CLAIMS

1. A node protection method, wherein the method is applied to a first node and comprises:

obtaining a first service packet, of which a first SRH extension header contains a first SID list and a preset flag bit, the first SID list containing a primary SID of a primary tail node on a primary path for forwarding the first service packet and a backup SID of a backup tail node, the preset flag bit being set to a first value indicating that the first SRH extension header carries the backup SID;

forwarding the first service packet;

wherein, in the event that the first node is an endpoint node or relay node on the primary path other than the primary tail node, the obtaining the first service packet comprises:

receiving a second service packet sent by a second node, the second service packet containing a first IPv6 basic header and a second SRH extension header, the second SRH extension header containing a second SID list and the preset flag bit, the preset flag bit being set to the first value indicating that the second SRH extension header carries the backup SID;

updating a destination address in the first IPv6 basic header based on a node status of the primary tail node, a node status of the backup tail node, and the second SID list, to obtain the first service packet.

2. The method according to claim 1, wherein, in the event that the first node is a source node on the primary path, the obtaining a first service packet comprises:

receiving an original packet sent by a customer edge device;

in the event that the primary tail node has the backup tail node, encapsulating the original packet as the first service packet.

3. The method according to claim 1, wherein, the updating a destination address in the first IPv6 basic header based on a node status of the primary tail node, a node status of the backup tail node, and the second SID list, to obtain the first service packet, comprises:

if the primary tail node is unreachable but the backup tail node is reachable, updating the destination address in the first IPv6 basic header to the backup SID, to obtain the first service packet;

if the primary tail node is reachable, in the event that the first node is the endpoint node, updating the destination address in the first IPv6 basic header to an SID of an endpoint node of a next hop based on the second SID list, to obtain the first service packet.

4. The method according to claim 1, wherein, the updating a destination address in the first IPv6 basic header based on a node status of the primary tail node, a node status of the backup tail node, and the second SID list, to obtain the first service packet, comprises:

if the first node is directly connected with the primary tail node, the primary tail node is unreachable, but the backup tail node is reachable, updating the destination address in the first IPv6 basic header to the backup SID, to obtain the first service packet;

if the first node is not directly connected with the primary tail node, or if the first node is directly connected with the primary tail node and the primary tail node is reachable, in the event that the first node is the endpoint node, updating the destination address of the first IPv6 basic header to an SID of an endpoint node of a next hop based on the second SID list, to obtain the first service packet.

5. The method according to claim 1, wherein, in the event that the first node is the primary tail node or the backup tail node, the forwarding the first service packet comprises:

stripping off an outer encapsulation of the first service packet, to obtain an original packet;

forwarding the original packet.

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

the preset flag bit is set to the first value, an SID encapsulated in a second last element contained in the first SID list is the primary SID, and an SID encapsulated in a last element is the backup SID;

the preset flag bit is set to a second bit, and an SID encapsulated in a last element contained in the first SID list is the primary SID.

7. The method according to any one of claims 1-5, wherein, the first value is 1 or 0.

8. The method according to any one of claims 1-5, wherein, the first SRH extension header further contains Flags field in which a flag bit is the preset flag bit.

9. A node protection device, wherein the device is applied to a first node and comprises:

an obtaining module to obtain a first service packet, of which a first SRH extension header contains a first SID list and a preset flag bit, the first SID list containing a primary SID of a primary tail node on a primary path for forwarding the first service packet and a backup SID of a backup tail node, the preset flag bit being set to a first value indicating that the first SRH extension header carries the backup SID;

a forwarding module to forward the first service packet;

wherein, in the event the first node is an endpoint node or relay node on the primary path other than the primary tail node, the obtaining module is specifically to:

receive a second service packet sent by a second node, the second service packet containing a first IPv6 basic header and a second SRH extension header, the second SRH extension header containing a second SID list and the preset flag bit, the preset flag bit being set to the first value indicating that the second SRH extension header carries the backup SID;

update a destination address in the first IPv6 basic header based on a node status of the primary tail node, a node status of the backup tail node, and the second SID list, to obtain the first service packet.

10. The device according to claim 9, wherein, in the event that the first node is a source node on the primary path, the obtaining module is specifically to:

receive an original packet sent by a customer edge device;

in the event that the primary tail node has the backup tail node, encapsulate the original packet as the first service packet.

11. The device according to claim 9, wherein, the obtaining module is specifically to:

if the primary tail node is unreachable but the backup tail node is reachable, update the destination address in the first IPv6 basic header to the backup SID, to obtain the first service packet;

if the primary tail node is reachable, in the event that the first node is the endpoint node, update the destination address in the first IPv6 basic header to an SID of an endpoint node of a next hop based on the second SID list, to obtain the first service packet.

