CLAIMS

What is claimed is:

1. A state indication method, wherein the method comprises:

receiving, by a relay core network device, first state indication information transmitted by a first device, wherein the first state indication information comprises at least one of first indication information and second indication information, the first indication information indicates that relay user equipment UE is performing UE-to-network relay communication, and the second indication information indicates that the relay UE is performing UE-to-network relay communication for an emergency service, wherein

the first state indication information is used for determining that a release procedure of a non-access stratum NAS signaling connection of the relay UE is not to be initiated.

2. The method according to claim 1, wherein the first device is the relay UE or an access network device of the relay UE; and

before the receiving, by a relay core network device, first state indication information transmitted by a first device, the method further comprises:

transmitting, by the relay core network device, a release request message to the first device, wherein the release request message is used to request to release a NAS signaling connection of the relay UE.

3. The method according to claim 1, wherein the first device is the relay UE or an access network device of the relay UE; and

after the receiving, by a relay core network device, first state indication information transmitted by a first device, the method further comprises:

storing, by the relay core network device, the first state indication information into a context of the relay UE.

4. The method according to claim 3, wherein the first device is the access network device of the relay UE; and

before the storing, by the relay core network device, the first state indication information into a context of the relay UE, the method further comprises:

receiving, by the relay core network device, identifier information of the relay UE that is transmitted by the access network device.

5. The method according to claim 1, wherein the first device is a remote core network device; and

the method further comprises:

receiving, by the relay core network device, identifier information of the relay UE and identifier information of remote UE that are transmitted by the remote core network device; and

storing, by the relay core network device, the first state indication information and the identifier information of the remote UE into the context of the relay UE.

6. The method according to claim 1, wherein the first device is the relay UE or an access network device of the relay UE; and

after the receiving, by a relay core network device, first state indication information transmitted by a first device, the method further comprises:

receiving, by the relay core network device, second state indication information transmitted by the first device, wherein the second state indication information is used for determining that the restriction of not initiating a release procedure of a NAS signaling connection of the relay UE is to be removed; and

deleting, by the relay core network device, the first state indication information from the context of the relay UE according to the second state indication information.

7. The method according to claim 6, wherein the second state indication information comprises at least one of third indication information and fourth indication information, wherein

the third indication information indicates that the relay UE has completed the UE-to-network relay communication, or indicates that a connection for the UE-to-network relay communication has been released; and

the fourth indication information indicates that the relay UE has completed the UE-to-network relay communication for the emergency service, or indicates that a

connection for the UE-to-network relay communication for the emergency service has been released.

8. The method according to claim 1, wherein the first device is a remote core network device; and

after the receiving, by a relay core network device, first state indication information transmitted by a first device, the method further comprises:

receiving, by the relay core network device, third state indication information transmitted by the first device, wherein the third state indication information is used for determining whether the restriction of not initiating a release procedure of a NAS signaling connection of the relay UE is to be removed;

deleting, by the relay core network device, first state indication information corresponding to first remote UE from the context of the relay UE according to the third state indication information; and

if the context of the relay UE further comprises first state indication information corresponding to other remote UE, determining not to remove the restriction of not initiating a release procedure of a NAS signaling connection of the relay UE; or

if the context of the relay UE does not comprise first state indication information corresponding to other remote UE, determining to remove the restriction of not initiating a release procedure of a NAS signaling connection of the relay UE.

9. The method according to claim 8, wherein the third state indication information comprises at least one of fifth indication information and sixth indication information, wherein

the fifth indication information indicates that the relay UE and the first remote UE have completed UE-to-network relay communication, or indicates that a connection for UE-to-network relay communication between the relay UE and the first remote UE has been released; and

the sixth indication information indicates that the relay UE and the first remote UE have completed UE-to-network relay communication for an emergency service, or indicates that a connection for UE-to-network relay communication for an emergency service between the relay UE and the first remote UE has been released.

10. A state indication method, wherein the method comprises:

transmitting, by a first device, first state indication information to a relay core network device, wherein the first state indication information comprises at least one of first indication information and second indication information, the first indication information indicates that relay user equipment UE is performing UE-to-network relay communication, and the second indication information indicates that the relay UE is performing UE-to-network relay communication for an emergency service, wherein

the first state indication information is used for determining that a release procedure of a non-access stratum NAS signaling connection of the relay UE is not to be initiated.

11. The method according to claim 10, wherein the first device is the relay UE or an access network device of the relay UE; and

before the transmitting, by a first device, first state indication information to a relay core network device, the method further comprises:

receiving, by first device, a release request message transmitted by the relay core network device, wherein the release request message is used to request to release a NAS signaling connection of the relay UE, wherein

the first state indication information comprises the second indication information.

12. The method according to claim 10, wherein the first device is a remote core network device; and

before the transmitting, by a first device, first state indication information to a relay core network device, the method further comprises:

receiving, by a remote core network device, first state indication information and identifier information of the relay UE that are transmitted by remote UE; and

transmitting, by the remote core network device, the identifier information of the relay UE and identifier information of the remote UE to the relay core network device.

