Claims

1. A node protection method, which is applied to a first node, comprising:

acquiring a first service message, wherein the first service message comprises an IPv6 header and an SRH, the IPv6 header comprises a destination address, the SRH comprises an SID list, and the SID list comprises a backup SID and SIDs of end nodes of a primary path for forwarding the first service message;

forwarding a second service message to an end node indicated by the backup SID, wherein the second service message comprises the destination address that is the backup SID, and the destination address is modified after determining that each of the end nodes on the primary path is an unreachable end node and the end node indicated by the backup SID is a reachable end node.

2. The method according to claim 1, wherein the SRH further comprises an SL; after acquiring the first service message, the method further comprises:

obtaining a first SL according to a difference between a current SL and a fixed value, and acquiring a first SID corresponding to the first SL from the SID list;

if an end node indicated by the first SID is unreachable, taking the first SL as the current SL, and repeating a process of obtaining a first SL according to a difference between a current SL and a fixed value and acquiring a first SID corresponding to the first SL from the SID list until a first SID of a reachable end node is acquired from the SID list;

if the first SID of the reachable end node is the backup SID, modifying the destination address to the backup SID to obtain the second

service message;

if the first SID of the reachable end node is not the backup SID, modifying the destination address to the first SID of the reachable end node to obtain a third service message, and forwarding the third service message to the end node indicated by the first SID.

3. The method according to claim 1, wherein after acquiring the first service message, the method further comprises:

if the destination address is an SID configured with a specified additional behavior, deleting the IPv6 header and the SRH to obtain a fourth service message;

forwarding the fourth service message.

4. The method according to any one of claims 1 to 3, wherein

the end node indicated by the backup SID is a tail node on a backup path for forwarding the first service message; or

the end node indicated by the backup SID is a second node, and there is a BE path between the first node and the second node.

5. The method according to any one of claims 1 to 3, wherein

an SID encapsulated in a penultimate element in the SID list is an SID of a tail node on the primary path, and an SID encapsulated in a last element is the backup SID.

6. The method according to claim 1, wherein when the first node is a source node, acquiring the first service message comprises:

receiving a fifth service message;

if a next hop of a routing table entry matched with the fifth service message is an SRv6 strategy and the SRv6 strategy comprises the primary path and the backup path, encapsulating the IPv6 header and the SRH in an

outer layer of the fifth service message to obtain the first service message.

7. A node protection device, which is applied to a first node, comprising:

an acquisition module to acquire a first service message, wherein the first service message comprises an IPv6 header and an SRH, the IPv6 header comprises a destination address, the SRH comprises an SID list, and the SID list comprises a backup SID and SIDs of end nodes of a primary path for forwarding the first service message;

a transmission module to forward a second service message to an end node indicated by the backup SID, wherein the second service message comprises the destination address that is the backup SID, and the destination address is modified after determining that each of the end nodes on the primary path is an unreachable end node and the end node indicated by the backup SID is a reachable end node.

8. The device according to claim 7, wherein the SRH further comprises an SL, and the device further comprises a modification module;

the acquisition module is further to obtain a first SL according to a difference between a current SL and a fixed value, and acquire a first SID corresponding to the first SL from the SID list; if an end node indicated by the first SID is unreachable, take the first SL as the current SL, and repeat a process of obtaining a first SL according to a difference between a current SL and a fixed value and acquiring a first SID corresponding to the first SL from the SID list until a first SID of a reachable end node is acquired from the SID list;

the modification module is to modify, if the first SID of the reachable end node is the backup SID, the destination address to the backup SID to obtain the second service message;

the modification module is further to modify, if the first SID of the

reachable end node is not the backup SID, the destination address to the first SID of the reachable end node to obtain a third service message;

the transmission module is further to forward the third service message to the end node indicated by the first SID.

9. The device according to claim 7, wherein the device further comprises:

a deletion module to delete, if the destination address is an SID configured with a specified additional behavior, the IPv6 header and the SRH to obtain a fourth service message;

the transmission module is further to forward the fourth service message.

10. The device according to any one of claims 7 to 9, wherein

the end node indicated by the backup SID is a tail node on a backup path for forwarding the first service message; or

the end node indicated by the backup SID is a second node, and there is a BE path between the first node and the second node.

11. The device according to any one of claims 7 to 9, wherein

an SID encapsulated in a penultimate element in the SID list is an SID of a tail node on the primary path, and an SID encapsulated in a last element is the backup SID.

12. The device according to claim 7, wherein when the first node is a source node, the acquisition module is specifically to:

receive a fifth service message;

if a next hop of a routing table entry matched with the fifth service message is an SRv6 strategy and the SRv6 strategy comprises the primary path and the backup path, encapsulate the IPv6 header and the SRH in an

outer layer of the fifth service message to obtain the first service message.

13. An electronic equipment, comprising:

a processor;

a transceiver;

a machine-readable storage medium which stores machine-executable instructions that can be executed by the processor, wherein the electronic equipment is a first node, the machine executable instructions cause the processor to:

acquire a first service message, wherein the first service message comprises an IPv6 header and an SRH, the IPv6 header comprises a destination address, the SRH comprises an SID list, and the SID list comprises a backup SID and SIDs of end nodes of a primary path for forwarding the first service message;

forward a second service message to an end node indicated by the backup SID, wherein the second service message comprises the destination address that is the backup SID, and the destination address is modified after determining that each of the end nodes on the primary path is an unreachable end node and the end node indicated by the backup SID is a reachable end node.

14. The electronic equipment according to claim 13, wherein the SRH further comprises an SL, and the machine executable instructions further cause the processor to:

obtain a first SL according to a difference between a current SL and a fixed value, and acquire a first SID corresponding to the first SL from the SID list;

if an end node indicated by the first SID is unreachable, take the first SL as the current SL, and repeat a process of obtaining a first SL according

to a difference between a current SL and a fixed value and acquiring a first SID corresponding to the first SL from the SID list until a first SID of a reachable end node is acquired from the SID list;

if the first SID of the reachable end node is the backup SID, modify the destination address to the backup SID to obtain a second service message;

if the first SID of the reachable end node is not the backup SID, modify the destination address to the first SID of the reachable end node to obtain a third service message, and forward the third service message to the end node indicated by the first SID.

15. The electronic equipment according to claim 13, wherein the machine executable instructions further cause the processor to:

if the destination address is an SID configured with a specified additional behavior, delete the IPv6 header and the SRH to obtain a fourth service message;

forward the fourth service message.

16. The electronic equipment according to any one of claims 13 to 15, wherein

the end node indicated by the backup SID is a tail node on a backup path for forwarding the first service message; or

the end node indicated by the backup SID is a second node, and there is a BE path between the first node and the second node.

17. The electronic equipment according to any one of claims 13 to 15, wherein

an SID encapsulated in a penultimate element in the SID list is an SID of a tail node on the primary path, and an SID encapsulated in a last element is the backup SID.

18. The electronic equipment according to claim 13, wherein when the electronic equipment is a source node, the machine executable instructions specifically cause the processor to:

receive a fifth service message;

if a next hop of a routing table entry matched with the fifth service message is an SRv6 strategy and the SRv6 strategy comprises the primary path and the backup path, encapsulate the IPv6 header and the SRH in an outer layer of the fifth service message to obtain the first service message.

19. A machine-readable storage medium, which stores machine executable instructions which, when called and executed by a processor, cause the processor to implement blocks of the method according to any one of claims 1-6.