

CLAIMS

What is claimed is:

1. A communication method, comprising:

receiving, by a first network device, a first message, wherein the first message comprises an
5 identifier of a terminal device;

determining, by the first network device, first network selection information, wherein the first
network selection information comprises at least one of information about a standalone non-public
network SNPN that allows the terminal device to access and information about whether the
terminal device is allowed to access a public land mobile network PLMN; and

10 sending, by the first network device, a second message, wherein the second message
comprises the first network selection information.

2. The method according to claim 1, wherein the determining, by the first network device,
first network selection information comprises:

determining, by the first network device, the first network selection information based on at
15 least one of subscription data, policy data, and a local configuration of the terminal device.

3. The method according to claim 2, wherein the determining, by the first network device, the
first network selection information based on at least one of subscription data, policy data, and a
local configuration of the terminal device further comprises:

if the subscription data and the policy data of the terminal device coexist, preferentially
20 determining, by the first network device, the first network selection information based on the
policy data of the terminal device.

4. The method according to any one of claims 1 to 3, wherein the first network device is an
access and mobility management function network element AMF, and before the determining, by
the first network device, first network selection information, the method further comprises:

25 sending, by the first network device, a third message to a unified data management network
element UDM, wherein the third message is used to obtain the subscription data of the terminal
device, and the subscription data comprises at least one of the information about the SNPN that
allows the terminal device to access and the information about whether the terminal device is
allowed to access a PLMN; and

30 receiving, by the first network device, a fourth message sent by the UDM, wherein the fourth

message comprises the subscription data of the terminal device.

5. The method according to any one of claims 1 to 4, wherein the first network device is an AMF, and before the determining, by the first network device, first network selection information, the method further comprises:

5 sending, by the first network device, a fifth message to a policy control function network element PCF, wherein the fifth message is used to obtain the policy data of the terminal device, and the policy data comprises at least one of the information about the SNPN that allows the terminal device to access and the information about whether the terminal device is allowed to access a PLMN; and

10 receiving, by the first network ~~device~~element, a sixth message sent by the PCF, wherein the sixth message comprises the policy data of the terminal device.

6. The method according to any one of claims 1 to 5, wherein the information about the SNPN that allows the terminal device to access comprises:

an identifier of the SNPN that allows the terminal device to access.

15 7. The method according to claim 6, wherein the information about the SNPN that allows the terminal device to access further comprises:

first priority information, indicating a priority sequence of the SNPN that allows the terminal device to access.

20 8. The method according to any one of claims 1 to 7, wherein the information about whether the terminal device is allowed to access a PLMN comprises:

an identifier of a PLMN that does not allow the terminal device to access and/or indication information indicating that the terminal device is not allowed to access a PLMN.

25 9. The method according to any one of claims 2 to 8, wherein the local configuration comprises information indicating that the terminal device is not allowed to access a PLMN and/or information indicating that the terminal is capable of accessing only the SNPN.

10. The method according to any one of claims 1 to 7, wherein before the determining, by the first network device, first network selection information, the method further comprises:

30 marking, by the first network ~~device~~element, the terminal device as being in a roaming state, wherein a serving network of the terminal device is a PLMN, and a home network of the terminal device is an SNPN.

11. The method according to claim 10, wherein the marking, by the first network

deviceelement, the terminal device as being in a roaming state comprises:

marking, by the first network deviceelement based on the local configuration or the subscription data of the terminal device, the terminal device as being in the roaming state, wherein the local configuration comprises an identifier that is of a terminal device in a specific range and that is allocated to the SNPN for use, or first indication information that indicates the first network deviceelement to mark, when an identifier of the terminal device comprises an identifier of a specific SNPN, the terminal device as being in the roaming state, wherein

the subscription data of the terminal device comprises second indication information, and the second indication information indicates that if the terminal device performs access from a PLMN, the terminal device enters the roaming state, or the second indication information indicates that the home network of the terminal device is an SNPN.

12. The method according to claim 10 or 11, wherein the method further comprises:

receiving, by the first network device, a seventh message sent by the terminal device, wherein the seventh message is used to request to establish a first protocol data unit PDU session of a data network name DNN/single network slice selection assistance information S-NSSAI; and

establishing, by the first network deviceelement, the first PDU session in a non-roaming manner when the subscription of the terminal device indicates that the first PDU session is home routed HR roaming, or establishing the first PDU session in an HR roaming manner when the subscription of the terminal device indicates that the first PDU session is local breakout LBO roaming.

