CLAIMS

What is claimed is:

1. A connection method, comprising:

obtaining, by an access network device, connection mode preference information of a first terminal device, wherein the connection mode preference information indicates a connection mode preference of the first terminal device; and

sending, by the access network device, path switching information to the first terminal device based on the connection mode preference information, wherein the path switching information is used to switch a connection mode between the first terminal device and the access network device.

2. The method according to claim 1, wherein the connection mode preference comprises:

Uu interface and PC5 interface dual connectivity;

Uu interface single connectivity; or

PC5 interface single connectivity.

3. The method according to claim 1 or 2, wherein the connection mode preference is a Uu interface and PC5 interface dual connectivity, and the sending, by the access network device, path switching information to the first terminal device based on the connection mode preference information comprises:

~~when the connection mode preference is a Uu interface and PC5 interface dual connectivity,~~ if the connection mode currently used between the first terminal device and the access network device is a PC5 interface single connectivity, and a signal of a Uu interface of the first terminal device meets a first preset condition, determining, by the access network device, to switch the connection mode between the first terminal device and the access network device to the Uu interface and PC5 interface dual connectivity; and

sending, by the access network device, the path switching information to the first terminal device, wherein the path switching information comprises first indication information, and the first indication information indicates the first terminal device to establish a Uu interface connection to the access network device, and maintain a PC5 interface connection to a relay device.

4. The method according to claim 3, wherein before the determining, by the access network device, to switch the connection mode between the first terminal device and the access network device to the Uu interface and PC5 interface dual connectivity, the method further comprises:

determining, by the access network device based on path support capability information of the first terminal device, that the first terminal device supports the Uu interface and PC5 interface dual connectivity.

5. The method according to claim 3 or 4, wherein the first preset condition comprises at least one of:

a signal strength of the Uu interface is greater than or equal to a first strength threshold;

a signal strength of the Uu interface is greater than a first strength threshold;

signal quality of the Uu interface is greater than or equal to a first quality threshold;

signal quality of the Uu interface is greater than a first quality threshold;

a signal-to-noise ratio of the Uu interface is greater than or equal to a first signal-to-noise ratio threshold; or

a signal-to-noise ratio of the Uu interface is greater than a first signal-to-noise ratio threshold.

6. The method according to any one of claims 1 to 5, wherein the connection mode preference of the first terminal device is a connection mode in which the first terminal device is allowed to be connected to an access network device.

~~5. The method according to claim 1 or 2, wherein the sending, by the access network device, path switching information to the first terminal device based on the connection mode preference information comprises:~~

~~when the connection mode preference is the Uu interface and PC5 interface dual connectivity, if the connection mode currently used between the first terminal device and the access network device is the Uu interface and PC5 interface dual connectivity, and a signal of a Uu interface of the first terminal device meets a second preset condition, determining, by the access network device, to switch the connection mode between the first terminal device and the access network device to the PC5 interface single connectivity; and~~

~~sending, by the access network device, the path switching information to the first terminal device, wherein the path switching information comprises second indication information, and the second indication information indicates the first terminal device to release a Uu interface connection to the access network device, and maintain a PC5 interface connection to a relay device.~~

~~6. The method according to claim 1 or 2, wherein the sending, by the access network device, path switching information to the first terminal device based on the connection mode preference information comprises:~~

~~when the connection mode preference is the Uu interface single connectivity, if the connection mode currently used between the first terminal device and the access network device is the PC5 interface single connectivity, and a signal of a Uu interface of the first terminal device meets a first preset condition, determining, by the access network device, to switch the connection mode between the first terminal device and the access network device to the Uu interface single connectivity; and~~

~~sending, by the access network device, the path switching information to the first terminal device, wherein the path switching information comprises third indication information, and the third indication information indicates the first terminal device to establish a Uu interface connection to the access network device, and release a PC5 interface connection to a relay device.~~

~~7. The method according to claim 1 or 2, wherein the sending, by the access network device, path switching information to the first terminal device based on the connection mode preference information comprises:~~

