CLAIMS

What is claimed is:

1. A control method, comprising:

detecting that access traffic satisfies a rate limit condition, and capturing an access message;

parsing the access message to obtain inner-layer encapsulation information in the access message;

determining, based on the inner-layer encapsulation information, a source virtual machine that satisfies the rate limit condition; and

sending back pressure information to a source host machine where the source virtual machine is located; wherein the back pressure information is used for instructing to perform message rate limit processing on the source virtual machine.

2. The method of claim 1, wherein the determining, based on the inner-layer encapsulation information, the source virtual machine that satisfies the rate limit condition, comprises:

aggregating access messages based on a message flow identified by the inner-layer encapsulation information, to determine numbers of messages for different message flows;

selecting a message flow to be limited in rate according to the numbers of messages for the different message flows; and

determining a source virtual machine corresponding to the message flow to be limited in rate.

3. The method of claim 2, wherein the selecting the message flow to be limited in rate according to the numbers of messages for the different message flows, comprises:

selecting a message flow to be limited in rate with the number of messages greater than or equal to a preset number, according to the numbers of messages for the different message flows,

wherein the selecting the message flow to be limited in rate according to the numbers of messages for the different message flows, comprises:

selecting top N message flows, in a descending order of the numbers of messages, as message flows to be limited in rate.

4. The method of claim 2, further comprising:

determining a back pressure object in the source virtual machine; wherein, the back pressure object comprises all message flows sent by the source virtual machine, all message flows which are sent by the source virtual machine to a destination virtual machine corresponding to a message flow to be limited in rate sent by the source virtual machine, or a message flow to be limited in rate sent by the source virtual machine; and

generating the back pressure information at least according to the back pressure object; wherein, the back pressure information is used for instructing to perform message rate limit processing on the back pressure object,

wherein the method further comprises:

determining at least one processing manner of a rate limit processing manner and an alarm processing manner which correspond to the source virtual machine; and

generating the back pressure information at least according to the at least one processing manner; wherein, the back pressure information is used for instructing to perform message rate limit processing on the source virtual machine according to the at least one processing manner,

wherein the method further comprises:

in a case where the at least one processing manner comprises the rate limit processing manner, determining a rate limit type corresponding to the source virtual machine; and

the generating the back pressure information at least according to the at least one processing manner, comprises:

generating the back pressure information at least according to the at least one processing manner and the rate limit type.

5. The method of claim 1, further comprising:

receiving response information, which is fed back after performing the message rate limit processing on the source virtual machine according to the back pressure information; and

outputting alarm prompt information based on the response information.

6. The method of claim 1, further comprising:

parsing the access message to obtain outer-layer encapsulation information; and

the sending the back pressure information to the source host machine where the source virtual machine is located, comprises:

constructing a back pressure message, based on back pressure indication information indicating a manner of performing the message rate limit processing, and inner-layer encapsulation information and outer-layer encapsulation information corresponding to the source virtual machine; and

sending the back pressure message as the back pressure information to the source host machine where the source virtual machine is located.

7. The method of claim 6, wherein the back pressure message at least comprises: at least one back pressure field corresponding to the back pressure indication information, a host machine address field, a network identifier field, and a field corresponding to each of inner-layer quintuple; and

the constructing the back pressure message, based on the back pressure indication information, and the inner-layer encapsulation information and the outer-layer encapsulation information corresponding to the source virtual machine, comprises:

filling the back pressure indication information into the at least one back pressure field;

filling a source host machine address in the outer-layer encapsulation information corresponding to the source virtual machine, into the host machine address field;

filling a virtual network identifier in the outer-layer encapsulation information corresponding to the source virtual machine, into the network identifier field; and

filling inner-layer quintuple information in the inner-layer encapsulation information corresponding to the source virtual machine, into the field corresponding to each of the inner-layer quintuple.

8. The method of claim 7, wherein the back pressure message further comprises at least one feedback field; wherein the at least one feedback field is used for filling a processing result after performing the message rate limit processing, to generate a response message; and

the method further comprises:

receiving the response message; and

outputting rate limit prompt information based on the response message,

wherein the at least one feedback field comprises: a virtual machine identifier field used for filling a virtual machine identifier of the source virtual machine, a current packet forwarding rate field used for filling a current packet forwarding rate of the back pressure object, an average packet forwarding rate field used for filling an average packet forwarding rate of the back pressure object within a recent preset time range, and a maximum packet forwarding rate field used for filling a maximum packet forwarding rate of the back pressure object within the recent preset time range,

wherein the back pressure message further comprises an attack direction field; and

the method further comprises:

in a case where the source virtual machine corresponds to an alarm processing manner, determining a traffic attack direction; and

filling a parameter value identifying the traffic attack direction into the attack direction field,

wherein the back pressure message further comprises a network protocol field; and the method further comprises:

filling a parameter value identifying an inner-layer network protocol into the network protocol field; wherein the network protocol field is used for parsing and obtaining the inner-layer quintuple information according to a network protocol identified by a field value,

wherein the at least one back pressure field comprises a processing manner field, a rate limit type field, and a back pressure object field; and

the filling the back pressure indication information into the at least one back pressure field, comprises:

determining at least one processing manner of a rate limit processing manner and an alarm processing manner which correspond to the source virtual machine, and writing a parameter value identifying the at least one processing manner into the processing manner field;

in a case where the at least one processing manner comprises the rate limit processing manner, determining a rate limit type corresponding to the source virtual machine, and writing a parameter value identifying the rate limit type into the rate limit type field; and

determining a back pressure object in the source virtual machine, determining valid information in the inner-layer quintuple information based on the back pressure object, and writing a parameter value identifying the valid information into the back pressure object field.