13. The method according to any one of claims 10 to 12, wherein the information about whether the terminal device is allowed to access a PLMN comprises:

an identifier of a PLMN that allows the terminal device to access and second priority information, wherein the second priority information indicates a priority sequence of the PLMN that allows the terminal device to access, and a priority indicated by the second priority information is lower than a priority indicated by the first priority information.

14. The method according to any one of claims 1 to 13, wherein the first network device belongs to an SNPN, the first network device sends the second message to a third network device, and the third network device belongs to a PLMN.

15. A communication method, comprising:

receiving, by a second network device, a first message, wherein the first message comprises

an identifier of a terminal device; and

sending, by the second network device, a second message, wherein the second message comprises at least one of information about a standalone non-public network SNPN that allows the terminal device to access and information about whether the terminal device is allowed to access a public land mobile network PLMN.

16. The method according to claim 15, wherein the second network device is a unified data management network element UDM, the second message is subscription data of the terminal device, and the subscription data comprises at least one of the information about the SNPN that allows the terminal device to access and the information about whether the terminal device is allowed to access a PLMN.

17. The method according to claim 15, wherein the second network device is a policy control function network element PCF, the second message is policy data of the terminal device, and the policy data comprises at least one of the information about the SNPN that allows the terminal device to access and the information about whether the terminal device is allowed to access a PLMN.

18. The method according to claim 16 or 17, wherein the information about the SNPN that allows the terminal device to access comprises at least one of the following information:

indication information indicating that access from only the SNPN is allowed;

an identifier of the SNPN that allows access; or

first priority information, indicating a priority of the SNPN that allows access.

19. The method according to claim 16 or 17, wherein the information about whether the terminal device is allowed to access a PLMN comprises at least one of the following information:

indication information indicating that access from a PLMN is not allowed; or

an identifier of a PLMN that does not allow access.

20. The method according to claim 16 or 17, wherein when the information about the SNPN that allows the terminal device to access comprises an identifier of the SNPN that allows access and first priority information, the information about whether the terminal device is allowed to access a PLMN comprises at least one of the following information:

indication information indicating that access to a PLMN is allowed;

an identifier of a PLMN that allows access; or

second priority information, indicating a priority of the PLMN that allows access, wherein

the priority indicated by the second priority information is lower than a priority indicated by the first priority information.

21. A communication method, comprising:

sending, by a terminal device, a first message, wherein the first message comprises an identifier of the terminal device; and

receiving, by the terminal device, a second message, wherein the second message comprises first network selection information, and the first network selection information comprises at least one of information about a standalone non-public network SNPN that allows the terminal device to access and information about whether the terminal device is allowed to access a public land mobile network PLMN.

22. The method according to claim 21, wherein the information about the SNPN that allows the terminal device to access comprises:

an identifier of the SNPN that allows the terminal device to access.

23. The method according to claim 22, wherein the information about the SNPN that allows the terminal device to access further comprises:

first priority information, indicating a priority sequence of the SNPN that allows the terminal device to access.

24. The method according to any one of claims 21 to 23, wherein the information about whether the terminal device is allowed to access a PLMN comprises:

an identifier of a PLMN that does not allow the terminal device to access and/or indication information indicating that the terminal device is not allowed to access a PLMN.

25. The method according to any one of claims 21 to 24, wherein the method further comprises:

forbidding, by the terminal device, a PLMN network selection function based on the first network selection information.

26. The method according to any one of claims 21 to 23, wherein the information about whether the terminal device is allowed to access a PLMN comprises:

an identifier of a PLMN that allows the terminal device to access and second priority information, wherein the second priority information indicates a priority sequence of the PLMN that allows the terminal device to access, and a priority of the second priority information is lower than a priority of the first priority information.

27. The method according to any one of claims 21 to 26, wherein the method further comprises:

updating, by the terminal device, a network selection configuration of the terminal device based on the first network selection information.

5 28. An apparatus, characterized by being configured to carry out a method according to any one of claims 1 to 14.

29. An apparatus, characterized by being configured to carry out a method according to any one of claims 15 to 20.

10 30. An apparatus, characterized by being configured to carry out a method according to any one of claims 21 to 27.

31. A computer-readable storage medium having instructions recorded thereon; wherein the instructions make a computer execute the method of any one of claims 1 to 14.

32. A computer-readable storage medium having instructions recorded thereon; wherein the instructions make a computer execute the method of any one of claims 15 to 20.

15 33. A computer-readable storage medium having instructions recorded thereon; wherein the instructions make a computer execute the method of any one of claims 21 to 27.