~~when the connection mode preference is the Uu interface single connectivity, if the connection mode currently used between the first terminal device and the access network device is the Uu interface single connectivity, and a signal of a Uu interface of the first terminal device does not meet a first preset condition, determining, by the access network device, to switch the connection mode between the first terminal device and the access network device to the PC5 interface single connectivity; and~~

~~sending, by the access network device, the path switching information to the first terminal device, wherein the path switching information comprises fourth indication information, and the fourth indication information indicates the first terminal device to establish a PC5 interface connection to a relay device, and release a Uu interface connection to the access network device.~~

~~8~~7. The method according to any one of claims 1 to ~~7~~6, wherein the obtaining, by an access network device, connection mode preference information of a first terminal device comprises:

receiving, by the access network device, the connection mode preference information from a first network device, wherein the first network device is an access and mobility management function device or a session management device.

8. The method according to any one of claims 1 to 6, wherein the obtaining, by an access network device, connection mode preference information of a first terminal device comprises:~~; or~~

receiving, by the access network device, the connection mode preference information from

the first terminal device.

9. A connection method, comprising:

obtaining, by a first network device, connection mode preference information of a first terminal device, wherein the connection mode preference information indicates a connection mode preference of the first terminal device; and

sending, by the first network device, the connection mode preference information to an access network device.

10. The method according to claim 9, wherein the obtaining, by a first network device, connection mode preference information of a first terminal device comprises:

obtaining, by the first network device, subscription data of the first terminal device; and

obtaining, by the first network device, the connection mode preference information based on the subscription data of the first terminal device.

11. The method according to claim 9 or 10, wherein the first network device is an access and mobility management function device, and before the obtaining, by a first network device, connection mode preference information of a first terminal device, the method further comprises:

receiving, by the access and mobility management function device, a registration request from the first terminal device, wherein the registration request comprises path support capability information of the first terminal device, wherein

the path support capability information indicates that the first terminal device supports one or more of the following: Uu interface and PC5 interface dual connectivity, Uu interface single connectivity, or PC5 interface single connectivity.

12. The method according to any one of claims 9 to 11, wherein the connection mode preference of the first terminal device is a connection mode in which the first terminal device is allowed to be connected to an access network device.

1~~2~~3. A connection method, comprising:

determining, by a first terminal device, a connection mode preference; and

sending, by the first terminal device, connection mode preference information to an access network device, wherein the connection mode preference information indicates the connection mode preference of the first terminal device.

1~~3~~4. The method according to claim 1~~2~~3, wherein the connection mode preference of the first terminal device is a connection mode in which the first terminal device is allowed to be connected

to an access network device.~~the connection mode preference information is carried in a measurement report.~~

~~14. The method according to claim 12 or 13, wherein the method further comprises:~~

~~sending, by the first terminal device, a registration request to an access and mobility management function device, wherein the registration request comprises path support capability information of the first terminal device, wherein~~

~~the path support capability information indicates that the first terminal device supports one or more of the following: Uu interface and PC5 interface dual connectivity, Uu interface single connectivity, or PC5 interface single connectivity.~~

~~15. The method according to any one of claims 12 to 14, wherein the determining, by a first terminal device, a connection mode preference comprises:~~

~~determining, by the first terminal device, the connection mode preference based on one or two of a service scenario and an expected movement track.~~

1~~6~~5. The method according to ~~any one of~~ claim~~s 12~~ 13 or 14~~to 15~~, wherein the method further comprises:

receiving, by the first terminal device, path switching information from the access network device; and

switching, by the first terminal device, a connection mode between the first terminal device and the access network device based on the path switching information, wherein

the path switching information comprises first indication information, and the first indication information indicates the first terminal device to establish a Uu interface connection to the access network device, and maintain a PC5 interface connection to a relay device~~;~~

~~the path switching information comprises second indication information, and the second indication information indicates the first terminal device to release a Uu interface connection to the access network device, and maintain a PC5 interface connection to a relay device;~~

~~the path switching information comprises third indication information, and the third indication information indicates the first terminal device to establish a Uu interface connection to the access network device, and release a PC5 interface connection to a relay device; or~~

~~the path switching information comprises fourth indication information, and the fourth indication information indicates the first terminal device to establish a PC5 interface connection to a relay device, and release a Uu interface connection to the access network device~~.

