CLAIMS

What is claimed is:

1. A communication method, comprising:

obtaining (601), by a communication apparatus, first capability information, wherein the first capability information indicates a quantity of multiple-input multiple-output, MIMO, layers supported on a first carrier and a quantity of MIMO layers supported on a second carrier when a terminal performs uplink transmission on the first carrier and the second carrier in time division multiplexing mode;

sending (602), by the communication apparatus, the first capability information to a network device; and

receiving (604), by the communication apparatus, indication information from the network device, wherein the indication information indicates the terminal to perform uplink transmission on the first carrier and the second carrier in time division multiplexing mode;

performing (606), by the communication apparatus, uplink transmission with the network device on the first carrier and the second carrier in time division multiplexing mode based on the indication formation.

2. The method according to claim 1, wherein the method further comprises:

receiving, by the communication apparatus, fourth indication information from the network device, wherein the fourth indication information indicates the terminal to report the first capability information.

3. A communication method, comprising:

receiving (602), by a communication apparatus, first capability information from a terminal, the first capability information indicates a quantity of multiple-input multiple-output, MIMO, layers supported on a first carrier and a quantity of MIMO layers supported on a second carrier when uplink transmission is performed on the first carrier and the second carrier in time division multiplexing mode; and

determining (603), by the communication apparatus, the quantity of MIMO layers supported on the first carrier and the quantity of MIMO layers supported on the second carrier when uplink

transmission is performed on the first carrier and the second carrier in time division multiplexing mode;

sending (604), by the communication apparatus, indication formation to the terminal, wherein the indication information indicates the terminal to perform uplink transmission on the first carrier and the second carrier in time division multiplexing mode;

performing (606), by the communication apparatus, uplink transmission with the terminal on the first carrier and the second carrier in time division multiplexing mode.

4. The method according to claim 3, wherein the method further comprises:

sending, by the communication apparatus, fourth indication information to the terminal, wherein the fourth indication information indicates the terminal to report the first capability information.

5. The method according to any one of claims 1 to 4, wherein the indication information further indicates a quantity of MIMO layers used on the first carrier and a quantity of MIMO layers used on the second carrier when uplink transmission is performed on the first carrier and the second carrier in time division multiplexing mode;

when uplink transmission is performed on the first carrier and the second carrier in time division multiplexing mode, the quantity of MIMO layers used on the first carrier is less than or equal to the quantity of MIMO layers supported on the first carrier, and the quantity of MIMO layers used on the second carrier is less than or equal to the quantity of MIMO layers supported on the second carrier.

6. The method according to any one of claims 1 to 5, wherein the quantity of MIMO layers used on the first carrier is 2 and the quantity of MIMO layers used on the second carrier is 1 when uplink transmission is performed on the first carrier and the second carrier in time division multiplexing mode.

7. The method according to claim 6, wherein the first carriers works on a first radio frequency channel and a second radio frequency channel, and the second carrier works on the second radio frequency channel.

8. The method according to any one of claims 1 to 5, wherein the quantity of MIMO layers used on the first carrier is 2 and the quantity of MIMO layers used on the second carrier is 2 when the terminal performs uplink transmission on the first carrier and the second carrier in time division multiplexing mode.

9. The method according to claim 8, wherein the first carriers works on a first radio frequency channel and a second radio frequency channel, and the second carrier works on the first radio frequency channel and the second radio frequency channel.

10. The method according to any one of claims 1 to 9, wherein when uplink transmission is performed on the first carrier and the second carrier in time division multiplexing mode, the first carrier and the second carrier share one or more radio frequency channels of the terminal.

11. The method according to any one of claims 1 to 10, wherein when uplink transmission is performed on the first carrier and the second carrier in time division multiplexing mode, one or more of PUSCH data and PUCCH data is transmitted on the first carrier, and one or more of PUSCH data and PUCCH data is transmitted on the second carrier.

12. The method according to any one of claims 1 to 11, wherein a message carrying the first capability information carries second capability information, wherein the second capability information indicates a quantity of MIMO layers supported on a first carrier and a quantity of MIMO layers supported on a second carrier when the terminal performs uplink transmission on the first carrier and the second carrier in simultaneous transmission mode; wherein

a quantity of MIMO layers supported on the first carrier when the terminal performs uplink transmission on the first carrier and the second carrier in time division multiplexing mode is greater than a quantity of MIMO layers supported on the first carrier when the terminal performs uplink transmission on the first carrier and the second carrier in simultaneous transmission mode.

13. The method according to any one of claims 1 to 12, wherein a message carrying the first capability information carries inter-carrier switching period information, and the inter-carrier

switching period information indicates carrier switching period between the first carrier and the second carrier.

14. The method according to any one of claims 1 to 12, wherein the first carrier and the second carrier are carriers between the terminal and the network device; or

the first carrier is a carrier between the terminal and the network device, and the second carrier is a carrier between the terminal and another network device different from the network device.

15. A communication apparatus, comprising a processor coupled to a memory storing instructions, the processor is configured to execute the instructions to cause the apparatus to:

obtain first capability information, wherein the first capability information indicates a quantity of multiple-input multiple-output, MIMO, layers supported on a first carrier and a quantity of MIMO layers supported on a second carrier when a terminal performs uplink transmission on the first carrier and the second carrier in time division multiplexing mode;

send the first capability information to a network device; and

receive indication information from the network device, wherein the indication information indicates the terminal to perform uplink transmission on the first carrier and the second carrier in time division multiplexing mode;

perform uplink transmission with the network device on the first carrier and the second carrier in time division multiplexing mode based on the indication formation.

16. The apparatus according to claim 15, wherein the processor is further configured to execute the instructions to cause the apparatus to:

receive fourth indication information from the network device, wherein the fourth indication information indicates the terminal to report the first capability information.

17. A communication apparatus, comprising a processor coupled to a memory storing instructions, the processor is configured to execute the instructions to cause the apparatus to:

receive first capability information from a terminal, the first capability information indicates a quantity of multiple-input multiple-output, MIMO, layers supported on a first carrier and a quantity of MIMO layers supported on a second carrier when uplink transmission is performed on

the first carrier and the second carrier in time division multiplexing mode; and

determine the quantity of MIMO layers supported on the first carrier and the quantity of MIMO layers supported on the second carrier when uplink transmission is performed on the first carrier and the second carrier in time division multiplexing mode;

send indication formation to the terminal, wherein the indication information indicates the terminal to perform uplink transmission on the first carrier and the second carrier in time division multiplexing mode;

perform uplink transmission with the terminal on the first carrier and the second carrier in time division multiplexing mode.

