CLAIMS

What is claimed is:

1. A method for random access procedure fallback, applied to user equipment UE, wherein the method comprises:

in a case that the UE initiates a first random access procedure, falling back from the first random access procedure to a target random access procedure based on first information, wherein the first information is information about the first random access procedure or information about the target random access procedure;

wherein the method further comprises:

in a case that a first condition is met, reporting second indication information to a higher layer, wherein the second indication information is used to indicate that the UE has a radio link failure; and

the first condition comprises: the total number of times that the UE transmits the first message and the second message is greater than or equal to a fifth threshold;

and the first message is a request message for a 2-step random access procedure, and the second message is a request message for a 4-step random access procedure.

2. The method according to claim 1, wherein the first information comprises first parameter information or first indication information;

the first parameter information comprises at least one of the following: the number of times that the UE initiates the first random access procedure and total duration of the first random access procedures initiated by the UE; and

the first indication information is information carried in a response message of the target random access procedure, and the first indication information is used to indicate that the UE is to fall back to the target random access procedure.

3. The method according to claim 2, wherein the first information comprises the first parameter information, and the first parameter information comprises the number of times that the UE initiates the first random access procedure; and

the falling back from the first random access procedure to a target random access procedure based on first information comprises:

if the number of times that the UE initiates the first random access procedure is greater than or equal to a first threshold, falling back from the first random access procedure to the target random access procedure.

4. The method according to claim 2, wherein the first information comprises the first parameter information, and the first parameter information comprises the total duration of the first random access procedures initiated by the UE; and

the falling back from the first random access procedure to a target random access procedure based on first information comprises:

if the total duration of the first random access procedures initiated by the UE is greater than or equal to a second threshold, falling back from the first random access procedure to the target random access procedure.

5. The method according to claim 3 or 4, wherein the first random access procedure is an early data transmission EDT 2-step random access procedure, and the target random access procedure is a 2-step random access procedure, 4-step random access procedure, or EDT 4-step random access procedure;

or

the first random access procedure is an EDT 4-step random access procedure, and the target random access procedure is a 2-step random access procedure, a 4-step random access procedure, or an EDT 2-step random access procedure.

6. The method according to claim 5, wherein the target random access procedure is a 2-step random access procedure or a 4-step random access procedure; and

the falling back from the first random access procedure to the target random access procedure comprises:

if a first fallback random number is less than a fallback random number threshold, falling back from the first random access procedure to the 2-step random access procedure, wherein the first fallback random number is a fallback random number generated by the UE; or if the first fallback random number is greater than the fallback random number threshold, falling back from the first random access procedure to the 4-step random access procedure;

or

if the first fallback random number is less than the fallback random number threshold, falling back from the first random access procedure to the 4-step random access procedure; or if the first fallback random number is greater than the fallback random number threshold, falling back from the first random access procedure to the 2-step random access procedure.

7. The method according to claim 2, wherein the first information comprises the first indication information; and

the falling back from the first random access procedure to a target random access procedure based on first information comprises:

according to the first indication information, falling back from the first random access procedure to a random access procedure indicated by the first indication information; wherein

the random access procedure indicated by the first indication information is any one of the following: a 2-step random access procedure, a 4-step random access procedure, an EDT 2-step random access procedure, and an EDT 4-step random access procedure.

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

in a case that a first condition is met, reporting second indication information to a higher layer, wherein the second indication information is used to indicate that the UE has a radio link failure; and

the first condition comprises at least one of the following: the number of times that the UE transmits a first message is greater than or equal to a third threshold, the number of times that the UE transmits a second message is greater

than or equal to a fourth threshold, and total duration of a random access procedure initiated by the UE is greater than or equal to a sixth threshold.

9. The method according to claim 1, wherein the first random access procedure is an EDT random access procedure, and the method further comprises:

in a case that the UE satisfies a second condition, initiating the first random access procedure; wherein

the second condition comprises at least one of the following: a service to be transmitted by the UE satisfies a trigger condition of a 2-step random access procedure or a 4-step random access procedure, a data volume of the service to be transmitted by the UE satisfies a resource restriction condition of an EDT random access procedure, and a type of the UE satisfies an initiation restriction condition of the EDT random access procedure.

