

CLAIMS

5 1. A handover method, comprising:

triggering, by a first access network device, at least one of a terminal device or
a second access network device to configure a second protocol stack, the second
protocol stack being configured to maintain at least one of: a sequence of data packets
between the second access network device and the terminal device, or a security key
10 of the data packets between the second access network device and the terminal device;
and

before the first access network device triggers the at least one of the terminal
device or the second access network device to maintain the sequence of the data
packets of the terminal device by use of the second protocol stack, sequentially
15 processing, by the first access network device, data packets to be processed of the
terminal device by use of a first protocol stack, wherein

the data packets to be processed comprise first data packets, and sequentially
processing, by the first access network device, the data packets to be processed of the
terminal device by use of the first protocol stack before the first access network
20 device triggers the at least one of the terminal device or the second access network
device to maintain the sequence of the data packets of the terminal device by use of
the second protocol stack comprises:

before the first access network device triggers the at least one of the terminal
device or the second access network device to maintain the sequence of the data
25 packets of the terminal device by use of the second protocol stack, receiving, by the
first access network device, the first data packets decrypted by the second access
network device by use of the second protocol stack from the second access network
device; and

sequentially processing, by the first access network device, the decrypted first
30 data packets.

2. The method of claim 1, wherein the data packets to be processed comprise second
data packets, and sequentially processing, by the first access network device, the data
packets to be processed of the terminal device by use of the first protocol stack before

the first access network device triggers the at least one of the terminal device or the second access network device to maintain the sequence of the data packets of the terminal device by use of the second protocol stack comprises:

before the first access network device triggers the at least one of the terminal
5 device or the second access network device to maintain the sequence of the data packets of the terminal device by use of the second protocol stack, receiving, by the first access network device, the second data packets sent by the terminal device;

decrypting, by the first access network device, the second data packets or a data part in each of the second data packets by use of the first protocol stack; and

10 sequentially processing, by the first access network device, the decrypted second data packets by use of the first protocol stack.

3. The method of claim 1, wherein the data packets to be processed comprise third data packets, and sequentially processing, by the first access network device, the data
15 packets to be processed of the terminal device by use of the first protocol stack before the first access network device triggers the at least one of the terminal device or the second access network device to maintain the sequence of the data packets of the terminal device by use of the second protocol stack comprises:

before the first access network device triggers the at least one of the terminal
20 device or the second access network device to maintain the sequence of the data packets of the terminal device by use of the second protocol stack, receiving, by the first access network device, a data part in each of the third data packets sent by a core network device, and

sequentially processing, by the first access network device, the third data
25 packets by use of the first protocol stack; and

the method further comprises:

encrypting, by the first access network device, the sequentially processed third data packets or the data part in each of the third data packets by use of the first protocol stack.

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4. The method of claim 1 or 3, wherein the data packets to be processed comprise fourth data packets, and sequentially processing, by the first access network device, the data packets to be processed of the terminal device by use of the first protocol

stack before the first access network device triggers the at least one of the terminal device or the second access network device to maintain the sequence of the data packets of the terminal device by use of the second protocol stack comprises:

5 before the first access network device triggers the at least one of the terminal device or the second access network device to maintain the sequence of the data packets of the terminal device by use of the second protocol stack, receiving, by the first access network device, a data part in each of the fourth data packets sent by a core network device, and

10 sequentially processing, by the first access network device, the fourth data packets by use of the first protocol stack; and

the method further comprises:

15 sending, by the first access network device, the sequentially processed fourth data packets to the second access network device, such that the second access network device encrypts the sequentially processed fourth data packets or the data part in each of the fourth data packets by use of the second protocol stack.

5. The method of any one of claims 1-4, further comprising:

20 under the condition that the first access network device determines that no data or data packet of the terminal device is required to be processed by the first access network device, triggering, by the first access network device, the at least one of the terminal device or the second access network device to maintain the sequence of the data packets of the terminal device by use of the second protocol stack.

25 6. The method of claim 5, wherein triggering, by the first access network device, the terminal device to maintain the sequence of the data packets of the terminal device by use of the second protocol stack under the condition that the first access network device determines that no data or data packet of the terminal device is required to be processed by the first access network device comprises:

30 under the condition that the first access network device determines that no data or data packet of the terminal device is required to be processed by the first access network device, sending, by the first access network device, first indication information to the at least one of the terminal device or the second access network device, the first indication information being configured to instruct the at least one of

the terminal device or the second access network device to maintain the sequence of the data packets of the terminal device by use of the second protocol stack.