18. The apparatus according to claim 17, wherein the processor is further configured to execute the instructions to cause the apparatus to:

send fourth indication information to the terminal, wherein the fourth indication information indicates the terminal to report the first capability information.

19. The apparatus according to any one of claims 15 to 18, wherein the indication information further indicates a quantity of MIMO layers used on the first carrier and a quantity of MIMO layers used on the second carrier when uplink transmission is performed on the first carrier and the second carrier in time division multiplexing mode;

when uplink transmission is performed on the first carrier and the second carrier in time division multiplexing mode, the quantity of MIMO layers used on the first carrier is less than or equal to the quantity of MIMO layers supported on the first carrier, and the quantity of MIMO layers used on the second carrier is less than or equal to the quantity of MIMO layers supported on the second carrier.

20. The apparatus according to any one of claims 15 to 19, wherein the quantity of MIMO layers used on the first carrier is 2 and the quantity of MIMO layers used on the second carrier is 1 when uplink transmission is performed on the first carrier and the second carrier in time division multiplexing mode.

21. The apparatus according to claim 20, wherein the first carriers works on a first radio

frequency channel and a second radio frequency channel, and the second carrier works on the second radio frequency channel.

22. The apparatus according to any one of claims 15 to 19, wherein the quantity of MIMO layers used on the first carrier is 2 and the quantity of MIMO layers used on the second carrier is 2 when the terminal performs uplink transmission on the first carrier and the second carrier in time division multiplexing mode.

23. The apparatus according to claim 22, wherein the first carriers works on a first radio frequency channel and a second radio frequency channel, and the second carrier works on the first radio frequency channel and the second radio frequency channel.

24. The apparatus according to any one of claims 15 to 23, wherein when uplink transmission is performed on the first carrier and the second carrier in time division multiplexing mode, the first carrier and the second carrier share one or more radio frequency channels of the terminal.

25. The apparatus according to any one of claims 15 to 24, wherein when uplink transmission is performed on the first carrier and the second carrier in time division multiplexing mode, one or more of PUSCH data and PUCCH data is transmitted on the first carrier, and one or more of PUSCH data and PUCCH data is transmitted on the second carrier.

26. The apparatus according to any one of claims 15 to 25, wherein a message carrying the first capability information carries second capability information, wherein the second capability information indicates a quantity of MIMO layers supported on a first carrier and a quantity of MIMO layers supported on a second carrier when the terminal performs uplink transmission on the first carrier and the second carrier in simultaneous transmission mode; wherein

a quantity of MIMO layers supported on the first carrier when the terminal performs uplink transmission on the first carrier and the second carrier in time division multiplexing mode is greater than a quantity of MIMO layers supported on the first carrier when the terminal performs uplink transmission on the first carrier and the second carrier in simultaneous transmission mode.

27. The apparatus according to any one of claims 15 to 26, wherein a message carrying the first capability information carries inter-carrier switching period information, and the inter-carrier switching period information indicates carrier switching period between the first carrier and the second carrier.

28. The apparatus according to any one of claims 15 to 26, wherein the first carrier and the second carrier are carriers between the terminal and the network device; or

the first carrier is a carrier between the terminal and the network device, and the second carrier is a carrier between the terminal and another network device different from the network device.

29. A communication apparatus, configured to perform the method according to any one of claims 1, 2 and 5 to 12.

30. A communication apparatus, configured to perform the method according to any one of claims 3, 4 and 5 to 12.

31. A computer-readable storage medium, wherein the computer-readable storage medium stores computer instructions, and when the computer instructions are run on a computer, the computer is enabled to perform the access method according to any one of claims 1 to 14.

32. A computer program product, wherein the computer program product comprises computer instructions, and when the computer instructions are run on a computer, the computer is enabled to perform the access method according to any one of claims 1 to 14.

~~1. A communication method, comprising:~~

~~obtaining, by a terminal, first capability information, wherein the first capability information is used to indicate a quantity of radio frequency channels supported on each of N carriers when the terminal performs uplink transmission on the N carriers in time division multiplexing mode, and N is an integer greater than 1;~~

~~obtaining, by the terminal, second capability information, wherein the second capability information is used to indicate a quantity of radio frequency channels supported on each of the N~~

carriers when the terminal performs uplink transmission on the N carriers in simultaneous transmission mode; and

sending, by the terminal, the first capability information and the second capability information to a network device.

2. The method according to claim 1, wherein a quantity of radio frequency channels supported on a first carrier when the terminal performs uplink transmission on the N carriers in time division multiplexing mode is greater than a quantity of radio frequency channels supported on the first carrier when the terminal performs uplink transmission on the N carriers in simultaneous transmission mode, wherein the first carrier is one of the N carriers.

3. The method according to claim 1 or 2, wherein the method further comprises:

receiving, by the terminal, first indication information from the network device, wherein the first indication information is used to indicate the terminal to perform uplink transmission on the N carriers in time division multiplexing mode.

4. The method according to any one of claims 1 to 3, wherein the method further comprises:

receiving, by the terminal, second indication information from the network device, wherein the second indication information is used to indicate a quantity of radio frequency channels used on each of the N carriers when the terminal performs uplink transmission on the N carriers in time division multiplexing mode, wherein the quantity of radio frequency channels used on each of the N carriers is equal to the quantity of radio frequency channels supported on the carrier when the terminal performs uplink transmission on the N carriers in time division multiplexing mode.

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

performing, by the terminal, uplink transmission on the N carriers in time division multiplexing mode.

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

sending, by the terminal, inter-carrier switching period information to the network device, wherein

if a switching period between any two of the N carriers is the same, the inter-carrier switching period information indicates the switching period between any two of the N carriers; or if a switching period between two different carriers in the N carriers is different, the inter-carrier switching period information indicates the switching period between every two different carriers in the N carriers, or the inter-carrier switching period information indicates a switching period

between two carriers with a longest switching period in the N carriers.

7. The method according to claim 6, wherein the method further comprises:

receiving, by the terminal, third indication information from the network device, wherein the third indication information is used to indicate the terminal to report the inter-carrier switching time information.

8. The method according to any one of claims 1 to 7, wherein the method further comprises:

receiving, by the terminal, fourth indication information from the network device, wherein the fourth indication information is used to indicate the terminal to report the first capability information.

