageType ::= CHOICE {

mib MIB,}

[00146] In this embodiment of this application, the value corresponding to the reserved information and in the BCCH-BCH message may be reused to indicate the derived network. The foregoing example is still used. If the current MIB code is 101010101111, the actually sent bit sequence is **1**101010101111, where a 1st "1" (that is, the first value) indicates the derived network or a derived MIB. If a value of a 1st bit before the MIB is 0, the terminal apparatus determines that the PLMN selected by the NAS of the terminal apparatus is the base network. If a value of a 1st bit before the MIB is 1, the terminal apparatus determines that the PLMN selected by the NAS of the terminal apparatus is the base network.

[00147] For example, BCCH-BCH-MessageType ::= CHOICE {

mib MIB,

derived mib MIB,}

[00148] In this embodiment of this application, whether the PLMN selected by the terminal apparatus is the base network or the derived network may be indicated to the terminal device by using one or more of the foregoing first information, so that the terminal apparatus selects a matched access mechanism to access the network, to reduce a network access failure.

[00149] In this embodiment provided in this application, the method provided in this embodiment of this application is described from a perspective of interaction between the terminal apparatus and the access network apparatus. The steps performed by the access network apparatus may alternatively be implemented separately by different communication apparatuses. For example, a first apparatus is configured to generate the network type information/first information,

and a second apparatus is configured to send the network type information/first information. Alternatively, the first apparatus and the second apparatus jointly complete the steps performed by the network apparatus in this embodiment of this application. A specific division manner is not limited in this application. When a network architecture includes one or more DUs, one or more CUs, and one or more radio frequency units (radio units, RUs), the steps performed by the network apparatus may be separately implemented by the DU, the CU, and the RU. To implement functions in the method provided in the foregoing embodiment of this application, the terminal apparatus and the network apparatus may include a hardware structure and/or a software module, and the foregoing functions are implemented in a form of a hardware structure, a software module, or a combination of the hardware structure and the software module. Whether a function in the foregoing functions is performed by using the hardware structure, the software module, or the combination of the hardware structure and the software module depends on particular applications and design constraints of the technical solutions.

[00150] FIG. 3 is a block diagram of a communication apparatus 300 according to an embodiment of this application. The communication apparatus 300 may correspondingly implement functions or steps implemented by the terminal apparatus or the access network apparatus in the foregoing method embodiments. The communication apparatus 300 may include a processing module 310 and a transceiver module 320. Optionally, a storage unit may be further included. The storage unit may be configured to store instructions (code or a program) and/or data. The processing module 310 and the transceiver module 320 may be coupled to the storage unit. For example, the processing module 310 may read the instructions (the code or the program) and/or the data in the storage unit, to implement a corresponding method. The foregoing units may be independently disposed, or may be partially or completely integrated.

[00151] It should be understood that the processing module 310 may be a processor or a controller, for example, may be a general-purpose central processing unit (central processing unit, CPU), a general-purpose processor, a digital signal processor (digital signal processing, DSP), an application specific integrated circuit (application specific integrated circuits, ASIC), a field programmable gate array (field programmable gate array, FPGA) or another programmable logic device, a transistor logic device, a hardware component, or any combination thereof. The processor may implement or execute various example logical blocks, modules, and circuits described with reference to content disclosed in this application. Alternatively, the processor may be a combination of processors implementing a computing function, for example, a combination of one or more microprocessors, or a combination of a DSP and a microprocessor. The transceiver module 320 is an interface circuit of the apparatus, and is configured to receive a signal from another apparatus. For example, when the apparatus is implemented in a form of a chip, the transceiver

module 320 is an interface circuit used by the chip to receive a signal from another chip or apparatus, or is an interface circuit used by the chip to send a signal to another chip or apparatus.

[00152] The communication apparatus 300 may be the access network apparatus or the terminal apparatus in the foregoing embodiments, or may be a functional module in the access network device or the terminal device. For example, the communication apparatus is a chip (system) in the access network device or the terminal device. When the communication apparatus 300 is the access network device or the terminal device, the processing module 310 may be, for example, a processor, and the transceiver module 320 may be, for example, a transceiver. Optionally, the transceiver may include a radio frequency circuit, and the storage unit may be, for example, a storage. For example, when the communication apparatus 300 is the chip used for the access network device or the terminal device, the processing module 310 may be, for example, a processor, and the transceiver module 320 may be, for example, an input/output interface, a pin, or a circuit. The processing module 310 may execute computer-executable instructions stored in the storage unit. Optionally, the storage unit is a storage unit, for example, a register or a buffer, in the chip. Alternatively, the storage unit may be a storage unit that is in the access network device or the terminal device and that is located outside the chip, for example, a read-only memory (read-only memory, ROM), another type of static storage device that can store static information and instructions, or a random access memory (random access memory, RAM).