~~17. A connection apparatus, comprising:~~

~~a receiving unit, configured to obtain connection mode preference information of a first terminal device, wherein the connection mode preference information indicates a connection mode preference of the first terminal device; and~~

~~a sending unit, configured to send path switching information to the first terminal device based on the connection mode preference information, wherein the path switching information is used to switch a connection mode between the first terminal device and the access network device.~~

~~18. The apparatus according to claim 17, wherein the connection mode preference comprises:~~

~~Uu interface and PC5 interface dual connectivity;~~

~~Uu interface single connectivity; or~~

~~PC5 interface single connectivity.~~

~~19. The apparatus according to claim 17 or 18, wherein~~

~~in an aspect of sending the path switching information to the first terminal device based on the connection mode preference information, the sending unit is specifically configured to:~~

~~when the connection mode preference is the Uu interface and PC5 interface dual connectivity, if the connection mode currently used between the first terminal device and the access network device is the PC5 interface single connectivity, and a signal of a Uu interface of the first terminal device meets a first preset condition, determine to switch the connection mode between the first terminal device and the access network device to the Uu interface and PC5 interface dual connectivity; and~~

~~send the path switching information to the first terminal device, wherein the path switching information comprises first indication information, and the first indication information indicates the first terminal device to establish a Uu interface connection to the access network device, and maintain a PC5 interface connection to a relay device.~~

~~20. The apparatus according to claim 19, wherein the connection apparatus further comprises a processor, and the processor is configured to determine, based on path support capability information of the first terminal device, that the first terminal device supports the Uu interface and PC5 interface dual connectivity.~~

~~21. The apparatus according to claim 17 or 18, wherein~~

~~in an aspect of sending the path switching information to the first terminal device based on the connection mode preference information, the sending unit is specifically configured to:~~

~~when the connection mode preference is the Uu interface and PC5 interface dual connectivity, if the connection mode currently used between the first terminal device and the access network device is the Uu interface and PC5 interface dual connectivity, and a signal of a Uu interface of the first terminal device does not meet a first preset condition, determine to switch the connection mode between the first terminal device and the access network device to the PC5 interface single connectivity; and~~

~~send the path switching information to the first terminal device, wherein the path switching information comprises second indication information, and the second indication information indicates the first terminal device to release a Uu interface connection to the access network device, and maintain a PC5 interface connection to a relay device.~~

~~22. The apparatus according to claim 17 or 18, wherein~~

~~in an aspect of sending the path switching information to the first terminal device based on the connection mode preference information, the sending unit is specifically configured to:~~

~~when the connection mode preference is the Uu interface single connectivity, if the connection mode currently used between the first terminal device and the access network device is the PC5 interface single connectivity, and a signal of a Uu interface of the first terminal device meets a first preset condition, determine to switch the connection mode between the first terminal device and the access network device to the Uu interface single connectivity; and~~

~~send the path switching information to the first terminal device, wherein the path switching information comprises third indication information, and the third indication information indicates the first terminal device to establish a Uu interface connection to the access network device, and release a PC5 interface connection to a relay device.~~

~~23. The apparatus according to claim 17 or 18, wherein~~

~~in an aspect of sending the path switching information to the first terminal device based on the connection mode preference information, the sending unit is specifically configured to:~~

~~when the connection mode preference is the Uu interface single connectivity, if the connection mode currently used between the first terminal device and the access network device is the Uu interface single connectivity, and a signal of a Uu interface of the first terminal device does not meet a first preset condition, determine to switch the connection mode between the first terminal device and the access network device to the PC5 interface single connectivity; and~~

~~send the path switching information to the first terminal device, wherein the path switching~~

information comprises fourth indication information, and the fourth indication information indicates the first terminal device to establish a PC5 interface connection to a relay device, and release a Uu interface connection to the access network device.

24. The apparatus according to any one of claims 17 to 23, wherein in an aspect of obtaining the connection mode preference information of the first terminal device, the receiving unit is specifically configured to:

receive the connection mode preference information from a first network device, wherein the first network device is an access and mobility management function device or a session management device; or

receive the connection mode preference information from the first terminal device.