9. The method according to any one of claims 1 to 8, wherein the N carriers are carriers between the terminal and the network device.

10. The method according to claim 9, wherein the N carriers further comprise a carrier between the terminal and a network device different from the network device.

11. A communication method, comprising:

receiving, by a network device, first capability information and second capability information from a terminal, wherein the first capability information is used to indicate a quantity of radio frequency channels supported on each of N carriers when the terminal performs uplink transmission on the N carriers in time division multiplexing mode, the second capability information is used to indicate a quantity of radio frequency channels supported on each of the N carriers when the terminal performs uplink transmission on the N carriers in simultaneous transmission mode, and N is an integer greater than 1; and

determining, by the network device, the quantity of radio frequency channels supported on each of N carriers when the terminal performs uplink transmission on the N carriers in time division multiplexing mode, and determining the quantity of radio frequency channels supported on each of the N carriers when the terminal performs uplink transmission on the N carriers in simultaneous transmission mode.

12. The method according to claim 11, wherein a quantity of radio frequency channels supported on a first carrier when the terminal performs uplink transmission on the N carriers in time division multiplexing mode is greater than a quantity of radio frequency channels supported on the first carrier when the terminal performs uplink transmission on the N carriers in simultaneous transmission mode, wherein the first carrier is one of the N carriers.

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

sending, by the network device, first indication information to the terminal, wherein the first indication information is used to indicate the terminal to perform uplink transmission on the N carriers in time division multiplexing mode.

14. The method according to any one of claims 11 to 13, wherein the method further comprises:

Sending, by the network device, second indication information to the terminal, wherein the second indication information is used to indicate a quantity of radio frequency channels used on each of the N carriers when the terminal performs uplink transmission on the N carriers in time division multiplexing mode, wherein the quantity of radio frequency channels used on each of the N carriers is equal to the quantity of radio frequency channels supported on the carrier when the terminal performs uplink transmission on the N carriers in time division multiplexing mode.

15. The method according to any one of claims 11 to 14, wherein the method further comprises:

performing, by the network device, uplink receiving on one or more carriers in the N carriers.

16. The method according to any one of claims 11 to 15, wherein the method further comprises:

receiving, by the network device, inter-carrier switching time information from the terminal; and

scheduling, by the network device, data on the N carriers based on the inter-carrier switching time information, wherein

if a switching period between any two of the N carriers is the same, the inter-carrier switching period information indicates the switching period between any two of the N carriers; or if a switching period between two different carriers in the N carriers is different, the inter-carrier switching period information indicates the switching period between every two different carriers in the N carriers, or the inter-carrier switching period information indicates a switching period between two carriers with a longest switching period in the N carriers.

17. The method according to claim 16, wherein the method further comprises:

sending, by the network device, third indication information to the terminal, wherein the third indication information is used to indicate the terminal to report the inter-carrier switching time information.

~~18. The method according to any one of claims 11 to 17, wherein the method further comprises:~~

~~sending, by the network device, fourth indication information to the terminal, wherein the fourth indication information is used to indicate the terminal to report the first capability information.~~

~~19. The method according to any one of claims 11 to 18, wherein the N carriers are carriers between the terminal and the network device.~~

~~20. The method according to claim 19, wherein the N carriers further comprise a carrier between the terminal and a network device different from the network device.~~

~~21. A communication method, comprising:~~

~~obtaining, by a terminal, inter-carrier switching time information, wherein if switching time between any two of N carriers is the same, the inter-carrier switching time information indicates the switching time between any two of the N carriers; if switching time between any two different carriers in the N carriers is different, the inter-carrier switching time information indicates the switching time between every two different carriers in the N carriers; or the inter-carrier switching time information indicates switching time between two carriers with a longest switching time in the N carriers, wherein N is an integer greater than 1; and~~

~~sending, by the terminal, the inter-carrier switching time information to a network device.~~

~~22. The method according to claim 21, wherein the method further comprises:~~

~~receiving, by the terminal, third indication information from the network device, wherein the third indication information is used to indicate the terminal to report the inter-carrier switching time information.~~

~~23. The method according to claim 21 or 22, wherein the N carriers are carriers between the terminal and the network device.~~

~~24. The method according to claim 23, wherein the N carriers further comprise a carrier between the terminal and a network device different from the network device.~~

~~25. The method according to any one of claims 21 to 24, wherein the N carriers comprise a first carrier and a second carrier.~~

~~26. The method according to claim 25, wherein switching time between the first carrier and the second carrier comprises time of switching from the first carrier to the second carrier, time of switching from the second carrier to the first carrier, or both time of switching from the first carrier~~

~~to the second carrier and time of switching from the second carrier to the first carrier.~~

~~27. The method according to claim 26, wherein the time of switching from the first carrier to the second carrier is 0 microseconds or greater than 0 microseconds, or the time of switching from the second carrier to the first carrier is 0 microseconds or greater than 0 microseconds.~~

~~28. The method according to any one of claims 25 to 27, wherein the method further comprises:~~

~~sending, by the terminal, first capability information to the network device, wherein the first capability information is used to indicate a quantity of radio frequency channels supported on the first carrier and a quantity of radio frequency channels supported on the second carrier when the terminal performs uplink transmission on the first carrier and the second carrier in time division multiplexing mode.~~

~~29. The method according to any one of claims 25 to 28, wherein the method further comprises:~~

~~sending, by the terminal, second capability information to the network device, wherein the second capability information is used to indicate a quantity of radio frequency channels supported on the first carrier and a quantity of radio frequency channels supported on the second carrier when the terminal performs uplink transmission on the first carrier and the second carrier in simultaneous transmission mode.~~

~~30. The method according to claim 28 or 29, wherein the quantity of radio frequency channels supported on the first carrier when the terminal performs uplink transmission on the first carrier and the second carrier in time division multiplexing mode is greater than the quantity of radio frequency channels supported on the first carrier when the terminal performs uplink transmission on the first carrier and the second carrier in simultaneous transmission mode.~~

~~31. The method according to any one of claims 25 to 30, wherein the method further comprises:~~

~~receiving, by the terminal, first indication information from the network device, wherein the first indication information is used to indicate the terminal to perform uplink transmission on the first carrier and the second carrier in time division multiplexing mode; and~~

~~performing, by the terminal based on the first indication information, uplink transmission on the first carrier and the second carrier in time division multiplexing mode.~~

~~32. The method according to claim 31, wherein the first indication information is further used~~

to indicate a quantity of radio frequency channels used on the first carrier and a quantity of radio frequency channels used on the second carrier when the terminal performs uplink transmission on the first carrier and the second carrier in time division multiplexing mode.