[00153] In some possible implementations, the communication apparatus 300 can correspondingly implement behavior and functions of the terminal apparatus in the foregoing method embodiments, for example, implement the method performed by the terminal apparatus in the embodiment in FIG. 2. The communication apparatus 300 may be a terminal device, may be a component (for example, a chip or a circuit) used in the terminal device, or may be a chip or a chip set in the terminal device or a part that is of the chip and that is configured to perform a related method function. For example, the transceiver module 320 may be configured to perform S201 in the embodiment shown in FIG. 2, and/or configured to support another process of the technology described in this specification. The processing module 310 is configured to perform S202 in the embodiment shown in FIG. 2, and/or configured to support another process of the technology described in this specification.

[00154] For example, the transceiver module 320 is configured to obtain network type information, where the network type information indicates that a first network is a derived network; and the processing module 310 is configured to camp on the first network.

[00155] In an optional implementation, the network type information includes information about a first PLMN ID, and the first PLMN ID indicates that the first network is the derived network.

[00156] In an optional implementation, the network type information further includes information about a first network identifier NID, and the first PLMN ID and the first NID indicate that the first network is the derived network.

[00157] In an optional implementation, the first PLMN ID is one of first-type PLMN IDs, and the first-type PLMN ID indicates that a network type is a derived network.

[00158] In an optional implementation, the transceiver module 320 is further configured to obtain a second PLMN ID, where a PLMN corresponding to the second PLMN ID is a PLMN selected by a NAS of the communication apparatus 300.

[00159] In an optional implementation, the network type information includes information about a first sequence, and the first sequence indicates that the first network is the derived network.

[00160] In an optional implementation, the network type information is system information.

[00161] In an optional implementation, the system information is a SIB1.

[00162] In an optional implementation, the network type information is in a lateNonCriticalExtension field in the SIB1.

[00163] In an optional implementation, the network type information is a first value in two values included in a BCCH-BCH message.

[00164] In an optional implementation, the two values include the first value and a second value, the first value indicates a derived MIB, and the second value indicates a MIB.

[00165] In some possible implementations, the communication apparatus 300 can correspondingly implement behavior and functions of the access network apparatus in the foregoing method embodiments, for example, implement the method performed by the access network apparatus in the embodiment in FIG. 2. The communication apparatus 300 may be an access network device, may be a component (for example, a chip or a circuit) used in the access network device, or may be a chip or a chip set in the access network device or a part that is of the chip and that is configured to perform a related method function. For example, the transceiver module 320 may be configured to perform receiving and sending steps in the embodiment shown in FIG. 2, and/or configured to support another process of the technology described in this specification. The processing module 310 is configured to perform processing steps in the embodiment shown in FIG. 2, and/or configured to support another process of the technology described in this specification.

[00166] For example, the transceiver module 320 is configured to send network type information, where the network type information indicates that a first network is a derived network. The processing module 310 is configured to determine the network type information.

[00167] In an optional implementation, the network type information includes information about a first PLMN ID, and the first PLMN ID indicates that the first network is the derived

network.

[00168] In an optional implementation, the network type information further includes information about a first network identifier NID, and the first PLMN ID and the first NID indicate that the first network is the derived network.

[00169] In an optional implementation, the first PLMN ID is one of first-type PLMN IDs, and the first-type PLMN ID indicates that a network type is a derived network.

[00170] In an optional implementation, the network type information includes information about a first sequence, and the first sequence indicates that the first network is the derived network.

[00171] In an optional implementation, the network type information is system information.

[00172] In an optional implementation, the system information is a SIB1.

[00173] In an optional implementation, the network type information is in a lateNonCriticalExtension field in the SIB1.

[00174] In an optional implementation, the network type information is a first value in two values included in a BCCH-BCH message.

[00175] In an optional implementation, the two values include the first value and a second value, the first value indicates a derived MIB, and the second value indicates a MIB.

[00176] When the communication apparatus 300 is a chip-type apparatus or circuit, the transceiver module may be an input/output circuit and/or a communication interface, and the processing module is an integrated processor, a microprocessor, or an integrated circuit.