10. A method for random access procedure fallback, applied to a network device, wherein the method comprises:

transmitting a target response message to user equipment UE, wherein the target response message is a response message of a target random access procedure, the target response message comprises first indication information, and the first indication information is used to indicate that the UE is to fall back to the target random access procedure;

wherein the method further comprises:

in a case that a first condition is met, reporting second indication information to a higher layer, wherein the second indication information is used to indicate that the UE has a radio link failure; and

the first condition comprises: the total number of times that the UE transmits the first message and the second message is greater than or equal to a fifth threshold;

and the first message is a request message for a 2-step random access procedure, and the second message is a request message for a 4-step random access procedure.

11. The method according to claim 10, wherein the target random access procedure is any one of the following: a 2-step random access procedure, a 4-step random access procedure, an EDT 2-step random access procedure, and an EDT 4-step random access procedure.

12. User equipment UE, wherein the UE comprises a fallback module; and

the fallback module is configured to: in a case that the UE initiates a first random access procedure, fall back from the first random access procedure to a target random access procedure based on first information, wherein the first information is information about the first random access procedure or information about the target random access procedure;

wherein the method further comprises:

in a case that a first condition is met, reporting second indication information to a higher layer, wherein the second indication information is used to indicate that the UE has a radio link failure; and

the first condition comprises: the total number of times that the UE transmits the first message and the second message is greater than or equal to a fifth threshold;

and the first message is a request message for a 2-step random access procedure, and the second message is a request message for a 4-step random access procedure.

13. The UE according to claim 12, wherein the first information comprises first parameter information or first indication information;

the first parameter information comprises at least one of the following: the number of times that the UE initiates the first random access procedure and total duration of the first random access procedures initiated by the UE; and

the first indication information is information carried in a response message of the target random access procedure, and the first indication information is used to indicate that the UE is to fall back to the target random access procedure.

14. The UE according to claim 13, wherein the first information comprises the first parameter information, and the first parameter information comprises the number of times that the UE initiates the first random access procedure; and

the fallback module is specifically configured to: if the number of times that the UE initiates the first random access procedure is greater than or equal to a first threshold, fall back from the first random access procedure to the target random access procedure.

15. The UE according to claim 13, wherein the first information comprises the first parameter information, and the first parameter information comprises the total duration of the first random access procedures initiated by the UE; and

the fallback module is specifically configured to: if the total duration of the first random access procedures initiated by the UE is greater than or equal to a second threshold, fall back from the first random access procedure to the target random access procedure.

16. The UE according to claim 14 or 15, wherein the first random access procedure is an early data transmission EDT 2-step random access procedure, and the target random access procedure is a 2-step random access procedure, 4-step random access procedure, or EDT 4-step random access procedure;

or

the first random access procedure is an EDT 4-step random access procedure, and the target random access procedure is a 2-step random access procedure, a 4-step random access procedure, or an EDT 2-step random access procedure.

17. A network device, wherein the network device comprises a transmitting module; and

the transmitting module is configured to: transmit a target response message to user equipment UE, wherein the target response message is a response message of a target random access procedure, the target response message comprises first indication information, and the first indication information is used to indicate that the UE is to fall back to the target random access procedure;

wherein the method further comprises:

in a case that a first condition is met, reporting second indication information to a higher layer, wherein the second indication information is used to indicate that the UE has a radio link failure; and

the first condition comprises: the total number of times that the UE transmits the first message and the second message is greater than or equal to a fifth threshold;

and the first message is a request message for a 2-step random access procedure, and the second message is a request message for a 4-step random access procedure.

18. The network device according to claim 17, wherein the target random access procedure is any one of the following: a 2-step random access procedure, a 4-step random access procedure, an EDT 2-step random access procedure, and an EDT 4-step random access procedure.

19. A communications system, wherein the communications system comprises the user equipment UE according to any one of claims 12 to 16 and the network device according to claim 17 or 18.

20. A computer-readable storage medium, wherein the computer-readable storage medium stores a computer program, and when the computer program is executed by a processor, the steps of the method for random access procedure fallback according to any one of claims 1 to 11 are implemented.