33. The method according to claim 32, wherein the quantity of radio frequency channels used on the first carrier when the terminal performs uplink transmission on the first carrier and the second carrier in time division multiplexing mode is equal to the quantity of radio frequency channels supported on the first carrier when the terminal performs uplink transmission on the first carrier and the second carrier in time division multiplexing mode.

34. The method according to claim 32 or 33, wherein the quantity of radio frequency channels used on the second carrier when the terminal performs uplink transmission on the first carrier and the second carrier in time division multiplexing mode is equal to the quantity of radio frequency channels supported on the second carrier when the terminal performs uplink transmission on the first carrier and the second carrier in time division multiplexing mode.

35. The method according to any one of claims 25 to 34, wherein the method further comprises:

switching, by the terminal, from the first carrier to the second carrier on a silent time domain resource, wherein a preceding symbol adjacent to the silent time domain resource belongs to a transmission time domain resource of the first carrier, and a subsequent symbol adjacent to the silent time domain resource belongs to a transmission time domain resource of the second carrier.

36. The method according to claim 35, wherein a length of the silent time domain resource is greater than or equal to the switching time between the first carrier and the second carrier.

37. The method according to claim 35 or 36, wherein the switching, by the terminal, from the first carrier to the second carrier on a silent time domain resource comprises:

switching, by the terminal, one or more radio frequency channels from the first carrier to the second carrier on the silent time domain resource.

38. A communication method, comprising:

receiving, by a network device, inter-carrier switching time information from a terminal, wherein if switching time between any two of N carriers is the same, the inter-carrier switching time information indicates the switching time between any two of the N carriers; if switching time between any two different carriers in the N carriers is different, the inter-carrier switching time information indicates the switching time between every two different carriers in the N carriers; or

the inter-carrier switching time information indicates switching time between two carriers with a longest switching time in the N carriers, wherein N is an integer greater than 1; and

scheduling, by the network device, data on the N carriers based on the inter-carrier switching time information.

39. The method according to claim 38, wherein the method further comprises:

sending, by the network device, third indication information to the terminal, wherein the third indication information is used to indicate the terminal to report the inter-carrier switching time information.

40. The method according to claim 38 or 39, wherein the N carriers are carriers between the terminal and the network device.

41. The method according to claim 40, wherein the N carriers further comprise a carrier between the terminal and a network device different from the network device.

42. The method according to any one of claims 38 to 41, wherein the N carriers comprise a first carrier and a second carrier.

43. The method according to claim 42, wherein switching time between the first carrier and the second carrier comprises time of switching from the first carrier to the second carrier, time of switching from the second carrier to the first carrier, or both time of switching from the first carrier to the second carrier and time of switching from the second carrier to the first carrier.

44. The method according to claim 43, wherein the time of switching from the first carrier to the second carrier is 0 microseconds or greater than 0 microseconds, or the time of switching from the second carrier to the first carrier is 0 microseconds or greater than 0 microseconds.

45. The method according to any one of claims 42 to 44, wherein the method further comprises:

receiving, by the network device, first capability information from the terminal, wherein the first capability information is used to indicate a quantity of radio frequency channels supported on the first carrier and a quantity of radio frequency channels supported on the second carrier when the terminal performs uplink transmission on the first carrier and the second carrier in time division multiplexing mode; and

determining, by the network device, the quantity of radio frequency channels supported on the first carrier and the quantity of radio frequency channels supported on the second carrier when the terminal performs uplink transmission on the first carrier and the second carrier in time division

multiplexing mode.

46. The method according to any one of claims 42 to 45, wherein the method further comprises:

receiving, by the network device, second capability information from the terminal, wherein the second capability information is used to indicate a quantity of radio frequency channels supported on the first carrier and a quantity of radio frequency channels supported on the second carrier when the terminal performs uplink transmission on the first carrier and the second carrier in simultaneous transmission mode; and

determining, by the network device, the quantity of radio frequency channels supported on the first carrier and the quantity of radio frequency channels supported on the second carrier when the terminal performs uplink transmission on the first carrier and the second carrier in simultaneous transmission mode.

47. The method according to claim 45 or 46, wherein the quantity of radio frequency channels supported on the first carrier when the terminal performs uplink transmission on the first carrier and the second carrier in time division multiplexing mode is greater than the quantity of radio frequency channels supported on the first carrier when the terminal performs uplink transmission on the first carrier and the second carrier in simultaneous transmission mode.

48. The method according to any one of claims 42 to 47, wherein the method further comprises:

sending, by the network device, first indication information to the terminal, wherein the first indication information is used to indicate the terminal to perform uplink transmission on the first carrier and the second carrier in time division multiplexing mode.

49. The method according to claim 48, wherein the first indication information is further used to indicate a quantity of radio frequency channels used on the first carrier and a quantity of radio frequency channels used on the second carrier when the terminal performs uplink transmission on the first carrier and the second carrier in time division multiplexing mode.

50. The method according to claim 49, wherein the quantity of radio frequency channels used on the first carrier when the terminal performs uplink transmission on the first carrier and the second carrier in time division multiplexing mode is equal to the quantity of radio frequency channels supported on the first carrier when the terminal performs uplink transmission on the first carrier and the second carrier in time division multiplexing mode.

