WHAT IS CLAIMED IS:

1. A method for processing a link failure, performed by a relay terminal device, comprising:

in response to a link failure occurring on the relay terminal device, sending a first notification message to a remote terminal device, wherein the link failure comprises at least one of:

a radio link failure; a T310 timer being expired; a T312 timer being expired; an integrity check failure on a Signaling Radio Bearer (SRB) 1; an integrity check failure on a SRB2; an integrity check failure on a SRB3; or a reconfiguration failure.

2. The method of claim 1, wherein sending the first notification message to the remote terminal device comprises:

determining whether to send the first notification message to the remote terminal device based on a reestablished cell.

3. The method of claim 2, wherein determining whether to send the first notification message to the remote terminal device based on the reestablished cell comprises:

receiving an area range sent by a network device, wherein the area range is a cell list or a tracking area list;

in response to performing by the relay terminal device a cell reestablishment within the area range, not sending the first notification message to the remote terminal device; and

in response to not performing by the relay terminal device a cell reestablishment within the area range, sending the first notification message to the remote terminal device.

4. The method of claim 2, wherein determining whether to send the first notification message to the remote terminal device based on the reestablished cell comprises:

in response to a cell chosen to be reestablished by the relay terminal device being identical to a serving cell before the link failure occurs, not sending the first notification message to the remote terminal device; and

in response to a cell chosen to be reestablished by the relay terminal device being different from the serving cell before the link failure occurs, sending the first notification message to the remote terminal device.

5. The method of claim 1, wherein sending the first notification message to the remote

terminal device comprises:

determining to send the first notification message to the remote terminal device based on a configuration from a network device.

6. The method of claim 5, wherein determining to send the first notification message to the remote terminal device based on the configuration from the network device comprises:

receiving first identification information sent by the network device, wherein the first identification information is configured to indicate to send the first notification message to all remote terminal devices; and

determining whether to send the first notification message to all the remote terminal devices connected to the relay terminal device based on the first identification information.

7. The method of claim 5, wherein determining to send the first notification message to the remote terminal device based on the configuration from the network device comprises:

receiving a plurality of pieces of second identification information sent by the network device, wherein each piece of the second identification information is configured to indicate whether to send the first notification message to a corresponding remote terminal device; and

determining whether to send the first notification message to corresponding remote terminal devices based on the plurality of pieces of second identification information sent by the network device.

8. The method of claim 5, wherein determining to send the first notification message to the remote terminal device based on the configuration from the network device comprises:

receiving a quality of service requirement sent by the network device;

in response to data of a remote terminal device satisfying a corresponding quality of service requirement, sending the first notification message to the remote terminal device satisfying the corresponding quality of service requirement; or

in response to the data of a remote terminal device satisfying a corresponding quality of service requirement, not sending the first notification message to the remote terminal device satisfying the corresponding quality of service requirement.

9. The method of any one of claims 1 to 8, wherein the first notification message carries auxiliary information, and the auxiliary information comprises at least one of:

whether a process in which a secondary cell group (SCG) restores a master cell group (MCG) having been started;

whether a reestablished target cell being a same cell as the serving cell before the link failure occurs; or

a failure cause, in which the failure cause comprises at least one of: the radio link failure; the T310 timer being expired; the T312 timer being expired; the integrity check failure on the SRB1; the integrity check failure on the SRB2; the integrity check failure on the SRB3; or the reconfiguration failure.

10. The method of any one of claims 1 to 9, further comprising at least one of:

stopping sending a relay discovery message; orand/or

notifying a higher layer that the link failure has occurred.

11. The method of claim 1, further comprising:

in response to a Radio Resource Control (RRC) connection reestablishment with the relay terminal device succeeding, performing at least one of: sending a second notification message to a network device and/oror sending a RRC connection reestablishment success notification to the remote terminal device, wherein the second notification message comprises remote terminal devices that remain connected or remote terminal devices that have been released.

12. The method of claim 1, further comprising:

in response to a RRC connection reestablishment with the relay terminal device failing, sending a RRC connection reestablishment failure notification to the remote terminal device.

13. A method for processing a link failure, performed by a remote terminal device, comprising:

receiving a first notification message sent by a relay terminal device, wherein the first notification message is sent by the relay terminal device in response to a link failure occurring on the relay terminal device, in which the link failure comprises at least one of:

a radio link failure; a T310 timer being expired; a T312 timer being expired; an integrity check failure on a Signaling Radio Bearer (SRB)1; an integrity check failure on a SRB2; an integrity check failure on a SRB3; or a reconfiguration failure.

14. The method of claim 13, further comprising:

determining whether to continue to maintain a connection with the relay terminal device based on auxiliary information carried in the first notification message, and informing the relay terminal device of a determination result, wherein the auxiliary information comprises at least one of:

whether a process in which a SCG restores a MCG having been started;

whether a reestablished target cell being a same cell as a serving cell before the link failure occurs; or

a failure cause, in which the failure cause comprises at least one of: the radio link failure; the T310 timer being expired; the T312 timer being expired; the integrity check failure on the SRB1; the integrity check failure on the SRB2; the integrity check failure on the SRB3; or the reconfiguration failure.

15. The method of claim 14, further comprising:

in response to determining to maintain the connection with the relay terminal device, stopping sending relay data to the relay terminal device.

16. The method of claim 15, further comprising:

receiving a Radio Resource Control (RRC) connection reestablishment success notification of the relay terminal device sent by the relay terminal device; and

resuming sending the relay data to the relay terminal device.

17. The method of claim 13, further comprising:

receiving a Radio Resource Control (RRC) connection reestablishment failure notification of the relay terminal device sent by the relay terminal device; and

disconnecting from the relay terminal device and performing at least one of: a relay reselection ~~and/or~~, a trigger of ~~triggering~~ a connection re-establishment ~~and/or performing~~ or a cell reselection.

~~18. An apparatus for performing a link failure, applied to a relay terminal device, comprising:~~

~~a transceiver module, configured to, in response to a link failure occurring on the relay terminal device, send a first notification message to a remote terminal device, wherein the link failure comprises at least one of:~~

~~a radio link failure; a T310 timer being expired; a T312 timer being expired; an integrity~~

~~check failure on a SRB1; an integrity check failure on a SRB2; an integrity check failure on a SRB3; or a reconfiguration failure.~~

~~19. An apparatus for processing a link failure, applied to a remote terminal device, comprising:~~

~~a transceiver module, configured to receive a first notification message sent by a relay terminal device, wherein the first notification message is sent by the relay terminal device in response to a link failure occurring on the relay terminal device, in which the link failure comprises at least one of:~~

~~a radio link failure; a T310 timer being expired; a T312 timer being expired; an integrity check failure on a SRB1; an integrity check failure on a SRB2; an integrity check failure on a SRB3; or a reconfiguration failure.~~

~~20~~18. A terminal device, comprising a processor and a memory ~~having~~ storing a computer program~~ stored thereon, wherein when the computer program is executed~~executable by the processor, ~~the terminal device is caused to~~wherein the processor is configured to perform the method of any one of claims 1 to 17~~12~~.

~~21. A terminal device, comprising a processor and a memory having a computer program stored thereon, wherein when the computer program is executed by the processor, the terminal device is caused to perform the method of any one of claims 13 to 17.~~

~~22~~19. A non-transitory computer-readable storage medium for storing instructions, wherein when the instructions are executed, the method of any one of claims 1 to ~~12~~17 is performed.

~~23. A computer-readable storage medium for storing instructions, wherein when the instructions are executed, the method of any one of claims 13 to 17 is performed.~~