34. A communication system, comprising:
 a first network device , a second network device and a terminal; and
 the first network device executes the method of any one of claims 1 to 14, the second network
20 device executes the method of any one of claims 15 to 20 and the terminal executes the method of
 any one of claims 21 to 27.

35. A communication method, comprising:
 receiving, by a first network device, a first message, wherein the first message comprises an
 identifier of a terminal device;

25 determining, by the first network device, first network selection information, wherein the first
 network selection information comprises at least one of information about a standalone non-public
 network SNPN that allows the terminal device to access and information about whether the
 terminal device is allowed to access a public land mobile network PLMN; and

sending, by the first network device, a second message, wherein the second message
30 comprises the first network selection information;

sending, by a terminal device, the first message; and

receiving, by the terminal device, the second message.

36. The method according to claim 35, wherein the determining, by the first network device, first network selection information comprises:

determining, by the first network device, the first network selection information based on at least one of subscription data, policy data, and a local configuration of the terminal device.

~~28. A communication apparatus, comprising:~~

~~a first receiving module, configured to receive a first message, wherein the first message comprises an identifier of a terminal device;~~

~~a first processing module, configured to determine first network selection information, wherein the first network selection information comprises at least one of information about a standalone non-public network SNPN that allows the terminal device to access and information about whether the terminal device is allowed to access a public land mobile network PLMN; and~~

~~a first sending module, configured to send a second message, wherein the second message comprises the first network selection information.~~

~~29. The apparatus according to claim 28, wherein the processing module is specifically configured to:~~

~~determine the first network selection information based on at least one of subscription data, policy data, and a local configuration of the terminal device.~~

~~30. The apparatus according to claim 29, wherein the processing module is further configured to:~~

~~if the subscription data and the policy data of the terminal device coexist, preferentially determine the first network selection information based on the policy data of the terminal device.~~

~~31. The apparatus according to any one of claims 28 to 30, wherein the apparatus is an access and mobility management function network element AMF, and the first sending module is further configured to:~~

~~send a third message to a unified data management network element UDM, wherein the third message is used to obtain the subscription data of the terminal device, and the subscription data comprises at least one of the information about the SNPN that allows the terminal device to access and the information about whether the terminal device is allowed to access a PLMN; and~~

~~the first receiving module is further configured to:~~

~~receive a fourth message sent by the UDM, wherein the fourth message comprises the~~

subscription data of the terminal device.

32. The apparatus according to any one of claims 28 to 31, wherein the first sending module is further configured to:

send a fifth message to a policy control function network element PCF, wherein the fifth message is used to obtain the policy data of the terminal device, and the policy data comprises at least one of the information about the SNPN that allows the terminal device to access and the information about whether the terminal device is allowed to access a PLMN; and

the first receiving module is further configured to:

receive a sixth message sent by the PCF, wherein the sixth message comprises the policy data of the terminal device.

33. The apparatus according to any one of claims 28 to 32, wherein the information about the SNPN that allows the terminal device to access comprises:

an identifier of the SNPN that allows the terminal device to access.

34. The apparatus according to claim 33, wherein the information about the SNPN that allows the terminal device to access further comprises:

first priority information, indicating a priority sequence of the SNPN that allows the terminal device to access.

35. The apparatus according to any one of claims 28 to 34, wherein the information about whether the terminal device is allowed to access a PLMN comprises:

an identifier of a PLMN that does not allow the terminal device to access and/or indication information indicating that the terminal device is not allowed to access a PLMN.

36. The apparatus according to any one of claims 29 to 35, wherein the local configuration comprises information indicating that the terminal device is not allowed to access a PLMN and/or information indicating that the terminal is capable of accessing only the SNPN.

37. The apparatus according to any one of claims 28 to 34, wherein the processing module is further configured to:

mark the terminal device as being in a roaming state, wherein a serving network of the terminal device is a PLMN, and a home network of the terminal device is an SNPN.

38. The apparatus according to claim 37, wherein the processing module is specifically configured to:

mark, based on the local configuration or the subscription data of the terminal device, the

terminal device as being in the roaming state, wherein the local configuration comprises an identifier that is of a terminal device in a specific range and that is allocated to the SNPN for use, or first indication information that indicates the first network element to mark, when an identifier of the terminal device comprises an identifier of a specific SNPN, the terminal device as being in the roaming state, wherein

the subscription data of the terminal device comprises second indication information, and the second indication information indicates that if the terminal device performs access from a PLMN, the terminal device enters the roaming state, or the second indication information indicates that the home network of the terminal device is an SNPN.