~~51. The method according to claim 49 or 50, wherein the quantity of radio frequency channels used on the second carrier when the terminal performs uplink transmission on the first carrier and the second carrier in time division multiplexing mode is equal to the quantity of radio frequency channels supported on the second carrier when the terminal performs uplink transmission on the first carrier and the second carrier in time division multiplexing mode.~~

~~52. The method according to any one of claims 42 to 51, wherein the method further comprises:~~

~~determining, by the network device, a silent time domain resource, and keeping silent on the silent time domain resource, wherein a preceding symbol adjacent to the silent time domain resource belongs to a transmission time domain resource of the first carrier, and a subsequent symbol adjacent to the silent time domain resource belongs to a transmission time domain resource of the second carrier.~~

~~53. The method according to claim 52, wherein a length of the silent time domain resource is greater than or equal to the switching time between the first carrier and the second carrier.~~

~~54. A communication method, comprising:~~

~~performing, by a terminal, uplink transmission on N carriers in time division multiplexing mode, wherein a quantity of radio frequency channels used on each of the N carriers is a quantity of radio frequency channels supported on the carrier when the terminal performs uplink transmission on the N carriers in time division multiplexing mode, a quantity of radio frequency channels supported on a first carrier when the terminal performs uplink transmission on the N carriers in time division multiplexing mode is greater than a quantity of radio frequency channels supported on the first carrier when the terminal performs uplink transmission on the N carriers in simultaneous transmission mode, the first carrier is one of the N carriers, and N is an integer greater than 1.~~

~~55. The method according to claim 54, wherein the method further comprises:~~

~~sending, by the terminal, first capability information to a network device, wherein the first capability information is used to indicate the quantity of radio frequency channels supported on each of the N carriers when the terminal performs uplink transmission on the N carriers in time division multiplexing mode.~~

~~56. The method according to claim 55, wherein the method further comprises:~~

~~sending, by the terminal, second capability information to the network device, wherein the~~

second capability information is used to indicate a quantity of radio frequency channels supported on the first carrier and a quantity of radio frequency channels supported on a second carrier when the terminal performs uplink transmission on the first carrier and the second carrier in simultaneous transmission mode.

57. The method according to any one of claims 54 to 56, wherein the method further comprises:

receiving, by the terminal, first indication information from the network device, wherein the first indication information is used to indicate the terminal to perform uplink transmission on the N carriers in time division multiplexing mode; and

the performing, by a terminal, uplink transmission on N carriers in time division multiplexing mode comprises: performing, by the terminal based on the first indication information, uplink transmission on the N carriers in time division multiplexing mode.

58. The method according to claim 57, wherein the first indication information is further used to indicate the quantity of radio frequency channels used on each of the N carriers when the terminal performs uplink transmission on the N carriers in time division multiplexing mode.

59. The method according to any one of claims 54 to 58, wherein the method further comprises:

sending, by the terminal, inter-carrier switching time information to the network device, wherein if switching time between any two of the N carriers is the same, the inter-carrier switching time information indicates the switching time between any two of the N carriers; if switching time between any two different carriers in the N carriers is different, the inter-carrier switching time information indicates the switching time between every two different carriers in the N carriers; or the inter-carrier switching time information indicates switching time between two carriers with a longest switching time in the N carriers.

60. The method according to claim 59, wherein the method further comprises:

receiving, by the terminal, third indication information from the network device, wherein the third indication information is used to indicate the terminal to report the inter-carrier switching time information.

61. The method according to any one of claims 54 to 60, wherein the N carriers are carriers between the terminal and the network device.

62. The method according to claim 61, wherein the N carriers further comprise a carrier

between the terminal and a network device different from the network device.

63. The method according to any one of claims 54 to 62, wherein the method further comprises:

performing, by the terminal, uplink transmission on a third carrier, wherein uplink transmission is performed on the third carrier and any one of the N carriers in simultaneous transmission mode within a first time range.

64. The method according to any one of claims 54 to 63, wherein the N carriers comprise the first carrier and the second carrier.

65. The method according to claim 64, wherein the method further comprises:

switching, by the terminal, from the first carrier to the second carrier on a silent time domain resource, wherein a preceding symbol adjacent to the silent time domain resource belongs to a transmission time domain resource of the first carrier, and a subsequent symbol adjacent to the silent time domain resource belongs to a transmission time domain resource of the second carrier.

66. The method according to claim 65, wherein a length of the silent time domain resource is greater than or equal to the switching time between the first carrier and the second carrier.

67. The method according to claim 65 or 66, wherein the switching, by the terminal, from the first carrier to the second carrier on a silent time domain resource comprises:

switching, by the terminal, one or more radio frequency channels from the first carrier to the second carrier on the silent time domain resource.

68. A communication apparatus, comprising a communication unit and a processing unit, wherein

the processing unit is configured to obtain first capability information, wherein the first capability information is used to indicate a quantity of radio frequency channels supported on each of N carriers when the communication apparatus performs uplink transmission on the N carriers in time division multiplexing mode, and N is an integer greater than 1;

the processing unit is further configured to obtain second capability information, wherein the second capability information is used to indicate a quantity of radio frequency channels supported on each of the N carriers when the communication apparatus performs uplink transmission on the N carriers in simultaneous transmission mode; and

the communication unit is configured to send the first capability information and the second capability information to a network device.

69. The apparatus according to claim 68, wherein a quantity of radio frequency channels supported on a first carrier when the communication apparatus performs uplink transmission on the N carriers in time division multiplexing mode is greater than a quantity of radio frequency channels supported on the first carrier when the communication apparatus performs uplink transmission on the N carriers in simultaneous transmission mode, wherein the first carrier is one of the N carriers.

70. The apparatus according to claim 68 or 69, wherein

the communication unit is further configured to receive first indication information from the network device, wherein the first indication information is used to indicate the communication apparatus to perform uplink transmission on the N carriers in time division multiplexing mode.

71. The apparatus according to any one of claims 68 to 70, wherein

the communication unit is further configured to receive second indication information from the network device, wherein the second indication information is used to indicate a quantity of radio frequency channels used on each of the N carriers when the communication apparatus performs uplink transmission on the N carriers in time division multiplexing mode, wherein the quantity of radio frequency channels used on each of the N carriers is the quantity of radio frequency channels supported on the carrier when the communication apparatus performs uplink transmission on the N carriers in time division multiplexing mode.

72. The apparatus according to any one of claims 68 to 71, wherein

the communication unit is further configured to perform uplink transmission on the N carriers in time division multiplexing mode.

73. The apparatus according to any one of claims 68 to 72, wherein

the communication unit is further configured to send inter-carrier switching time information to the network device, wherein if switching time between any two of the N carriers is the same, the inter-carrier switching time information indicates the switching time between any two of the N carriers; if switching time between any two different carriers in the N carriers is different, the inter-carrier switching time information indicates the switching time between every two different carriers in the N carriers; or the inter-carrier switching time information indicates switching time between two carriers with a longest switching time in the N carriers.

74. The apparatus according to claim 73, wherein

the communication unit is further configured to receive third indication information from the

network device, wherein the third indication information is used to indicate the communication apparatus to report the inter-carrier switching time information.