13. The method according to claim 10, wherein the first device is the relay UE or an access network device of the relay UE; and

after the transmitting, by a first device, first state indication information to a relay core network device, the method further comprises:

transmitting, by the first device, second state indication information to the relay core network device, wherein the second state indication information is used for determining that the restriction of not initiating a release procedure of a NAS signaling connection of the relay UE is to be removed.

14. The method according to claim 13, wherein the second state indication information comprises at least one of third indication information and fourth indication information, wherein

the third indication information indicates that the relay UE has completed the UE-to-network relay communication, or indicates that a connection for the UE-to-network relay communication has been released; and

the fourth indication information indicates that the relay UE has completed the UE-to-network relay communication for the emergency service, or indicates that a connection for the UE-to-network relay communication for the emergency service has been released.

15. The method according to claim 10, wherein the first device is a remote core network device; and

after the transmitting, by a first device, first state indication information to a relay core network device, the method further comprises:

transmitting, by the remote core network device, third state indication information to the relay core network device, wherein the third state indication information is used for determining whether the restriction of not initiating a release procedure of a NAS signaling connection of the relay UE is to be removed.

16. The method according to claim 15, wherein the third state indication information comprises at least one of fifth indication information and sixth indication information, wherein

the fifth indication information indicates that the relay UE and first remote UE have completed UE-to-network relay communication, or indicates that a connection for UE-to-network relay communication between the relay UE and the first remote UE has been released; and

the sixth indication information indicates that the relay UE and the first remote UE have completed UE-to-network relay communication for an emergency service, or indicates that a connection for UE-to-network relay communication for an emergency service between the relay UE and the first remote UE has been released.

17. A core network device, wherein the core network device is a relay core network device, and the core network device comprises a receiving module, wherein

the receiving module is configured to receive first state indication information transmitted by a first device, wherein the first state indication information comprises at least one of first indication information and second indication information, the first indication information indicates that relay user equipment UE is performing UE-to-network relay communication, and the second indication information indicates that the relay UE is performing UE-to-network relay communication for an emergency service, wherein

the first state indication information is used for determining that a release procedure of a non-access stratum NAS signaling connection of the relay UE is not to be initiated.

~~18. The core network device according to claim 17, wherein the first device is the relay UE or an access network device of the relay UE, and the core network device further comprises a transmitting module, wherein~~

~~the transmitting module is configured to: before the receiving module receives the first state indication information transmitted by the first device, transmit a release request message to the first device, wherein the release request message is used to request to release a NAS signaling connection of the relay UE.~~

~~19. The core network device according to claim 17, wherein the first device is the relay UE or an access network device of the relay UE, and the core network device further comprises a storage module, wherein~~

~~the storage module is configured to: after the receiving module receives the first state indication information transmitted by the first device, store the first state indication information into a context of the relay UE.~~

~~20. The core network device according to claim 19, wherein the first device is the access network device of the relay UE; and~~

~~the receiving module is further configured to: before the storage module stores the first state indication information into the context of the relay UE, receive identifier information of the relay UE that is transmitted by the access network device.~~

~~21. The core network device according to claim 17, wherein the first device is a remote core network device, and the core network device further comprises a storage module, wherein~~

~~the receiving module is further configured to receive identifier information of the relay UE and identifier information of remote UE that are transmitted by the remote core network device; and~~

~~the storage module is configured to store the first state indication information and the identifier information of the remote UE that are received by the receiving module into the context of the relay UE.~~

~~22. The core network device according to claim 17, wherein the first device is the relay UE or an access network device of the relay UE, and the core network device further comprises a deletion module, wherein~~

~~the receiving module is further configured to: after receiving the first state indication information transmitted by the first device, receive second state indication information transmitted by the first device, wherein the second state indication information is used for determining that the restriction of not initiating a release procedure of a NAS signaling connection of the relay UE is to be removed; and~~

~~the deletion module is configured to delete the first state indication information from the context of the relay UE according to the second state indication information received by the receiving module.~~

~~23. The core network device according to claim 22, wherein the second state indication information comprises at least one of third indication information and fourth indication information, wherein~~

the third indication information indicates that the relay UE has completed the UE-to-network relay communication, or indicates that a connection for the UE-to-network relay communication has been released; and

the fourth indication information indicates that the relay UE has completed the UE-to-network relay communication for the emergency service, or indicates that a connection for the UE-to-network relay communication for the emergency service has been released.

24. The core network device according to claim 17, wherein the first device is a remote core network device, and the core network device further comprises a deletion module and a determining module, wherein

the receiving module is further configured to: after receiving the first state indication information transmitted by the first device, receive third state indication information transmitted by the first device, wherein the third state indication information is used for determining whether the restriction of not initiating a release procedure of a NAS signaling connection of the relay UE is to be removed;

the deletion module is configured to delete first state indication information corresponding to first remote UE from the context of the relay UE according to the third state indication information; and

the determining module is configured to: after the deletion module deletes the first state indication information corresponding to the first remote UE, in a case that the context of the relay UE further comprises first state indication information corresponding to other remote UE, determine that the restriction of not initiating a release procedure of a NAS signaling connection of the relay UE is not to be removed; or in a case that the context of the relay UE does not comprise first state indication information corresponding to other remote UE, determine that the restriction of not initiating a release procedure of a NAS signaling connection of the relay UE is to be removed.

