CLAIMS

What is claimed is:

1. A method for processing link fault, which is applied to a forwarding chip of a first network device, wherein the first network device comprises a first interface and is connected with a second network device through the first interface, and the second network device is connected with a third network device, and the first network device comprises multiple forwarding table entries, wherein the forwarding table entries each comprise a destination address, an outgoing interface and a device ID, and the device ID is an ID of a network device accessed by a host to which the destination address belongs; the method comprises:

receiving a first packet sent by the second network device, wherein the first packet comprises a device ID of the third network device and status information, and the status information is used to indicate whether the second network device and the third network device are accessible from each other;

if the status information indicates that the second network device and the third network device are not accessible from each other, searching for a first forwarding table entry with the outgoing interface being the first interface and the device ID being the device ID of the third network device; and

setting a status of the first forwarding table entry to an invalid status.

2. The method according to claim 1, wherein before receiving the first packet sent by the second network device, the method further comprises:

receiving, through the first interface, a route update packet forwarded by the second network device, wherein the route update packet comprises a first IP address of a host connected to the third network device and the device ID of the third network device; and

generating the first forwarding table entry based on the first interface, the first IP address and the device ID of the third network device.

3. The method according to claim 1, wherein the second network device comprises

a second interface and is connected with the first network device through the second interface; and wherein before receiving the first packet sent by the second network device, the method further comprises:

sending a second packet to the second network device, wherein the second packet comprises a device ID of the first network device, so that the second network device records a first correspondence between the second interface and the device ID of the first network device; and

receiving a third packet sent by the second network device, and recording a second correspondence between the first interface and a device ID of the second network device, wherein the third packet comprises the device ID of the second network device.

4. The method according to any one of claims 1-3, wherein setting the status of the first forwarding table entry to the invalid status comprises:

modifying a status flag bit of the first forwarding table entry to a first value, wherein the first value is used to indicate the invalid status.

5. The method according to claim 1, wherein after receiving the first packet sent by the second network device, the method further comprises:

if the status information indicates that the second network device and the third network device are accessible from each other, searching for the first forwarding table entry with the outgoing interface being the first interface and the device ID being the device ID of the third network device; and

setting the status of the first forwarding table entry to a valid status.

6. The method according to claim 1, wherein the first packet is a first link layer broadcast packet, and a payload of the first link layer broadcast packet comprises a device ID of the second network device, the device ID of the third network device and the status information; or,

the first packet is a first IP multicast packet, and a payload of the first IP multicast packet comprises the device ID of the second network device, the device ID of the third network device and the status information.

7. The method according to claim 3, wherein the second packet is a second link layer broadcast packet, and a payload of the second link layer broadcast packet comprises the device ID of the first network device; or, the second packet is a second IP multicast packet, and a payload of the second IP multicast packet comprises the device ID of the first network device;

the third packet is a third link layer broadcast packet, and a payload of the third link layer broadcast packet comprises the device ID of the second network device; or, the third packet is a third IP multicast packet, and a payload of the third IP multicast packet comprises the device ID of the second network device.

8. The method according to claim 2, wherein the route update packet comprises an extended community attribute, and the extended community attribute comprises the device ID of the third network device.

9. A method for processing link fault, which is applied to a forwarding chip of a second network device, wherein the second network device is connected with a third network device, and is connected with a first interface of a first network device, and the first network device comprises multiple forwarding table entries, wherein the forwarding table entries each comprise a destination address, an outgoing interface and a device ID, and the device ID is an ID of a network device accessed by a host to which the destination address belongs; the method comprises:

acquiring status information, wherein the status information is used to indicate whether the second network device and the third network device are accessible from each other; and

sending a first packet to the first network device, wherein the first packet comprises a device ID of the third network device and the status information, so that when the status information indicates that the second network device and the third network device are not accessible from each other, the first network device searches for a first forwarding table entry with the outgoing interface being the first interface and the device ID being the device ID of the third network device, and sets a status of the first forwarding table entry to an invalid status.

10. The method according to claim 9, wherein, before acquiring the status information, the method further comprises:

receiving a route update packet sent by the third network device, wherein the route update packet comprises a first IP address of a host connected to the third network device and the device ID of the third network device; and

forwarding the route update packet to the first network device, so that the first network device generates the first forwarding table entry based on the first interface, the first IP address and the device ID of the third network device.

11. The method according to claim 9, wherein the second network device comprises a third interface and is connected with the third network device through the third interface, and the third network device comprises a fourth interface and is connected with the second network device through the fourth interface; and wherein before acquiring the status information, the method further comprises:

sending a fourth packet to the third network device, wherein the fourth packet comprises a device ID of the second network device, so that the third network device records a third correspondence between the fourth interface and the device ID of the second network device; and

receiving a fifth packet sent by the third network device, and recording a fourth correspondence between the third interface and the device ID of the third network device, wherein the fifth packet comprises the device ID of the third network device.

12. The method according to claim 11, wherein before sending the first packet to the first network device, the method further comprises:

acquiring the device ID of the third network device corresponding to the third interface from the fourth correspondence.

13. The method according to claim 9, wherein there are multiple links between the second network device and the third network device; acquiring the status information comprises:

if the multiple links all fail, determining that the status information indicates that

the second network device and the third network device are not accessible from each other; or,

if any one of the multiple links does not fail, determining that the status information indicates that the second network device and the third network device are accessible from each other.

14. The method according to claim 9, wherein the first packet is a first link layer broadcast packet, and a payload of the first link layer broadcast packet comprises a device ID of the second network device, the device ID of the third network device and the status information; or,

the first packet is a first IP multicast packet, and a payload of the first IP multicast packet comprises the device ID of the second network device, the device ID of the third network device and the status information.

15. The method according to claim 11, wherein the fourth packet is a fourth link layer broadcast packet, and a payload of the fourth link layer broadcast packet comprises the device ID of the second network device; or, the fourth packet is a fourth IP multicast packet, and a payload of the fourth IP multicast packet comprises the device ID of the second network device;

the fifth packet is a fifth link layer broadcast packet, and a payload of the fifth link layer broadcast packet comprises the device ID of the third network device; or, the fifth packet is a fifth IP multicast packet, and a payload of the fifth IP multicast packet comprises the device ID of the third network device.

16. The method according to claim 10, wherein the route update packet comprises an extended community attribute, and the extended community attribute comprises the device ID of the third network device.

17. A first network device, wherein the first network device comprises a first interface and is connected with a second network device through the first interface, and the second network device is connected with a third network device, and the first network device comprises multiple forwarding table entries, wherein the forwarding table entries each comprise a destination address, an outgoing interface and a device ID,

and the device ID is an ID of a network device accessed by a host to which the destination address belongs; the first network device comprises:

a processor;

a transceiver; and

a machine-readable storage medium having stored therein machine-executable instructions that can be executed by the processor; wherein the machine-executable instructions cause the processor to carry out the method according to any one of claims 1 – 8.

18. A second network device, wherein the second network device is connected with a third network device, and is connected with a first interface of a first network device, and the first network device comprises multiple forwarding table entries, wherein the forwarding table entries each comprise a destination address, an outgoing interface and a device ID, and the device ID is an ID of a network device accessed by a host to which the destination address belongs; the second network device comprises:

a processor;

a transceiver; and

a machine-readable storage medium having stored therein machine-executable instructions that can be executed by the processor; wherein the machine-executable instructions cause the processor to carry out the method according to any one of claims 9 – 16.