75. The apparatus according to any one of claims 68 to 74, wherein

the communication unit is further configured to receive fourth indication information from the network device, wherein the fourth indication information is used to indicate the communication apparatus to report the first capability information.

76. The apparatus according to any one of claims 68 to 75, wherein the N carriers are carriers between the communication apparatus and the network device.

77. The apparatus according to claim 76, wherein the N carriers further comprise a carrier between the communication apparatus and a network device different from the network device.

78. A communication apparatus, comprising a communication unit and a processing unit, wherein

the communication unit is configured to receive first capability information and second capability information from a terminal, wherein the first capability information is used to indicate a quantity of radio frequency channels supported on each of N carriers when the terminal performs uplink transmission on the N carriers in time division multiplexing mode, the second capability information is used to indicate a quantity of radio frequency channels supported on each of the N carriers when the terminal performs uplink transmission on the N carriers in simultaneous transmission mode, and N is an integer greater than 1; and

the processing unit is configured to: determine the quantity of radio frequency channels supported on each of N carriers when the terminal performs uplink transmission on the N carriers in time division multiplexing mode, and determine the quantity of radio frequency channels supported on each of the N carriers when the terminal performs uplink transmission on the N carriers in simultaneous transmission mode.

79. The apparatus according to claim 78, wherein a quantity of radio frequency channels supported on a first carrier when the terminal performs uplink transmission on the N carriers in time division multiplexing mode is greater than a quantity of radio frequency channels supported on the first carrier when the terminal performs uplink transmission on the N carriers in simultaneous transmission mode, wherein the first carrier is one of the N carriers.

80. The apparatus according to claim 78 or 79, wherein

the communication unit is further configured to send first indication information to the

terminal, wherein the first indication information is used to indicate the terminal to perform uplink transmission on the N carriers in time division multiplexing mode.

81. The apparatus according to any one of claims 78 to 80, wherein

the communication unit is further configured to send second indication information to the terminal, wherein the second indication information is used to indicate a quantity of radio frequency channels used on each of the N carriers when the terminal performs uplink transmission on the N carriers in time division multiplexing mode, wherein the quantity of radio frequency channels used on each of the N carriers is the quantity of radio frequency channels supported on the carrier when the terminal performs uplink transmission on the N carriers in time division multiplexing mode.

82. The apparatus according to any one of claims 78 to 81, wherein

the communication unit is further configured to perform uplink receiving on one or more carriers in the N carriers.

83. The apparatus according to any one of claims 78 to 82, wherein

the communication unit is further configured to receive inter-carrier switching time information from the terminal, wherein if switching time between any two of the N carriers is the same, the inter-carrier switching time information indicates the switching time between any two of the N carriers; if switching time between any two different carriers in the N carriers is different, the inter-carrier switching time information indicates the switching time between every two different carriers in the N carriers; or the inter-carrier switching time information indicates switching time between two carriers with a longest switching time in the N carriers; and

the processing unit is further configured to schedule data on the N carriers based on the inter-carrier switching time information.

84. The apparatus according to claim 83, wherein

the communication unit is further configured to send third indication information to the terminal, wherein the third indication information is used to indicate the terminal to report the inter-carrier switching time information.

85. The apparatus according to any one of claims 78 to 84, wherein

the communication unit is further configured to send fourth indication information to the terminal, wherein the fourth indication information is used to indicate the terminal to report the first capability information.

86. The apparatus according to any one of claims 78 to 85, wherein the N carriers are carriers between the terminal and the communication apparatus.

87. The apparatus according to claim 86, wherein the N carriers further comprise a carrier between the terminal and a communication apparatus different from the communication apparatus.

88. A communication apparatus, comprising a communication unit and a processing unit, wherein

the processing unit is configured to obtain inter-carrier switching time information, wherein if switching time between any two of N carriers is the same, the inter-carrier switching time information indicates the switching time between any two of the N carriers; if switching time between any two different carriers in the N carriers is different, the inter-carrier switching time information indicates the switching time between every two different carriers in the N carriers; or the inter-carrier switching time information indicates switching time between two carriers with a longest switching time in the N carriers, wherein N is an integer greater than 1; and

the communication unit is configured to send the inter-carrier switching time information to a network device.

89. The apparatus according to claim 88, wherein

the communication unit is further configured to receive third indication information from the network device, wherein the third indication information is used to indicate the communication apparatus to report the inter-carrier switching time information.

90. The apparatus according to claim 88 or 89, wherein the N carriers are carriers between the communication apparatus and the network device.

91. The apparatus according to claim 90, wherein the N carriers further comprise a carrier between the communication apparatus and a network device different from the network device.

92. The apparatus according to any one of claims 88 to 91, wherein the N carriers comprise a first carrier and a second carrier.

93. The apparatus according to claim 92, wherein switching time between the first carrier and the second carrier comprises time of switching from the first carrier to the second carrier, time of switching from the second carrier to the first carrier, or both time of switching from the first carrier to the second carrier and time of switching from the second carrier to the first carrier.

94. The apparatus according to claim 93, wherein the time of switching from the first carrier to the second carrier is 0 microseconds or greater than 0 microseconds, or the time of switching

from the second carrier to the first carrier is 0 microseconds or greater than 0 microseconds.

95. The apparatus according to any one of claims 92 to 94, wherein

the communication unit is further configured to send first capability information to the network device, wherein the first capability information is used to indicate a quantity of radio frequency channels supported on the first carrier and a quantity of radio frequency channels supported on the second carrier when the communication apparatus performs uplink transmission on the first carrier and the second carrier in time division multiplexing mode.

96. The apparatus according to any one of claims 92 to 95, wherein

the communication unit is further configured to send second capability information to the network device, wherein the second capability information is used to indicate a quantity of radio frequency channels supported on the first carrier and a quantity of radio frequency channels supported on the second carrier when the communication apparatus performs uplink transmission on the first carrier and the second carrier in simultaneous transmission mode.

97. The apparatus according to claim 95 or 96, wherein the quantity of radio frequency channels supported on the first carrier when the communication apparatus performs uplink transmission on the first carrier and the second carrier in time division multiplexing mode is greater than the quantity of radio frequency channels supported on the first carrier when the communication apparatus performs uplink transmission on the first carrier and the second carrier in simultaneous transmission mode.