39. The apparatus according to claim 37 or 38, wherein the first receiving module is further configured to:

receive a seventh message sent by the terminal device, wherein the seventh message is used to request to establish a first protocol data unit PDU session of a data network name DNN/single network slice selection assistance information S-NSSAI; and

the processing module is further configured to:

establish the first PDU session in a non-roaming manner when the subscription of the terminal device indicates that the first PDU session is home routed HR roaming, or establish the first PDU session in an HR roaming manner when the subscription of the terminal device indicates that the first PDU session is local breakout LBO roaming.

40. The apparatus according to any one of claims 37 to 39, wherein the information about whether the terminal device is allowed to access a PLMN comprises:

an identifier of a PLMN that allows the terminal device to access and second priority information, wherein the second priority information indicates a priority sequence of the PLMN that allows the terminal device to access, and a priority indicated by the second priority information is lower than a priority indicated by the first priority information.

41. The apparatus according to any one of claims 28 to 40, wherein the apparatus belongs to an SNPN, the apparatus sends the second message to a third network device, and the third network device belongs to a PLMN.

42. A communication apparatus, comprising:

a second receiving module, configured to receive a first message, wherein the first message comprises an identifier of a terminal device; and

a second sending module, configured to send a second message, wherein the second message comprises at least one of information about a standalone non-public network SNPN that allows the terminal device to access and information about whether the terminal device is allowed to access a public land mobile network PLMN.

43. The apparatus according to claim 42, wherein the apparatus is a unified data management network element UDM, the second message is subscription data of the terminal device, and the subscription data comprises at least one of the information about the SNPN that allows the terminal device to access and the information about whether the terminal device is allowed to access a PLMN.

44. The apparatus according to claim 42, where the apparatus is a policy control function network element PCF, the second message is policy data of the terminal device, and the policy data comprises at least one of the information about the SNPN that allows the terminal device to access and the information about whether the terminal device is allowed to access a PLMN.

45. The apparatus according to claim 43 or 44, wherein the information about the SNPN that allows the terminal device to access comprises at least one of the following information:

indication information indicating that access from only the SNPN is allowed;

an identifier of the SNPN that allows access; or

first priority information, indicating a priority of the SNPN that allows access.

46. The apparatus according to claim 43 or 44, wherein the information about whether the terminal device is allowed to access a PLMN comprises at least one of the following information:

indication information indicating that access from a PLMN is not allowed; or

an identifier of a PLMN that does not allow access.

47. The apparatus according to claim 43 or 44, wherein when the information about the SNPN that allows the terminal device to access comprises an identifier of the SNPN that allows access and first priority information, the information about whether the terminal device is allowed to access a PLMN comprises at least one of the following information:

indication information indicating that access to a PLMN is allowed;

an identifier of the PLMN that allows access; or

second priority information, indicating a priority of the PLMN that allows access, wherein the priority indicated by the second priority information is lower than a priority indicated by the first priority information.

48. A communication apparatus, comprising:

a third sending module, configured to send a first message, wherein the first message comprises an identifier of the apparatus; and

a third receiving module, configured to receive a second message, wherein the second message comprises first network selection information, and the first network selection information comprises at least one of information about a standalone non-public network SNPN that allows the apparatus to access and information about whether the apparatus is allowed to access a public land mobile network PLMN.

49. The apparatus according to claim 48, wherein the information about the SNPN that allows the apparatus to access comprises:

an identifier of the SNPN that allows the apparatus to access.

50. The apparatus according to claim 49, wherein the information about the SNPN that allows the apparatus to access further comprises:

first priority information, indicating a priority sequence of the SNPN that allows the apparatus to access.

51. The apparatus according to any one of claims 48 to 50, wherein the information about whether the apparatus is allowed to access a PLMN comprises:

an identifier of a PLMN that does not allow the apparatus to access and/or indication information indicating that the apparatus is not allowed to access a PLMN.

52. The apparatus according to any one of claims 48 to 51, wherein the apparatus further comprises:

a second processing module, configured to forbid a PLMN network selection function based on the first network selection information.

53. The apparatus according to any one of claims 48 to 50, wherein the information about whether the apparatus is allowed to access a PLMN comprises:

an identifier of a PLMN that allows the apparatus to access and second priority information, wherein the second priority information indicates a priority sequence of the PLMN that allows the apparatus to access, and a priority of the second priority information is lower than a priority of the first priority information.

54. The apparatus according to any one of claims 48 to 53, wherein the apparatus further comprises:

a third processing module, configured to update a network selection configuration of the apparatus based on the first network selection information.