7. The method of claim 5 or 6, further comprising:

5 determining, by the first access network device, that no data or data packet of the terminal device is required to be processed by the first access network device,

 wherein determining, by the first access network device, that no data or data packet of the terminal device is required to be processed by the first access network device comprises:

10 receiving, by the first access network device, second indication information sent by a core network device, the second indication information being to indicate that no data or data packet of the terminal device is required to be processed by the first access network device; and

 determining, by the first access network device, according to the second
15 indication information that no data or data packet of the terminal device is required to be processed by the first access network device.

8. The method of claim 7, wherein receiving, by the first access network device, the second indication information sent by the core network device comprises:

20 after the first access network device sends path switch information to the core network device, receiving, by the first access network device, the second indication information sent by the core network device, the path switch information being configured to instruct the core network device to switch an access network device, which is responsible for maintaining the sequence of the data packets of the terminal
25 device, from the first access network device to the second access network device.

9. The method of claim 8, further comprising:

 receiving, by the first access network device, third indication information sent by the second access network device, the third indication information being to
30 indicate that the terminal device has completed configuration of the second protocol stack; and

 sending, by the first access network device, the path switch information to the core network device according to the third indication information.

10. The method of any one of claims 1-9, wherein triggering, by the first access network device, the terminal device and the second access network device to configure the second protocol stack comprises:

5 sending, by the first access network device, first triggering information to the second access network device, the first triggering information being configured to request the second access network device to configure the second protocol stack;

 receiving, by the first access network device, response information to the first triggering information from the second access network device; and

10 sending, by the first access network device, second triggering information to the terminal device according to the response information, the second triggering information being configured to instruct the terminal device to configure the second protocol stack.

15 11. A terminal device, comprising:

 a configuration unit, configured to configure a second protocol stack according to first triggering information sent by a first access network device, the second protocol stack being configured to maintain at least one of: a sequence of data packets between a second access network device and the terminal device, or a security
20 key of the data packets between the second access network device and the terminal device; and

 a first sequential processing unit, configured to, before the terminal device receives second triggering information sent by at least one of the first access network device or the second access network device, sequentially process data packets or data
25 to be processed of the terminal device by use of a first protocol stack, the second triggering information being configured to trigger the terminal device to maintain the sequence of the data packets of the terminal device by use of the second protocol stack, wherein

 the data to be processed comprises first data, and the first sequential
30 processing unit is specifically configured to:

 sequentially process the first data by use of the first protocol stack; and

 the terminal device further comprises:

 a first encryption unit, configured to encrypt the sequentially processed first

data or data packets comprising the first data by use of the second protocol stack, and
a first sending unit, configured to send the encrypted data packets comprising
the first data to the second network device.

5 12. The terminal device of claim 11, wherein the data to be processed comprises
second data, and the first sequential processing unit is specifically configured to:

sequentially process the second data by use of the first protocol stack; and
the terminal device further comprises:

10 a second encryption unit, configured to encrypt the sequentially processed
second data or data packets comprising the second data by use of the first protocol
stack, and

a second sending unit, configured to send the encrypted data packets
comprising the second data to the first access network device.

15 13. The terminal device of claim 11, wherein the data packets to be processed
comprise first data packets, and the first sequential processing unit is specifically
configured to:

before the terminal device receives the second triggering information sent by
the at least one of the first access network device or the second access network device,
20 receive the first data packets sent by the first access network device,

decrypt the first data packets or a data part in each of the first data packets by
use of the first protocol stack, and

sequentially process the decrypted first data packets by use of the first protocol
stack.

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14. The terminal device of claim 11 or 13, wherein the data packets to be processed
comprise second data packets, and the first sequential processing unit is configured to:

receive the second data packets sent by the second network device,

30 decrypt the second data packets or a data part in each of the second data
packets by use of the second protocol stack, and

sequentially process the decrypted second data packets by use of the first
protocol stack.

15. The terminal device of any one of claims 11-14, further comprising:

a first receiving unit, configured to receive the second triggering information sent by the at least one of the first access network device or the second access network device; and

5 a second sequential processing unit, configured to maintain the sequence of the data packets of the terminal device by use of the second protocol stack according to the second triggering information.

16. The terminal device of claim 15, wherein the second triggering information is further configured to instruct the terminal device to release the first protocol stack, and the terminal device further comprises:

a release unit, configured to release the first protocol stack according to the second triggering information.