98. The apparatus according to any one of claims 92 to 97, wherein

the communication unit is further configured to receive first indication information from the network device, wherein the first indication information is used to indicate the communication apparatus to perform uplink transmission on the first carrier and the second carrier in time division multiplexing mode; and

the processing unit is further configured to perform, based on the first indication information, uplink transmission on the first carrier and the second carrier in time division multiplexing mode by using the communication unit.

99. The apparatus according to claim 98, wherein the first indication information is further used to indicate a quantity of radio frequency channels used on the first carrier and a quantity of radio frequency channels used on the second carrier when the communication apparatus performs uplink transmission on the first carrier and the second carrier in time division multiplexing mode.

~~100. The apparatus according to claim 99, wherein the quantity of radio frequency channels used on the first carrier when the communication apparatus performs uplink transmission on the first carrier and the second carrier in time division multiplexing mode is equal to the quantity of radio frequency channels supported on the first carrier when the communication apparatus performs uplink transmission on the first carrier and the second carrier in time division multiplexing mode.~~

~~101. The apparatus according to claim 99 or 100, wherein the quantity of radio frequency channels used on the second carrier when the communication apparatus performs uplink transmission on the first carrier and the second carrier in time division multiplexing mode is equal to the quantity of radio frequency channels supported on the second carrier when the communication apparatus performs uplink transmission on the first carrier and the second carrier in time division multiplexing mode.~~

~~102. The apparatus according to any one of claims 92 to 101, wherein~~

~~the processing unit is further configured to switch from the first carrier to the second carrier on a silent time domain resource, wherein a preceding symbol adjacent to the silent time domain resource belongs to a transmission time domain resource of the first carrier, and a subsequent symbol adjacent to the silent time domain resource belongs to a transmission time domain resource of the second carrier.~~

~~103. The apparatus according to claim 102, wherein a length of the silent time domain resource is greater than or equal to the switching time between the first carrier and the second carrier.~~

~~104. The apparatus according to claim 102 or 103, wherein the processing unit is specifically configured to:~~

~~switch one or more radio frequency channels from the first carrier to the second carrier on the silent time domain resource.~~

~~105. A communication apparatus, comprising a processing unit and a communication unit, wherein~~

~~the communication unit is configured to receive inter-carrier switching time information from a terminal, wherein if switching time between any two of N carriers is the same, the inter-carrier switching time information indicates the switching time between any two of the N carriers; if switching time between any two different carriers in the N carriers is different, the inter-carrier~~

switching time information indicates the switching time between every two different carriers in the N carriers; or the inter-carrier switching time information indicates switching time between two carriers with a longest switching time in the N carriers, wherein N is an integer greater than 1; and

the processing unit is configured to schedule data on the N carriers based on the inter-carrier switching time information.

106. The apparatus according to claim 105, wherein

the communication unit is further configured to send third indication information to the terminal, wherein the third indication information is used to indicate the terminal to report the inter-carrier switching time information.

107. The apparatus according to claim 105 or 106, wherein the N carriers are carriers between the terminal and the communication apparatus.

108. The apparatus according to claim 108, wherein the N carriers further comprise a carrier between the terminal and a communication apparatus different from the communication apparatus.

109. The apparatus according to any one of claims 105 to 108, wherein the N carriers comprise a first carrier and a second carrier.

110. The apparatus according to claim 109, wherein switching time between the first carrier and the second carrier comprises time of switching from the first carrier to the second carrier, time of switching from the second carrier to the first carrier, or both time of switching from the first carrier to the second carrier and time of switching from the second carrier to the first carrier.

111. The apparatus according to claim 110, wherein the time of switching from the first carrier to the second carrier is 0 microseconds or greater than 0 microseconds, or the time of switching from the second carrier to the first carrier is 0 microseconds or greater than 0 microseconds.

112. The apparatus according to any one of claims 109 to 111, wherein

the communication unit is further configured to receive first capability information from the terminal, wherein the first capability information is used to indicate a quantity of radio frequency channels supported on the first carrier and a quantity of radio frequency channels supported on the second carrier when the terminal performs uplink transmission on the first carrier and the second carrier in time division multiplexing mode; and

the processing unit is further configured to determine the quantity of radio frequency channels supported on the first carrier and the quantity of radio frequency channels supported on the second

carrier when the terminal performs uplink transmission on the first carrier and the second carrier in time division multiplexing mode.

113. The apparatus according to any one of claims 109 to 112, wherein

the communication unit is further configured to receive second capability information from the terminal, wherein the second capability information is used to indicate a quantity of radio frequency channels supported on the first carrier and a quantity of radio frequency channels supported on the second carrier when the terminal performs uplink transmission on the first carrier and the second carrier in simultaneous transmission mode; and

the processing unit is further configured to determine the quantity of radio frequency channels supported on the first carrier and the quantity of radio frequency channels supported on the second carrier when the terminal performs uplink transmission on the first carrier and the second carrier in simultaneous transmission mode.

114. The apparatus according to claim 112 or 113, wherein the quantity of radio frequency channels supported on the first carrier when the terminal performs uplink transmission on the first carrier and the second carrier in time division multiplexing mode is greater than the quantity of radio frequency channels supported on the first carrier when the terminal performs uplink transmission on the first carrier and the second carrier in simultaneous transmission mode.

115. The apparatus according to any one of claims 109 to 114, wherein

the communication unit is further configured to send first indication information to the terminal, wherein the first indication information is used to indicate the terminal to perform uplink transmission on the first carrier and the second carrier in time division multiplexing mode.

116. The apparatus according to claim 115, wherein the first indication information is further used to indicate a quantity of radio frequency channels used on the first carrier and a quantity of radio frequency channels used on the second carrier when the terminal performs uplink transmission on the first carrier and the second carrier in time division multiplexing mode.

117. The apparatus according to claim 116, wherein the quantity of radio frequency channels used on the first carrier when the terminal performs uplink transmission on the first carrier and the second carrier in time division multiplexing mode is equal to the quantity of radio frequency channels supported on the first carrier when the terminal performs uplink transmission on the first carrier and the second carrier in time division multiplexing mode.

118. The apparatus according to claim 116 or 117, wherein the quantity of radio frequency

channels used on the second carrier when the terminal performs uplink transmission on the first carrier and the second carrier in time division multiplexing mode is equal to the quantity of radio frequency channels supported on the second carrier when the terminal performs uplink transmission on the first carrier and the second carrier in time division multiplexing mode.