25. A connection apparatus, comprising:

a receiving unit, configured to obtain connection mode preference information of a first terminal device, wherein the connection mode preference information indicates a connection mode preference of the first terminal device; and

a sending unit, configured to send the connection mode preference information to an access network device.

26. The apparatus according to claim 25, wherein in an aspect of obtaining the connection mode preference information of the first terminal device, the receiving unit is specifically configured to:

obtain subscription data of the first terminal device; and

obtain the connection mode preference information based on the subscription data of the first terminal device.

27. The apparatus according to claim 25 or 26, wherein the receiving unit is further configured to:

receive a registration request from the first terminal device, wherein the registration request comprises path support capability information of the first terminal device, and the path support capability information indicates that the first terminal device supports Uu interface and PC5 interface dual connectivity, or indicates that the first terminal device supports one of Uu interface single connectivity or PC5 interface single connectivity.

28. A connection apparatus, comprising:

a processing unit, configured to determine a connection mode preference; and

a sending unit, configured to send connection mode preference information to an access network device, wherein the connection mode preference information indicates the connection mode preference of a first terminal device.

29. The apparatus according to claim 28, wherein the connection mode preference information is carried in a measurement report or a registration request.

30. The apparatus according to claim 28 or 29, wherein the sending unit is further configured to:

send the registration request to an access and mobility management function device, wherein the registration request comprises path support capability information of the first terminal device, wherein

the path support capability information indicates that the first terminal device supports one or more of the following: Uu interface and PC5 interface dual connectivity, Uu interface single connectivity, or PC5 interface single connectivity.

31. The apparatus according to any one of claims 28 to 30, wherein in an aspect of determining the connection mode preference, the processing unit is specifically configured to:

determine the connection mode preference based on one or two of a service scenario and an expected movement track.

32. The apparatus according to any one of claims 28 to 31, wherein the apparatus further comprises:

a receiving unit, configured to receive path switching information from the access network device, wherein

the processing unit is further configured to switch a connection mode between the first terminal device and the access network device based on the path switching information, wherein

the path switching information comprises first indication information, and the first indication information indicates the first terminal device to establish a Uu interface connection to the access network device, and maintain a PC5 interface connection to a relay device;

the path switching information comprises second indication information, and the second indication information indicates the first terminal device to release a Uu interface connection to the access network device, and maintain a PC5 interface connection to a relay device;

the path switching information comprises third indication information, and the third indication information indicates the first terminal device to establish a Uu interface connection to

~~the access network device, and release a PC5 interface connection to a relay device; or~~

~~the path switching information comprises fourth indication information, and the fourth indication information indicates the first terminal device to establish a PC5 interface connection to a relay device, and release a Uu interface connection to the access network device.~~

~~33~~16. A communication device, comprising a processor, wherein the processor is coupled to a memory, and the memory is configured to store computer instructions; and the processor executes the computer instructions, to enable the communication device to perform the method according to any one of claims 1 to 1~~6~~5.

~~34~~17. A communication system, wherein the system comprises an access network device and a first network device, wherein

the access network device is configured to perform the method according to any one of claims 1 to 7; and

the first network device is configured to perform the method according to any one of claims 9 to 12~~the connection apparatus according to any one of claims 17 to 24, the connection apparatus according to any one of claims 25 to 27, and the connection apparatus according to any one of claims 28 to 32~~.

18. A communication system, wherein the system comprises an access network device and a first terminal device, wherein

the access network device is configured to perform the method according to any one of claims 1 to 8; and

the first terminal device is configured to perform the method according to any one of claims 13 to 15.

~~35~~19. A computer-readable storage medium, wherein the computer-readable storage medium stores computer instructions; and the computer instructions instruct a communication device to perform the method according to any one of claims 1 to 1~~6~~5.

~~36~~20. A chip, comprising a processor and an interface, and configured to execute a computer program or instructions stored in a memory, to perform the method according to any one of claims 1 to 1~~6~~5.