CLAIMS

1. A service chain detection method, wherein the method comprises:

obtaining, by a service forwarding entity, SFE, a first fault tracing detection request packet, and determining, by the SFE, to communicate with a service function, SF, node, wherein the first fault tracing detection request packet comprises a path identifier, ID, and the path ID is used to identify a path of a service chain;

obtaining, by the SFE, an ID of the SF node; and

sending, by the SFE, a first fault tracing detection response packet to a device for initiating fault detection, wherein the first fault tracing detection response packet comprises the path ID and the ID of the SF node.

2. The method according to claim 1, wherein the determining, by an SFE, to communicate with a SF node, comprises:

obtaining, by the SFE, a correspondence based on the path ID, wherein the correspondence comprises the path ID and an address of the SF node;

sending, by the SFE, the first fault tracing detection request packet to the SF node according to the address of the SF node; and

receiving, by the SFE, a second fault tracing detection request packet from the SF node, wherein the second fault tracing detection request packet comprises the path ID.

3. The method according to claim 1, wherein the first fault tracing detection request packet further comprises a first parameter, the first parameter is used to identify the SF node or is used to identify a previous-hop SF node of the SF node on the service chain; and the determining, by an SFE, to communicate with a SF node comprises:

obtaining, by the SFE, a correspondence based on the path ID and the first parameter, wherein the correspondence comprises the path ID, the first parameter and an address of the SF node;

sending, by the SFE, the first fault tracing detection request packet to the SF node according to the address of the SF node; and

receiving, by the SFE, a second fault tracing detection request packet from the SF node, wherein the second fault tracing detection request packet comprises the path ID.

4. The method according to claim 3, wherein the first fault tracing detection response packet further comprises at least one of the first parameter and an ID of the SFE.

5. The method according to any one of claims 1 to 3, wherein after the obtaining, by the SFE,

the first fault tracing detection request packet, the method further comprises:

sending, by the SFE, a second fault tracing detection response packet to the device for initiating fault detection, wherein the second fault tracing detection response packet comprises an ID of the SFE and the path ID.

6. The method according to any one of claims 1 to 5, wherein the first fault tracing detection request packet further comprises a node list, and the node list comprises an ID of the previous-hop SF node of the SF node on the service chain; and the first fault tracing detection response packet further comprises an updated node list, the updated node list comprises the ID of the SF node and the node list, and an order of all SF nodes comprised in the updated node list is the same as an order of all the SF nodes on the service chain.

7. The method according to any one of claims 1 to 6, wherein the first fault tracing detection request packet further comprises an ID of an SF node used as an end point; and

after the sending, by the SFE, a first fault tracing detection response packet to the device for initiating fault detection, the method further comprises:

ending, by the SFE, detection on the service chain when the ID of the SF node is the same as the ID of the SF node used as the end point.

8. The method according to any one of claims 1 to 7, wherein the obtaining, by an SFE, a first fault tracing detection request packet comprises:

receiving, by the SFE, the first fault tracing detection request packet from the device for initiating fault detection; or

receiving, by the SFE, the first fault tracing detection request packet from a previous-hop SFE of the SFE on the service chain; or

generating, by the SFE, the first fault tracing detection request packet.

9. A service chain detection method, wherein the method comprises:

sending, by a device for initiating fault detection, a first fault tracing detection request packet to a service forwarding entity, SFE, wherein the first fault tracing detection request packet comprises a path identifier, ID, and the path ID is used to identify a path of a service chain;

receiving, by the device for initiating fault detection, a first fault tracing detection response packet from the SFE, wherein the first fault tracing detection response packet comprises the path ID and an ID of a service function, SF, node; and

determining, by the device for initiating fault detection, that forwarding between the SFE and the SF node is normal.

10. The method according to claim 9, wherein the sending, by a device for initiating fault detection, a first fault tracing detection request packet to the SFE comprises:

obtaining, by the device for initiating fault detection, a correspondence based on the path ID, wherein the correspondence comprises the path ID and an address of the SFE; and

sending, by the device for initiating fault detection, the first fault tracing detection request packet to the SFE according to the address of the SFE.

11. The method according to claim 9 or 10, wherein the first fault tracing detection request packet further comprises a first parameter, and the first parameter is used to identify the SF node or is used to identify a previous-hop SF node of the SF node on the service chain.

12. The method according to any one of claims 9 to 11, wherein the first fault tracing detection request packet further comprises a node list, and the node list comprises an ID of the previous-hop SF node of the SF node on the service chain; and the first fault tracing detection response packet further comprises an updated node list, the updated node list comprises the ID of the SF node and the node list, and an order of all SF nodes comprised in the updated node list is the same as an order of all the SF nodes on the service chain.

13. The method according to any one of claims 9 to 12, wherein after the sending, by the device for initiating fault detection, the first fault tracing detection request packet to the SFE, the method further comprises:

receiving, by the device for initiating fault detection, a second fault tracing detection response packet from the SFE, wherein the second fault tracing detection response packet comprises the path ID and an ID of the SFE; and

determining, by the device for initiating fault detection, that forwarding between the SFE and the device for initiating fault detection is normal.