119. The apparatus according to any one of claims 109 to 118, wherein

the processing unit is further configured to: determine a silent time domain resource, and keep silent on the silent time domain resource, wherein a preceding symbol adjacent to the silent time domain resource belongs to a transmission time domain resource of the first carrier, and a subsequent symbol adjacent to the silent time domain resource belongs to a transmission time domain resource of the second carrier.

120. The apparatus according to claim 119, wherein a length of the silent time domain resource is greater than or equal to the switching time between the first carrier and the second carrier.

121. A communication apparatus, comprising a processing unit and a communication unit, wherein

the processing unit is configured to perform uplink transmission on N carriers in time division multiplexing mode by using the communication unit, wherein a quantity of radio frequency channels used on each of the N carriers is a quantity of radio frequency channels supported on the carrier when the communication apparatus performs uplink transmission on the N carriers in time division multiplexing mode, a quantity of radio frequency channels supported on a first carrier when the communication apparatus performs uplink transmission on the N carriers in time division multiplexing mode is greater than a quantity of radio frequency channels supported on the first carrier when the communication apparatus performs uplink transmission on the N carriers in simultaneous transmission mode, the first carrier is one of the N carriers, and N is an integer greater than 1.

122. The apparatus according to claim 121, wherein

the processing unit is further configured to send first capability information to a network device by using the communication unit, wherein the first capability information is used to indicate the quantity of radio frequency channels supported on each of the N carriers when the terminal performs uplink transmission on the N carriers in time division multiplexing mode.

123. The apparatus according to claim 122, wherein

the processing unit is further configured to send second capability information to the network device by using the communication unit, wherein the second capability information is used to indicate a quantity of radio frequency channels supported on the first carrier and a quantity of radio frequency channels supported on a second carrier when the communication apparatus performs uplink transmission on the first carrier and the second carrier in simultaneous transmission mode.

124. The apparatus according to any one of claims 121 to 123, wherein

the processing unit is further configured to receive first indication information from the network device by using the communication unit, wherein the first indication information is used to indicate the terminal to perform uplink transmission on the N carriers in time division multiplexing mode; and

the processing unit is specifically configured to perform, based on the first indication information, uplink transmission on the N carriers in time division multiplexing mode by using the communication unit.

125. The apparatus according to claim 124, wherein the first indication information is further used to indicate the quantity of radio frequency channels used on each of the N carriers when the communication apparatus performs uplink transmission on the N carriers in time division multiplexing mode.

126. The apparatus according to any one of claims 121 to 125, wherein

the processing unit is further configured to send inter-carrier switching time information to the network device by using the communication unit, wherein if switching time between any two of the N carriers is the same, the inter-carrier switching time information indicates the switching time between any two of the N carriers; if switching time between any two different carriers in the N carriers is different, the inter-carrier switching time information indicates the switching time between every two different carriers in the N carriers; or the inter-carrier switching time information indicates switching time between two carriers with a longest switching time in the N carriers.

127. The apparatus according to claim 126, wherein

the processing unit is further configured to receive third indication information from the network device by using the communication unit, wherein the third indication information is used to indicate the communication apparatus to report the inter-carrier switching time information.

128. The apparatus according to any one of claims 121 to 127, wherein the N carriers are

carriers between the communication apparatus and the network device.

129. The apparatus according to claim 128, wherein the N carriers further comprise a carrier between the communication apparatus and a network device different from the network device.

130. The apparatus according to any one of claims 121 to 129, wherein

the processing unit is further configured to perform uplink transmission on a third carrier by using the communication unit, wherein uplink transmission is performed on the third carrier and any one of the N carriers in simultaneous transmission mode within a first time range.

131. The apparatus according to any one of claims 121 to 130, wherein the N carriers comprise the first carrier and the second carrier.

132. The apparatus according to claim 131, wherein

the processing unit is further configured to switch from the first carrier to the second carrier on a silent time domain resource, wherein a preceding symbol adjacent to the silent time domain resource belongs to a transmission time domain resource of the first carrier, and a subsequent symbol adjacent to the silent time domain resource belongs to a transmission time domain resource of the second carrier.

133. The apparatus according to claim 132, wherein a length of the silent time domain resource is greater than or equal to the switching time between the first carrier and the second carrier.

134. The apparatus according to claim 132 or 133, wherein the processing unit is specifically configured to:

switch one or more radio frequency channels from the first carrier to the second carrier on the silent time domain resource.

135. A communication apparatus, comprising a processor, wherein the processor is coupled to a memory, the memory is configured to store a computer program or instructions, and the processor is configured to execute the computer program or the instructions stored in the memory, so that the method according to any one of claims 1 to 10, the method according to any one of claims 11 to 20, the method according to any one of claims 21 to 37, the method according to any one of claims 38 to 53, or the method according to any one of claims 54 to 67 is performed.

136. A computer-readable storage medium, wherein the storage medium is configured to store a computer program or instructions; and when the computer program or the instructions is or are executed, the method according to any one of claims 1 to 10, the method according to any one of

~~claims 11 to 20, the method according to any one of claims 21 to 37, the method according to any one of claims 38 to 53, or the method according to any one of claims 54 to 67 is performed.~~

~~137. A computer program product, wherein the computer program product comprises instructions; and when the instructions are run, the method according to any one of claims 1 to 10, the method according to any one of claims 11 to 20, the method according to any one of claims 21 to 37, the method according to any one of claims 38 to 53, or the method according to any one of claims 54 to 67 is performed.~~

~~138. A chip, wherein the chip comprises a processor and an interface circuit, the interface circuit is coupled to the processor, and the processor is configured to run a computer program or instructions, to implement the method according to any one of claims 1 to 10, the method according to any one of claims 11 to 20, the method according to any one of claims 21 to 37, the method according to any one of claims 38 to 53, or the method according to any one of claims 54 to 67.~~

~~139. A communication apparatus, wherein the communication apparatus is configured to implement the method according to any one of claims 1 to 10, the method according to any one of claims 11 to 20, the method according to any one of claims 21 to 37, the method according to any one of claims 38 to 53, or the method according to any one of claims 54 to 67.~~

~~140. A communication system, wherein the communication system comprises a terminal configured to perform the method according to any one of claims 1 to 10 and a network device configured to perform the method according to any one of claims 11 to 20, or the communication system comprises a terminal configured to perform the method according to any one of claims 21 to 37 and a network device configured to perform the method according to any one of claims 38 to 53, or the communication system comprises a network device and a terminal configured to perform the method according to any one of claims 54 to 67.~~