CLAIMS

What is claimed is:

1. A message sending method, wherein the method is applied to a control plane (CP) device in a communication system in which a CP and a user plane (UP) are separated, the communication system further comprises a UP device, and the method comprises:

generating, by the CP device, a first message, wherein the first message comprises route information and a control indication for the route information, and the route information is associated with the UP device, the first message comprises a route flag indicating a type of the route information, and the type of the route information comprises at least one of the following: a network segment route, a gateway route, a host route, or a frame route; and

sending, by the CP device, the first message to the UP device, so that the UP device updates the route information based on the control indication, wherein

the first message is a packet forwarding control protocol (PFCP) message.

2. The method according to claim 1, wherein the first message is a node-level message or a session-level message.

3. The method according to claim 2, wherein the route information is a grouped information element in the node-level message or the session-level message.

4. The method according to any one of claims 1 to 3, wherein the control indication comprises at least one of an install indication or a remove indication, the install indication is used to indicate to install the route information, and the remove indication is used to indicate to remove the route information.

5. The method according to claim 4, wherein the route information comprises a destination address and a next-hop address.

6. The method according to claim 5, wherein the route information further comprises at least one of the following: an outbound interface index, a route tag, a route cost, or a network instance, wherein

the outbound interface index is used to indicate path information associated with the route information;

the route tag is used to indicate an identifier of the route information, and the route tag

corresponds to a route tag in a border gateway protocol;

the route cost is used to indicate a cost of a route associated with the route information; and

the network instance is used to identify a virtual private network, and the network instance corresponds to a network instance in a PFCP protocol.

7. The method according to claim 6, wherein at least one of the outbound interface index, the route flag, the route tag, or the network instance is an embedded information element in the route information.

8. The method according to any one of claims 1 to 7, wherein the route information comprises indication information, and the indication information is used to indicate the UP device to advertise the route information.

9. The method according to any one of claims 1 to 8, wherein the route information comprises first route information and second route information.

10. The method according to claim 9, wherein the control indication comprises a first control indication for the first route information and a second control indication for the second route information, the first control indication is used to indicate to install or remove the first route information, and the second control indication is used to indicate to install or remove the second route information.

11. The method according to any one of claims 1 to 10, further comprising:

receiving, by the CP device, a second message from the UP device, wherein the second message comprises a response of the UP device to the first message.

12. The method according to claim 11, wherein the second message further comprises identification information of the UP device.

13. A message receiving method, wherein the method is applied to a user plane (UP) device in a communication system in which a UP and a control plane (CP) are separated, the communication system further comprises a CP device, and the method comprises:

receiving, by the UP device, a first message from the CP device, wherein the first message comprises route information and a control indication for the route information, and the route information is associated with the UP device, the first message comprises a route flag indicating a type of the route information, and the type of the route information comprises at least one of the following: a network segment route, a gateway route, a host route, or a frame route; and

updating, by the UP device, the route information based on the control indication, wherein

the first message is a packet forwarding control protocol (PFCP) message.

14. The method according to claim 13, wherein the first message comprises first type information, the first type information indicates that the first message comprises the control indication, and the receiving a first message from the CP device comprises:

obtaining, by the UP device, the control indication from the first message based on the first type information.

15. The method according to claim 13 or 14, wherein updating the route information comprises at least one of the following:

installing, by the UP device, the route information based on the control indication; or

removing, by the UP device, the route information based on the control indication.

16. The method according to any one of claims 13 to 15, wherein the route information comprises indication information, the indication information indicates the UP device to advertise the route information, and the method further comprises:

advertising, by the UP device, the route information based on the indication information.

17. A network device, wherein the network device is configured to implement the method according to any one of claims 1 to 12.

18. A network device, wherein the network device is configured to implement the method according to any one of claims 13 to 16.

19. A message sending method, wherein the method is applied to a communication system in which a control plane (CP) and a user plane (UP) are separated, the communication system comprises a CP device and a UP device, and the method comprises:

generating, by the CP device, a first message, wherein the first message comprises route information and a control indication for the route information, and the route information is associated with the UP device, the first message comprises a route flag indicating a type of the route information, and the type of the route information comprises at least one of the following: a network segment route, a gateway route, a host route, or a frame route; and

sending, by the CP device, the first message to the UP device;

updating, by the UP device, the route information based on the control indication, wherein the first message is a packet forwarding control protocol (PFCP) message.

20. A communication system in which a control plane (CP) and a user plane (UP) are separated, comprising:

a CP device, wherein the CP device is configured to implement the method according to any one of claims 1 to 12; and

a UP device, wherein the UP device is configured to implement the method according to any one of claims 12 to 16.