14. A service forwarding apparatus, wherein the service forwarding apparatus comprises:

a first communications unit, configured to: obtain a first fault tracing detection request packet, and then determine to communicate with a service function, SF, node, wherein the first fault tracing detection request packet comprises a path identifier, ID, and the path ID is used to identify a path of a service chain;

a first obtaining unit, configured to obtain an ID of the SF node; and

a first sending unit, configured to send a first fault tracing detection response packet to the device for initiating fault detection, wherein the first fault tracing detection response packet comprises the path ID and the ID of the SF node.

15. The service forwarding apparatus according to claim 14, wherein the first communications unit is specifically configured to:

obtain a correspondence based on the path ID, wherein the correspondence comprises the path ID and an address of the SF node;

send the first fault tracing detection request packet to the SF node according to the address of the SF node comprised in the correspondence; and

receive a second fault tracing detection request packet from the SF node, wherein the second fault tracing detection request packet comprises the path ID.

16. The service forwarding apparatus according to claim 14, wherein the first fault tracing detection request packet further comprises a first parameter, the first parameter is used to identify the SF node or is used to identify a previous-hop SF node of the SF node on the service chain; and the first communications unit is specifically configured to:

obtain a correspondence based on the path ID and the first parameter, wherein the correspondence comprises the path ID, the first parameter and an address of the SF node;

send the first fault tracing detection request packet to the SF node according to the address of the SF node comprised in the correspondence; and

receive a second fault tracing detection request packet from the SF node, wherein the second fault tracing detection request packet comprises the path ID.

17. The service forwarding apparatus according to claim 16, wherein the first fault tracing detection response packet further comprises at least one of the first parameter and an ID of the service forwarding apparatus.

18. The service forwarding apparatus according to any one of claims 14 to 16, wherein the first sending unit is further configured to send a second fault tracing detection response packet to the device for initiating fault detection, wherein the second fault tracing detection response packet comprises the path ID and an ID of the service forwarding apparatus.

19. The service forwarding apparatus according to any one of claims 14 to 18, wherein the first fault tracing detection request packet further comprises a node list, and the node list comprises an ID of the previous-hop SF node of the SF node on the service chain; and the first fault tracing detection response packet further comprises an updated node list, the updated node list comprises the ID of the SF node and the node list, and an order of all SF nodes comprised in the updated node list is the same as an order of all the SF nodes on the service chain.

20. The service forwarding apparatus according to any one of claims 14 to 19, wherein the first fault tracing detection request packet further comprises an ID of an SF node used as an end point; and

the service forwarding apparatus further comprises:

a control unit, configured to: after the first sending unit sends the first fault tracing detection response packet to the device for initiating fault detection, determine that the ID of the SF node is the same as the ID of the SF node used as the end point, and end detection on the service chain.

21. The service forwarding apparatus according to any one of claims 14 to 20, wherein

the first communications unit is specifically configured to receive the first fault tracing detection request packet from the device for initiating fault detection; or

the first communications unit is specifically configured to receive the first fault tracing detection request packet from a previous-hop SFE of the service forwarding apparatus on the service chain; or

the first communications unit is specifically configured to generate the first fault tracing detection request packet.

22. A device for initiating fault detection, wherein the device for initiating fault detection comprises:

a sending unit, configured to send a first fault tracing detection request packet to a service forwarding entity, SFE, wherein the first fault tracing detection request packet comprises a path identifier, ID, and the path ID is used to identify a path of a service chain;

a first receiving unit, configured to receive a first fault tracing detection response packet from the SFE, wherein the first fault tracing detection response packet comprises the path ID and an ID of a service function, SF, node; and

a first determining unit, configured to determine that forwarding between the SFE and the SF node is normal.

23. The device for initiating fault detection according to claim 22, wherein the sending unit is specifically configured to:

obtain a correspondence based on the path ID, wherein the correspondence comprises the path ID and an address of the SFE; and

send the first fault tracing detection request packet to the SFE according to the address of the SFE comprised in the correspondence.

24. The device for initiating fault detection according to claim 22 or 23, wherein the first fault tracing detection request packet further comprises a first parameter, and the first parameter is used to identify the SF node or is used to identify a previous-hop SF node of the SF node on the service chain.

25. The device for initiating fault detection according to any one of claims 22 to 24, wherein the first fault tracing detection request packet further comprises a node list, wherein the node list comprises an ID of the previous-hop SF node of the SF node on the service chain; and

the first fault tracing detection response packet further comprises an updated node list, the updated node list comprises the ID of the SF node and the node list, and an order of all SF nodes comprised in the updated node list is the same as an order of all the SF nodes on the service chain.

26. The device for initiating fault detection according to any one of claims 22 to 25, wherein the

device for initiating fault detection further comprises:

a second receiving unit, configured to receive a second fault tracing detection response packet from the SFE, wherein the second fault tracing detection response packet comprises the path ID and an ID of the SFE; and

the first determining unit is further configured to determine that forwarding between the SFE and the fault detection is normal.

27. A system, comprising a service forwarding apparatus according to any one of claims 14 to 21, and a device for initiating fault detection according to any one of claims 22 to 26.