25. The core network device according to claim 24, wherein the third state indication information comprises at least one of fifth indication information and sixth indication information, wherein

~~the fifth indication information indicates that the relay UE and the first remote UE have completed UE-to-network relay communication, or indicates that a connection for UE-to-network relay communication between the relay UE and the first remote UE has been released; and~~

~~the sixth indication information indicates that the relay UE and the first remote UE have completed UE-to-network relay communication for an emergency service, or indicates that a connection for UE-to-network relay communication for an emergency service between the relay UE and the first remote UE has been released.~~

~~26~~18. A device, wherein the device is a first device, and the first device comprises a transmitting unit, wherein

the transmitting unit is configured to transmit first state indication information to a relay core network device, wherein the first state indication information comprises at least one of first indication information and second indication information, the first indication information indicates that relay user equipment UE is performing UE-to-network relay communication, and the second indication information indicates that the relay UE is performing UE-to-network relay communication for an emergency service, wherein

the first state indication information is used for determining that a release procedure of a non-access stratum NAS signaling connection of the relay UE is not to be initiated.

~~27. The device according to claim 26, wherein the first device is the relay UE or an access network device of the relay UE, and the first device further comprises a receiving unit, wherein~~

~~the receiving unit is configured to: before the transmitting unit transmits the first state indication information to the relay core network device, receive a release request message transmitted by the relay core network device, wherein the release request message is used to request to release a NAS signaling connection of the relay UE, wherein~~

~~the first state indication information comprises the second indication information.~~

~~28. The device according to claim 26, wherein the first device is a remote core network device; and~~

~~the first device further comprises a receiving unit, wherein~~

~~the receiving unit is configured to: before the transmitting unit transmits the first state indication information to the relay core network device, receive the first state indication information and identifier information of the relay UE that are transmitted by remote UE; and~~

~~the transmitting unit is further configured to transmit the identifier information of the relay UE and identifier information of the remote UE to the relay core network device.~~

~~29. The device according to claim 26, wherein the first device is the relay UE or an access network device of the relay UE; and~~

~~the transmitting unit is further configured to: after transmitting the first state indication information to the relay core network device, transmit second state indication information to the relay core network device, wherein the second state indication information is used for determining that the restriction of not initiating a release procedure of a NAS signaling connection of the relay UE is to be removed.~~

~~30. The device according to claim 29, wherein the second state indication information comprises at least one of third indication information and fourth indication information, wherein~~

~~the third indication information indicates that the relay UE has completed the UE-to-network relay communication, or indicates that a connection for the UE-to-network relay communication has been released; and~~

~~the fourth indication information indicates that the relay UE has completed the UE-to-network relay communication for the emergency service, or indicates that a connection for the UE-to-network relay communication for the emergency service has been released.~~

~~31. The device according to claim 26, wherein the first device is a remote core network device; and~~

~~the transmitting unit is further configured to: after transmitting the first state indication information to the relay core network device, transmit third state indication information to the relay core network device, wherein the third state indication information is used for determining whether the restriction of not initiating a release procedure of a NAS signaling connection of the relay UE is to be removed.~~

~~32. The device according to claim 31, wherein the third state indication information comprises at least one of fifth indication information and sixth indication information, wherein~~

~~the fifth indication information indicates that the relay UE and first remote UE have completed UE-to-network relay communication, or indicates that a connection for UE-to-network relay communication between the relay UE and the first remote UE has been released; and~~

~~the sixth indication information indicates that the relay UE and the first remote UE have completed UE-to-network relay communication for an emergency service, or indicates that a connection for UE-to-network relay communication for an emergency service between the relay UE and the first remote UE has been released.~~

~~33~~19. A core network device, comprising a processor, a memory, and a program or instructions stored in the memory and capable of running on the processor, wherein when the program or instructions are executed by the processor, the steps of the state indication method according to any one of claims 1 to 9 are implemented.

~~34~~20. A device, comprising a processor, a memory, and a program or instructions stored in the memory and capable of running on the processor, wherein when the program or instructions are executed by the processor, the steps of the state indication method according to any one of claims 10 to 16 are implemented.

~~35. A communication system, comprising the core network device according to any one of claims 17 to 25 and the device according to any one of claims 26 to 32; or~~

~~the communication system comprises the core network device according to claim 33 and the device according to claim 34.~~

~~36. A readable storage medium, wherein the readable storage medium stores a program or instructions, and when the program or the instructions are executed by a~~

~~processor, the steps of the state indication method according to any one of claims 1 to 16 are implemented.~~

~~37. A computer program product, wherein the computer program product is executed by at least one processor to implement the state indication method according to any one of claims 1 to 16.~~

~~38. A core network device, wherein the core network device is configured to perform the steps of the state indication method according to any one of claims 1 to 9.~~

~~39. A device, wherein the device is configured to perform the steps of the state indication method according to any one of claims 10 to 16.~~