12. The device according to claim 11, wherein, the obtaining module is specifically to:

if the first node is directly connected with the primary tail node, the primary tail node is unreachable, but the backup tail node is reachable, update the destination address in the first IPv6 basic header to the backup SID, to obtain the first service packet;

if the first node is not directly connected with the primary tail node, or if the first node is directly connected with the primary tail node and the primary tail node is reachable, in the event that the first node is the endpoint node, update the destination address of the first IPv6 basic header to an SID of an endpoint node of a next hop based on the second SID list, to obtain the first service packet.

13. The device according to claim 9, wherein, in the event that the first node is the

primary tail node or the backup tail node, the forwarding module is specifically to strip off an outer encapsulation of the first service packet, to obtain an original packet; forward the original packet.

14. The device according to any one of claims 9-13, wherein,

the preset flag bit is set to the first value, an SID encapsulated in a second last element contained in the first SID list is the primary SID, and an SID encapsulated in a last element is the backup SID;

the preset flag bit is set to a second bit, and an SID encapsulated in a last element contained in the first SID list is the primary SID.

15. The device according to any one of claims 9-13, wherein, the first value is 1 or 0.

16. The device according to any one of claims 9-13, the first SRH extension header further contains Flags field in which a flag bit is the preset flag bit.

17. An electronic equipment, wherein the electronic equipment comprises:

a processor; a transceiver; and,

a machine readable storage medium storing machine executable instructions capable of being executed by the processor; the machine executable instructions cause the processor to execute:

obtaining a first service packet, of which a first SRH extension header contains a first SID list and a preset flag bit, the first SID list containing a primary SID of a primary tail node on a primary path for forwarding the first service packet and a backup SID of a backup tail node, the preset flag bit being set to a first value indicating that the first SRH extension header carries the backup SID;

forwarding the first service packet;

wherein, in the event that the electronic equipment is an endpoint node or relay node

on a primary path other than the primary tail node, the machine executable instructions specifically cause the processor to execute:

receiving a second service packet sent by a second node, the second service packet containing a first IPv6 basic header and a second SRH extension header, the second SRH extension header containing a second SID list and the preset flag bit, the preset flag bit being set to the first value indicating that the second SRH extension header carries the backup SID;

updating a destination address in the first IPv6 basic header based on a node status of the primary tail node, a node status of the backup tail node, and the second SID list, to obtain the first service packet.

18. The electronic equipment according to claim 17, wherein, in the event that the electronic equipment is a source node on the primary path, the machine executable instructions specifically cause the processor to execute:

receiving an original packet sent by a customer edge device;

in the event that the primary tail node has the backup tail node, encapsulating the original packet as the first service packet.

19. The electronic equipment according to claim 17, wherein, the machine executable instructions specifically cause the processor to execute:

if the primary tail node is unreachable but the backup tail node is reachable, updating the destination address in the first IPv6 basic header to the backup SID, to obtain the first service packet;

if the primary tail node is reachable, in the event that the electronic equipment is the endpoint node, updating the destination address in the first IPv6 basic header to an SID of an endpoint node of a next hop based on the second SID list, to obtain the first service packet.

20. The electronic equipment according to claim 19, wherein, the machine executable instructions specifically cause the processor to execute:

if the electronic equipment is directly connected with the primary tail node, the primary tail node is unreachable, but the backup tail node is reachable, updating the destination address in the first IPv6 basic header to the backup SID, to obtain the first service packet;

if the electronic equipment is not directly connected with the primary tail node, or if the electronic equipment is directly connected with the primary tail node and the primary tail node is reachable, in the event that the electronic equipment is the endpoint node, updating the destination address of the first IPv6 basic header to an SID of an endpoint node of a next hop based on the second SID list, to obtain the first service packet.

21. The electronic equipment according to claim 17, wherein, in the event that the electronic equipment is the primary tail node or the backup tail node, the machine executable instructions specifically cause the processor to execute:

stripping off an outer encapsulation of the first service packet, to obtain an original packet; forwarding the original packet.

22. The electronic equipment according to any one of claims 17-21, wherein,

the preset flag bit is set to the first value, an SID encapsulated in a second last element contained in the first SID list is the primary SID, and an SID encapsulated in a last element is the backup SID;

the preset flag bit is set to a second bit, and an SID encapsulated in a last element contained in the first SID list is the primary SID.

23. The electronic equipment according to any one of claims 17-21, wherein, the first value is 1 or 0.

24. The electronic equipment according to any one of claims 17-21, wherein, the first

SRH extension header further contains Flags field in which a flag bit is the preset flag bit.

25. A machine readable storage medium, wherein it stores machine executable instructions, the machine executable instructions, when called and executed by a processor, causing the processor to implement the methods of the method according to any one of claims 1-8.