9. The method of claim 1, wherein the detecting that the access traffic satisfies the rate limit condition, and capturing the access message, comprises:

detecting that the access traffic satisfies the rate limit condition, and capturing access messages according to a sampling frequency and a sampling quantity.

10. A control method, comprising:

receiving back pressure information; wherein, the back pressure information is sent by a destination end for a source virtual machine that satisfies a rate limit condition; the source virtual machine that satisfies the rate limit condition is determined based on inner-layer encapsulation information; the inner-layer encapsulation information is obtained by detecting, by the destination end, that access traffic satisfies the rate limit condition, capturing an access message, and parsing the access message; and

performing message rate limit processing on the source virtual machine according to the back pressure information.

11. The method of claim 10, wherein the performing the message rate limit processing on the source virtual machine according to the back pressure information, comprises:

performing the message rate limit processing on a back pressure object, indicated by the back pressure information, in the source virtual machine, according to the back pressure information,

wherein the receiving the back pressure information, comprises:

receiving the back pressure information periodically; and

the method further comprises:

in a case where the back pressure information is not received within a specified time, performing a recovery operation on the back pressure object which has been subjected to rate limit processing.

12. The method of claim 10, wherein the performing the message rate limit processing on the source virtual machine according to the back pressure information, comprises:

performing the message rate limit processing on the source virtual machine according to at least one processing manner indicated by the back pressure information,

wherein the performing the message rate limit processing on the source virtual machine according to the at least one processing manner indicated by the back pressure information, comprises:

determining the at least one processing manner indicated by the back pressure information;

in a case where the at least one processing manner comprises an alarm processing manner, generating a first feedback result, based on a virtual machine identifier of the source virtual machine and packet sending situation information of the source virtual machine;

in a case where the at least one processing manner comprises a rate limit processing manner, performing rate limit processing on message sending of the source virtual machine, and generating a second feedback result based on the virtual machine identifier of the source virtual machine and the packet sending situation information of the source virtual machine; and

generating response information based on the first feedback result or the second feedback result, and feeding back the response information to the destination end.

13. The method of claim 10, wherein the receiving the back pressure information, comprises:

receiving a back pressure message; and

parsing the back pressure message, to obtain back pressure indication information indicating a manner of performing the message rate limit processing, a virtual network identifier and inner-layer quintuple information in the back pressure message; and

the performing the message rate limit processing on the source virtual machine according to the back pressure information, comprises:

determining the source virtual machine, based on the virtual network identifier and a source virtual machine address in the inner-layer quintuple information; and

performing the message rate limit processing on the source virtual machine according to the back pressure indication information,

wherein the method further comprises:

acquiring a processing result after performing the message rate limit processing on the source virtual machine;

filling the processing result into at least one feedback field in the back pressure message, to generate a response message; and

sending the response message to the destination end,

wherein the performing the message rate limit processing on the source virtual machine according to the back pressure indication information, comprises:

determining valid information in the inner-layer quintuple information according to a back pressure object field value in the back pressure indication information; and

performing the message rate limit processing on a back pressure object identified by the valid information, according to at least one processing manner and a rate limit type in the back pressure indication information.

14. A control apparatus, comprising:

a message capturing module, configured for detecting that access traffic satisfies a rate limit condition, and capturing an access message;

a message parsing module, configured for parsing the access message to obtain inner-layer encapsulation information in the access message;

a determination module, configured for determining, based on the inner-layer encapsulation information, a source virtual machine that satisfies the rate limit condition; and

a back pressure triggering module, configured for sending back pressure information to a source host machine where the source virtual machine is located; wherein, the back pressure information is used for instructing to perform message rate limit processing on the source virtual machine.

15. A control apparatus, comprising:

an information receiving module, configured for receiving back pressure information; wherein, the back pressure information is sent by a destination end for a source virtual machine that satisfies a rate limit condition; the source virtual machine that satisfies the rate limit condition is determined based on inner-layer encapsulation information; the inner-layer encapsulation information is obtained by detecting, by the destination end, that access traffic satisfies the rate limit condition, capturing an access message, and parsing the access message; and

a processing module, configured for performing message rate limit processing on the source virtual machine according to the back pressure information.

16. A computing device, comprising a processing component and a storage component, wherein the storage component stores one or more computer instructions, and the one or more computer instructions are used for being called and executed by the processing component, to run at least one virtual machine and run a virtual switch implementing the control method of any one of claims 1 to 9.

17. A computing device, comprising a processing component and a storage component, wherein the storage component stores one or more computer instructions, and the one or more computer instructions are used for being called and executed by the processing component, to run a virtual gateway implementing the control method of any one of claims 1 to 9.

18. A computing device, comprising a processing component and a storage component, wherein the storage component stores one or more computer instructions, and the one or more computer instructions are used for being called and executed by the processing component, to run at least one virtual machine and run a virtual switch implementing the control method of any one of claims 10 to 13.

19. A computer storage medium, storing a computer program, wherein the computer program, when executed by a computer, implements the control method of any one of claims 1 to 9.

20. A computer storage medium, storing a computer program, wherein the computer program, when executed by a computer, implements the control method of any one of claims 10 to 13.