[Claim 1]

A router device for redistributing, to a node, a prefix distributed from a prefix distributing device to route a packet based on an IPv6 address, the router device comprising:

a prefix management unit for creating a filtering rule including an indication of passage or block of a packet from the node based on the prefix distributed from the prefix distributing device and a prefix in a source IP address received from the node; and

a filter unit for passing or blocking the packet from the node according to the filtering rule created by the prefix management unit.

[Claim 2]

The router device according to claim 1, wherein

when a received packet meets the indication of blocking the packet in the filtering rule, the filter unit discards the packet and notifies the prefix management unit of the source IP address of the discarded packet, and

the prefix management unit determines that a prefix included in the notified source IP address is a prefix unusable and to be deleted.

[Claim 3]

The router device according to claim 1 or 2, further comprising a prefix storage unit for storing a prefix together with discriminative data used to determine whether the prefix is usable.

[Claim 4]

The router device according to claim 3, further comprising an RA sending unit for periodically checking on contents stored in the prefix storage unit, creating option

information on an RA packet capable of identifying whether a prefix is usable or unusable based on the prefix and the discriminative data stored in the prefix storage unit, and sending a node an RA packet including the created option information.

[Claim 5]

The router device according to claim 4, wherein when the filter unit discards the packet, the RA sending unit immediately sends the node an RA packet including option information capable of identifying that the prefix included in the source IP address of the packet is unusable.

[Claim 6]

The router device according to any one of claims 3 to 5, wherein when a prefix is distributed from the prefix distributing device, the prefix management unit sets discriminative data corresponding to the prefix to a value indicating that the prefix is usable, and when a new prefix is distributed from the prefix distributing device, the prefix management unit changes the discriminative data corresponding to the already distributed prefix to a value indicating that the prefix is unusable.

[Claim 7]

A packet control method based on prefix management performed by a router device for redistributing, to a node, a prefix distributed from a prefix distributing device to route a packet based on an IPv6 address, the packet control method based on prefix management comprising:

creating a filtering rule including an indication of passage or block of a packet from the node based on the prefix distributed from the prefix distributing device and a prefix in a source IP address received from the node; and

passing or blocking the packet from the node according to the created filtering rule.

[Claim 8]

The packet control method based on prefix management according to claim 7, wherein when a received packet meets the indication of blocking the packet in the filtering rule, the packet is discarded and a prefix included in the source IP address of the discarded packet is determined to be a prefix unusable and to be deleted.

[Claim 9]

A packet control program based on prefix management, which is installed in a router device for redistributing, to a node, a prefix distributed from a prefix distributing device to route a packet based on an IPv6 address, the packet control program based on prefix management causing a computer in the router device to perform:

a process to create a filtering rule including an indication of passage or block of a packet from the node based on the prefix distributed from the prefix distributing device and a prefix in a source IP address received from the node; and

a process to pass or block the packet from the node according to the created filtering rule.

[Claim 10]

The packet control program based on prefix management according to claim 9, further causing the computer to perform

a process to discard the packet when a received packet meets the indication of blocking the packet in the filtering rule, and determine that a prefix included in the source IP address of the discarded packet is a prefix unusable and to be deleted.

CLAIMS:

1. A router for redistributing, to a node, a prefix distributed from a prefix distributing device to route a packet based on an IPv6 address, the router comprising:

a prefix management unit for creating a filtering rule including an indication of passage or block of a packet from the node based on the prefix distributed from the prefix distributing device and a prefix in a source IP address received from the node; and

a filter unit for passing or blocking the packet from the node according to the filtering rule created by the prefix management unit, wherein

when a received packet meets the indication of blocking the packet in the filtering rule, the filter unit discards the packet and notifies the prefix management unit of the source IP address of the discarded packet, and

the prefix management unit determines that a prefix included in the notified source IP address is a prefix unusable and to be deleted.

2. The router according to claim 1, further comprising a prefix storage unit for storing a prefix together with discriminative data used to determine whether the prefix is usable.

3. The router according to claim 2, further comprising an RA sending unit for periodically checking on contents stored in the prefix storage unit, creating option information on an RA packet capable of identifying whether

a prefix is usable or unusable based on the prefix and the discriminative data stored in the prefix storage unit, and sending a node an RA packet including the created option information.

4. The router according to claim 3, wherein when the filter unit discards the packet, the RA sending unit immediately sends the node an RA packet including option information capable of identifying that the prefix included in the source IP address of the packet is unusable.

5. The router according to any one of claims 2 to 4, wherein when a prefix is distributed from the prefix distributing device, the prefix management unit sets discriminative data corresponding to the prefix to a value indicating that the prefix is usable, and when a new prefix is distributed from the prefix distributing device, the prefix management unit changes the discriminative data corresponding to the already distributed prefix to a value indicating that the prefix is unusable.

6. A packet control method based on prefix management performed by a router for redistributing, to a node, a prefix distributed from a prefix distributing device to route a packet based on an IPv6 address, the packet control method based on prefix management comprising:

creating a filtering rule including an indication of passage or block of a packet from the node based on the prefix distributed from the prefix distributing device and

a prefix in a source IP address received from the node; and

passing or blocking the packet from the node according to the created filtering rule, wherein

when a received packet meets the indication of blocking the packet in the filtering rule, the packet is discarded and a prefix included in the source IP address of the discarded packet is determined to be a prefix unusable and to be deleted.

7. A packet control program based on prefix management, which is installed in a router for redistributing, to a node, a prefix distributed from a prefix distributing device to route a packet based on an IPv6 address, the packet control program based on prefix management causing a computer in the router to perform:

a process to create a filtering rule including an indication of passage or block of a packet from the node based on the prefix distributed from the prefix distributing device and a prefix in a source IP address received from the node;

a process to pass or block the packet from the node according to the created filtering rule; and

a process to discard the packet when a received packet meets the indication of blocking the packet in the filtering rule, and determine that a prefix included in the source IP address of the discarded packet is a prefix unusable and to be deleted.