SERVICE CHAIN FAULT DETECTION METHOD AND APPARATUS

[0001] This application claims priority to Chinese Patent Application No. CN201410224672.0, filed with the Chinese Patent Office on May 26, 2014 and entitled "SERVICE CHAIN FAULT DETECTION METHOD AND APPARATUS".

TECHNICAL FIELD

[0002] The present invention relates to communications technologies, and in particular, to a service chain fault detection method, a service forwarding apparatus, a device for initiating fault detection, and a service function apparatus.

BACKGROUND

[0003] In addition to providing basic forwarding functions such as switching and routing, a general network device may further provide a value-added service (English full name: Value-Added Service, English abbreviation: VAS). For example, the VAS may be a service such as network address translation (English full name: Network Address Translation, English abbreviation: NAT) or a firewall.

[0004] In a network that provides a value-added service, a service chain (English name: service chain) includes a service classifier (English name: service classifier) and N service forwarding entities (English full name: service forwarding entity, English abbreviation: SFE). The SFEs included in the service chain are successively connected. The SFE may be connected to one or more service function (English full name: service function, English abbreviation: SF) nodes. According to a service to which a received packet belongs, the service classifier adds an identifier of the service chain to the packet, to obtain a service packet. The service classifier sends the service packet to an SFE connected to the service classifier. The SFE sends the received service packet to an SF node that is connected to the SFE and that belongs to the service chain, and the SF node performs service processing on the service packet.

[0005] To implement normal forwarding of the service packet, a detection device

in the network may detect whether the SFE, the SF node, and the service classifier can forward the service packet. When the SFE can forward the service packet to the SF node that is connected to the SFE and that belongs to the service chain, the detection device cannot detect whether an order in which the SFE forwards the service packet to an SF node belonging to the service chain is correct, that is, the detection device cannot learn an SF node that the service packet passes through when being forwarded on the service chain.

EP 2 595 344 A2 discloses a method and an apparatus for detecting connectivity in a multi-protocol label switching ring network. The network comprises a plurality of nodes arranged in a ring structure. The detection of connectivity is based on the use of request packets comprising a ring identifier and node identifiers.

SUMMARY

[0006] In view of the foregoing, embodiments of the present invention provide a service chain fault detection method, a service forwarding apparatus, a device for initiating fault detection, and a service function apparatus, which are helpful to learn an SF node that a service packet passes through when being forwarded on a service chain. The present invention is defined in the attached claims.

[0007] The technical solutions provided in the embodiments of the present invention are as follows:

[0008] According to a first aspect, a service chain fault detection method is provided, including:

obtaining, by an SFE, a first fault tracing detection request packet, and then determining to communicate with a first SF node, where the first fault tracing detection request packet includes a path ID and an address of a device for initiating fault detection, and the path ID is used to identify a path of a service chain;

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

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

[0009] In a first possible implementation manner of the foregoing first aspect, the determining, by an SFE, to communicate with a first SF node on the service chain includes:

determining, by the SFE according to the path ID, to forward the first fault tracing detection request packet according to a first forwarding entry, where the first

disc.

[0309] Persons of ordinary skill in the art may understand that all or some of the steps of the foregoing method embodiments may be implemented by a program instructing relevant hardware. The foregoing program may be stored in a computer readable storage medium. When the program runs, the steps of the method embodiments are performed. The foregoing storage medium may be at least one of the following mediums: any medium that can store program code, such as a ROM, a RAM, a magnetic disk, or an optical disc.

[0310] Finally, it should be noted that the foregoing embodiments are merely intended for exemplarily describing the technical solutions of the present invention, but not for limiting the present invention.