[00177] FIG. 4 is a block diagram of a communication apparatus 400 according to an embodiment of this application. The communication apparatus 400 may be a terminal apparatus, and can implement functions of the terminal apparatus in the methods provided in embodiments of this application. Alternatively, the communication apparatus 400 may be an apparatus that can support the terminal apparatus in implementing a corresponding function in the method provided in embodiments of this application. Alternatively, the communication apparatus 400 may be an access network apparatus, and can implement functions of the access network apparatus in the method provided in embodiments of this application. Alternatively, the communication apparatus 400 may be an apparatus that can support the access network apparatus in implementing a corresponding function in the method provided in embodiments of this application. The communication apparatus 400 may be a chip system. In this embodiment of this application, the chip system may include a chip, or may include a chip and another discrete device. For a specific function, refer to the descriptions of the foregoing method embodiments.

[00178] The communication apparatus 400 includes one or more processors 401, configured to implement or support the communication apparatus 400 in implementing the function of the terminal device or the access network device in the method provided in embodiments of this

application. For details, refer to detailed descriptions in the method example. Details are not described herein. The processor 401 may also be referred to as a processing unit or a processing module, and may implement a specific control function. The processor 401 may be a general-purpose processor, a dedicated processor, or the like. For example, the processor 401 includes a baseband processor, a central processing unit, an application processor, a modem processor, a graphics processing unit, an image signal processor, a digital signal processor, a video codec processor, a controller, a storage, and/or a neural network processor. The baseband processor may be configured to process a communication protocol and communication data. The central processing unit may be configured to control the communication apparatus 400, execute a software program, and/or process data. Different processors may be independent devices, or may be integrated into one or more processors, for example, integrated into one or more application specific integrated circuits.

[00179] Optionally, the communication apparatus 400 includes one or more storages 402 to store instructions 404. The instructions may be run on the processor 401, to enable the communication apparatus 400 to perform the method described in the foregoing method embodiments. The storage 402 is coupled to the processor 401. The coupling in this embodiment of this application may be an indirect coupling or a communication connection between apparatuses, units, or modules in an electrical form, a mechanical form, or another form, and is used for information exchange between the apparatuses, the units, or the modules. The processor 401 may cooperate with the storage 402. At least one of the at least one storage may be included in the processor. It should be noted that the storage 402 is not necessary, and therefore is shown by using dashed lines in FIG. 4.

[00180] Optionally, the storage 402 may further store data. The processor and the storage may be separately disposed, or may be integrated together. In this embodiment of this application, the storage 402 may be a non-volatile memory, for example, a hard disk drive (hard disk drive, HDD) or a solid-state drive (solid-state drive, SSD), or may be a volatile memory (volatile memory), for example, a RAM. The storage is any other medium that can carry or store expected program code in a form of an instruction or a data structure and that can be accessed by a computer, but is not limited thereto. The storage in this embodiment of this application may alternatively be a circuit or any other apparatus that can implement a storage function, and is configured to store program instructions and/or data.

[00181] Optionally, the communication apparatus 400 may include instructions 403 (which sometimes may also be referred to as code or a program), and the instructions 403 may be run on the processor, to enable the communication apparatus 400 to perform the method described in the foregoing embodiments. The processor 401 may store data.

[00182] Optionally, the communication apparatus 400 may further include a transceiver 405 and an antenna 406. The transceiver 405 may be referred to as a transceiver unit, a transceiver module, a transceiver machine, a transceiver circuit, a transceiver, an input/output interface, or the like, and is configured to implement a transceiver function of the communication apparatus 400 through the antenna 406.

[00183] The processor 401 and the transceiver 405 described in this application may be implemented in an integrated circuit (integrated circuit, IC), an analog IC, a radio frequency integrated circuit (radio frequency identification, RFID), a mixed signal IC, an ASIC, a printed circuit board (printed circuit board, PCB), an electronic device, or the like. The communication apparatus described in this specification may be an independent device (for example, an independent integrated circuit or a mobile phone), or may be a part of a large device (for example, a module that may be embedded in another device). For details, refer to the foregoing descriptions of the terminal device or the terminal apparatus. Details are not described herein again.

[00184] Optionally, the communication apparatus 400 may further include one or more of the following components: a wireless communication module, an audio module, an interface for external memory, an internal memory, a universal serial bus (universal serial bus, USB) interface, a power management module, an antenna, a speaker, a microphone, an input/output module, a sensor module, a motor, a camera, a display, or the like. It may be understood that in some embodiments, the communication apparatus 400 may include more or fewer components, or some components are integrated, or some components are split. The components may be implemented by hardware, software, or a combination of software and hardware.