15 17. The terminal device of any one of claims 11-16, wherein the second triggering information is any one of Radio Resource Control (RRC) signaling, Medium Access Control (MAC) signaling, Downlink Control Information (DCI) or a bit in a data packet.

20 18. The terminal device of any one of claims 11-17, wherein the first access network device is a source access network device, and the second access network device is a target access network device; or the first access network device is a primary access network device in a multi-connection scenario, and the second access network device is a secondary access network device in the multi-connection scenario.

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19. A handover method, comprising:

receiving, by a second access network device, first triggering information sent by a first access network device, the first triggering information being configured to trigger the second access network device to configure a second protocol stack, and the second protocol stack being configured to maintain at least one of: a sequence of data packets between the second access network device and a terminal device, or a security key of the data packets between the second access network device and the terminal device; and

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receiving, by the second access network device, second triggering information sent by the first access network device, the second triggering information being configured to trigger the second access network device to maintain the sequence of the data packets of the terminal device by use of the second protocol stack, wherein

5 before the second access network device receives the second triggering information sent by the first access network device, receiving, by the second access network device, first data packets sent by the terminal device;

 decrypting, by the second access network device, the first data packets or a data part in each of the first data packets by use of the second protocol stack; and

10 sending, by the second access network device, the decrypted first data packets to the first access network device, such that the first access network device sequentially processes the decrypted first data packets.

20. A handover method, comprising:

15 configuring, by a terminal device, a second protocol stack according to first triggering information sent by a first access network device, the second protocol stack being configured to maintain at least one of: a sequence of data packets between a second access network device and the terminal device, or a security key of the data packets between the second access network device and the terminal device; and

20 before the terminal device receives second triggering information sent by at least one of the first access network device or the second access network device, sequentially processing, by the terminal device, data packets or data to be processed of the terminal device by use of a first protocol stack, the second triggering information being configured to trigger the terminal device to maintain the sequence

25 of the data packets of the terminal device by use of the second protocol stack, wherein

 the data to be processed comprises first data, and sequentially processing, by the terminal device, the data packets or data to be processed of the terminal device by use of the first protocol stack before the terminal device receives the second triggering information sent by at least one of the first access network device or the second access

30 network device comprises: sequentially processing, by the terminal device, the first data by use of the first protocol stack; and

 the method further comprises:

 encrypting, by the terminal device, the sequentially processed first data or data

packets comprising the first data by use of the second protocol stack, and

sending, by the terminal device, the encrypted data packets comprising the first data to the second network device.

- 5 21. An access network device, wherein the access network device is a first access network device and comprises:

 a first triggering unit, configured to trigger at least one of a terminal device or a second access network device to configure a second protocol stack, the second protocol stack being configured to maintain at least one of: a sequence of data packets
10 between the second access network device and the terminal device, or a security key of the data packets between the second access network device and the terminal device; and

 a sequential processing unit, configured to, before the first access network device triggers the at least one of the terminal device or the second access network
15 device to maintain the sequence of the data packets of the terminal device by use of the second protocol stack, sequentially process data packets to be processed of the terminal device by use of a first protocol stack, wherein

 the data packets to be processed comprise first data packets, and the sequential processing unit is specifically configured to:

20 before the first access network device triggers the at least one of the terminal device or the second access network device to maintain the sequence of the data packets of the terminal device by use of the second protocol stack, receive the first data packets decrypted by the second access network device by use of the second protocol stack from the second access network device, and

25 sequentially process the decrypted first data packets.

22. An access network device, wherein the access network device is a second access network device and comprises:

 a first receiving unit, configured to receive first triggering information sent by
30 a first access network device, the first triggering information being configured to trigger the second access network device to configure a second protocol stack, and the second protocol stack being configured to maintain at least one of: a sequence of data packets between the second access network device and a terminal device, or a security

key of the data packets between the second access network device and the terminal device;

- 5 a second receiving unit, configured to receive second triggering information sent by the first access network device, the second triggering information being configured to trigger the second access network device to maintain the sequence of the data packets of the terminal device by use of the second protocol stack;

 a third receiving unit, configured to, before the second access network device receives the second triggering information sent by the first access network device, receive first data packets sent by the terminal device;

- 10 a first decryption unit, configured to decrypt the first data packets or a data part in each of the first data packets by use of the second protocol stack; and

 a sending unit, configured to send the decrypted first data packets to the first access network device, such that the first access network device sequentially processes the decrypted first data packets.