[00185] It should be noted that the communication apparatus in the foregoing embodiments may be a terminal device (or an access network device), may be a circuit, may be a chip used in the terminal device (or the access network device), or may be another combined device or component that has the foregoing terminal device (or access network device). When the communication apparatus is a terminal device (or an access network device), the transceiver module may be a transceiver, and may include an antenna, a radio frequency circuit, and the like. The processing module may be a processor, for example, a CPU. When the communication apparatus is a component having a function of the terminal device (or the access network device), the transceiver module may be a radio frequency unit, and the processing module may be a processor. When the communication apparatus is a chip system, the communication apparatus may be an FPGA, a dedicated ASIC, a system on a chip (system on a chip, SoC), a CPU, a network processor (network processor, NP), a DSP, a micro controller unit (micro controller unit, MCU), a programmable controller (programmable logic device, PLD), or another integrated chip. The processing module may be a processor of the chip system. The transceiver module or a

communication interface may be an input/output interface or an interface circuit of the chip system. For example, the interface circuit may be a code/data read/write interface circuit. The interface circuit may be configured to receive code instructions (where the code instructions are stored in the storage, and may be directly read from the storage, or may be read from the storage through another device) and transmit the code instructions to the processor. The processor may be configured to run the code instructions to perform the method in the foregoing method embodiments. For another example, the interface circuit may alternatively be a signal transmission interface circuit between a communication processor and the transceiver machine.

[00186] An embodiment of this application further provides a communication system. Specifically, the communication system includes at least one terminal apparatus, and may further include at least one access network apparatus. For example, the communication system includes the terminal apparatus configured to implement the related functions in FIG. 2 and the access network apparatus configured to implement the related functions in FIG. 2. Alternatively, the communication system includes at least one terminal device and at least one access network device. For example, the communication system includes the terminal device configured to implement the related functions of the terminal apparatus in FIG. 2 and the access network device configured to implement the related functions of the access network apparatus in FIG. 2. Optionally, the communication system may further include a core network device. For details, refer to related descriptions in the foregoing method embodiments. Details are not described herein again.

[00187] Alternatively, the communication system includes at least one access network apparatus, and may further include a core network device. For example, the communication system includes the access network apparatus and the core network device that are configured to implement related functions in FIG. 2. Optionally, the communication system may further include at least one terminal apparatus configured to implement the related functions in FIG. 2. For details, refer to related descriptions in the foregoing method embodiments. Details are not described herein again. Alternatively, the communication system includes at least one access network device and a core network device. For example, the communication system includes the access network device configured to implement the related functions of the access network apparatus in FIG. 2. Optionally, the communication system may further include at least one terminal device of a terminal apparatus configured to implement the related functions in FIG. 2. For details, refer to related descriptions in the foregoing method embodiments. Details are not described herein again.

[00188] An embodiment of this application further provides a computer-readable storage medium, including instructions. When the instructions are run on a computer, the computer is enabled to perform the method performed by the terminal apparatus or the access network apparatus in FIG. 2.

[00189] An embodiment of this application further provides a computer program product, including instructions. When the instructions are run on a computer, the computer is enabled to perform the method performed by the terminal apparatus or the access network apparatus in FIG. 2.

[00190] An embodiment of this application provides a chip system. The chip system includes a processor, may further include a storage, and is configured to implement functions of the terminal apparatus or the access network apparatus in the foregoing methods. The chip system may include a chip, or may include a chip and another discrete device.

[00191] To implement functions of the communication apparatuses in FIG. 3 and FIG. 4, an embodiment of this application further provides a chip, including a processor, configured to support the communication apparatus in implementing the functions of the terminal apparatus or the access network apparatus in the foregoing method embodiments. In a possible design, the chip is connected to a storage, or the chip includes a storage. The storage is configured to store a computer program or instructions and data that are necessary for the communication apparatus.

[00192] The network architecture or the system and the service scenario described in embodiments of this application are intended to describe the technical solutions in embodiments of this application more clearly, and do not constitute a limitation on the technical solutions provided in embodiments of this application. A person of ordinary skill in the art may know that, with evolution of the network architecture and emergence of new service scenarios, the technical solutions provided in embodiments of this application are also applicable to similar technical problems.

[00193] It should be understood that sequence numbers of the foregoing processes do not mean execution sequences in embodiments of this application. The execution sequences of the processes should be determined according to functions and internal logic of the processes, and should not be construed as any limitation on the implementation processes of embodiments of this application.

[00194] A person of ordinary skill in the art may be aware that, in combination with embodiments disclosed in this specification, the described illustrative logical blocks (illustrative logical blocks) and steps (steps) may be implemented by electronic hardware or a combination of computer software and electronic hardware. Whether these functions are performed by hardware or software depends on particular applications and design constraint conditions of the technical solutions. A person skilled in the art may use different methods to implement the described functions for each particular application, but it should not be considered that the implementation goes beyond the scope of this application.

[00195] It may be clearly understood by a person skilled in the art that, for the purpose of convenient and brief description, for a detailed working process of the foregoing system, apparatus,

and unit, refer to a corresponding process in the foregoing method embodiments. Details are not described herein again.

[00196] In the several embodiments provided in this application, it should be understood that the disclosed system, apparatus, and method may be implemented in other manners. For example, the foregoing apparatus embodiments are merely examples. For example, division of the units is merely logical function division and may be other division during actual implementation. For example, a plurality of units or components may be combined or integrated into another system, or some features may be ignored or not performed. In addition, the displayed or discussed mutual couplings or direct couplings or communication connections may be implemented by using some interfaces. The indirect couplings or communication connections between the apparatuses or units may be implemented in electronic, mechanical, or other forms.

[00197] The units described as separate parts may or may not be physically separate, and parts displayed as units may or may not be physical units, may be located in one position, or may be distributed on a plurality of network units. Some or all of the units may be selected based on actual requirements to achieve the objectives of the solutions of embodiments.

[00198] When the functions are implemented in a form of a software functional unit and sold or used as an independent product, the functions may be stored in a computer-readable storage medium. Based on this understanding, a part that essentially contributes to the technical solutions of this application or a part of the technical solutions may be embodied in a form of a software product. The computer software product is stored in a storage medium, and includes several instructions for enabling a computer device (which may be a personal computer, a server, a network device, or the like) to perform all or some steps of the methods in embodiments of this application. The foregoing storage medium includes any medium that can store program code, for example, a USB flash drive, a portable hard drive, a read-only memory (read-only memory, ROM), a RAM, a magnetic disk, or an optical disc.

[00199] It is clear that a person skilled in the art can make various modifications and variations to this application without departing from the scope of this application. This application is intended to cover these modifications and variations of this application provided that these modifications and variations fall within the scope of the claims of this application and equivalent technologies of the claims.

CLAIMS

1. A communication method, comprising:

obtaining network type information, wherein the network type information indicates that a first network is a derived network; and

camping on the first network.

2. The method according to claim 1, wherein the network type information comprises information about a first public land mobile network (PLMN) identifier ID, and the first PLMN ID indicates that the first network is the derived network.

3. The method according to claim 2, wherein the network type information further comprises information about a first network identifier NID, and the first PLMN ID and the first NID indicate that the first network is the derived network.

4. The method according to claim 2 or 3, wherein the first PLMN ID is one of first-type PLMN IDs, and the first-type PLMN ID indicates that a network type is a derived network.

5. The method according to any one of claims 1 to 4, wherein the method further comprises:

obtaining a second PLMN ID, wherein a PLMN corresponding to the second PLMN ID is a PLMN selected by a non-access stratum NAS.

6. The method according to claim 1, wherein the network type information comprises information about a first sequence, and the first sequence indicates that the first network is the derived network.

7. The method according to claim 6, wherein the network type information is system information.

8. The method according to claim 7, wherein the system information is a system information block 1.

9. The method according to claim 1, wherein the network type information is in a late non-critical extension lateNonCriticalExtension field in a system information block 1.

10. The method according to claim 1, wherein the network type information is a first value in two values comprised in a broadcast control channel BCCH-broadcast channel BCH message.

11. The method according to claim 10, wherein the two values comprise the first value and a second value, the first value indicates a derived master information block MIB, and the second value indicates a MIB.

12. A communication method, comprising:

sending network type information, wherein the network type information indicates that a first network is a derived network.

13. The method according to claim 12, wherein the network type information comprises

information about a first public land mobile network (PLMN) identifier ID, and the first PLMN ID indicates that the first network is the derived network.

14. A computer-readable storage medium, wherein the computer-readable storage medium stores a computer program, and when the computer program is run, the method according to any one of claims 1 to 11 or the method according to claim 12 or 13 is implemented.

15. A computer program product, wherein the computer program product comprises computer program code, and when the computer program code is run, the method according to any one of claims 1 to 11 or the method according to claim 12 or 13 is implemented.