CLAIMS

1. A relay server comprising:

an address filter information storage part for storing a first routing object address and a second routing object address, the first routing object address being an address of a first routing object device that is located in a first LAN and to which the relay server is able to forward a packet, the second routing object address being an address of a second routing object device to which a second relay server located in a second LAN is able to forward a packet;

a virtual address registration information storage part for storing an address that is registered as a virtual address and that does not overlap in the first LAN;

a virtual address assignment information storage part for storing the relationship of assignment of the virtual address to the second routing object address; and

a control part,

the control part being configured to perform:

a control for transmitting the first routing object address to the second relay server and receiving the second routing object address from the second relay server, and establishing a routing session between the relay server and the second relay server;

a control for assigning the virtual address to the second routing object address and storing the relationship of the assignment into the virtual address assignment information storage part;

a control for, upon reception of a packet whose destination is the first routing object address from the routing session, referring to the virtual address assignment information storage part and converting a source address of the packet into the virtual address assigned to the second routing object address, and forwarding the packet to the

first routing object device that is the destination; and

a control for, upon reception of a packet whose destination is the virtual address from the first routing object device, referring to the virtual address assignment information storage part and converting a destination address of the packet into the second routing object address having the virtual address assigned thereto, and forwarding the packet to the routing session.

2. The relay server according to claim 1, wherein

whether or not to de-assign the virtual address assigned to the second routing object address at a time when the routing session is disconnected is settable.

3. The relay server according to claim 1, wherein

whether to assign the virtual address to the second routing object address and perform communication by using the virtual address or to perform communication by using the second routing object address is settable.

4. The relay server according to claim 3, wherein

whether to perform communication by using the virtual address or to perform communication by using the second routing object address is settable for each relay server.

5. A relay communication system comprising:

a plurality of relay servers including a first relay server and a second relay server; and

client terminals belonging to the relay servers,

the first relay server located in a first LAN including:

a VPN group information storage part for storing routing apparatuses belonging to the same VPN group, the VPN group being a group made up of the routing apparatuses, the routing apparatuses being apparatuses that function as routing points from the relay servers and the client terminals, the VPN group allowing communication between the routing apparatuses via a virtual private network;

an address filter information storage part for storing a first routing object address and a second routing object address, the first routing object address being an address of a first routing object device that is located in the first LAN and to which the first relay server is able to forward a packet, the second routing object address being an address of a second routing object device to which the second relay server located in a second LAN is able to forward a packet;

a virtual address registration information storage part for storing an address that is registered as a virtual address and that does not overlap in the first LAN;

a virtual address assignment information storage part for storing the relationship of assignment of the virtual address to the second routing object address; and

a control part,

the control part being configured to perform:

a control for transmitting the first routing object address to the second relay server and receiving the second routing object address from the second relay server, and establishing a routing session between the first relay server and the second relay server;

a control for assigning the virtual address to the second routing object address and storing the relationship of the assignment into the virtual address assignment information storage part;

a control for, upon reception of a packet whose destination is the first routing object address from the routing session, referring to the virtual address assignment information storage part and converting a source address of the packet into the virtual address assigned to the second routing object address, and forwarding the packet to the first routing object device that is the destination; and

a control for, upon reception of a packet whose destination is the virtual address from the first routing object device, referring to the virtual address assignment information storage part and converting a destination address of the packet into the second routing object address having the virtual address assigned thereto, and forwarding the packet to the routing session.

CLAIMS

1. A relay server for being able to forward a packet to a first routing object device and being located in a first LAN comprising:

an address filter information storage part for storing a first routing object address and a second routing object address, the first routing object address being an address of the first routing object device, the second routing object address being an address of a second routing object device to which a second relay server located in a second LAN is able to forward a packet;

a virtual address registration information storage part for storing an address that is registered as a virtual address and that does not overlap in the first LAN;

a virtual address assignment information storage part for storing the relationship of assignment of the virtual address to the second routing object address; and

a control part,

the control part being configured to perform:

a control for transmitting the first routing object address to the second relay server and receiving the second routing object address from the second relay server, and establishing a routing session between the relay server and the second relay server;

a control for assigning the virtual address to the second routing object address and storing the relationship of the assignment into the virtual address assignment information storage part;

a control for, upon reception of a packet whose destination is the first routing object address from the routing session, referring to the virtual address assignment information storage part and converting a source address of the packet into the virtual

address assigned to the second routing object address, and forwarding the packet to the first routing object device that is the destination; and

a control for, upon reception of a packet whose destination is the virtual address from the first routing object device, referring to the virtual address assignment information storage part and converting a destination address of the packet into the second routing object address having the virtual address assigned thereto, and forwarding the packet to the routing session.

2. The relay server according to claim 1, wherein

whether or not to de-assign the virtual address assigned to the second routing object address at a time when the routing session is disconnected is settable.

3. The relay server according to claim 1, wherein

whether to assign the virtual address to the second routing object address and perform communication by using the virtual address or to perform communication by using the second routing object address is settable.

4. The relay server according to claim 3, wherein

whether to perform communication by using the virtual address or to perform communication by using the second routing object address is settable for each relay server.

5. A relay communication system comprising:

a plurality of relay servers including a first relay server and a second relay server;

and

client terminals belonging to the relay servers,

the first relay server located in a first LAN including:

a VPN group information storage part for storing routing apparatuses belonging to the same VPN group, the VPN group being a group made up of the routing apparatuses, the routing apparatuses being apparatuses that function as routing points from the relay servers and the client terminals, the VPN group allowing communication between the routing apparatuses via a virtual private network;

an address filter information storage part for storing a first routing object address and a second routing object address, the first routing object address being an address of a first routing object device that is located in the first LAN and to which the first relay server is able to forward a packet, the second routing object address being an address of a second routing object device to which the second relay server located in a second LAN is able to forward a packet;

a virtual address registration information storage part for storing an address that is registered as a virtual address and that does not overlap in the first LAN;

a virtual address assignment information storage part for storing the relationship of assignment of the virtual address to the second routing object address; and

a control part,

the control part being configured to perform:

a control for transmitting the first routing object address to the second relay server and receiving the second routing object address from the second relay server, and establishing a routing session between the first relay server and the second relay server;

a control for assigning the virtual address to the second routing object address and storing the relationship of the assignment into the virtual address assignment information storage part;

a control for, upon reception of a packet whose destination is the first routing object address from the routing session, referring to the virtual address assignment information storage part and converting a source address of the packet into the virtual address assigned to the second routing object address, and forwarding the packet to the first routing object device that is the destination; and

a control for, upon reception of a packet whose destination is the virtual address from the first routing object device, referring to the virtual address assignment information storage part and converting a destination address of the packet into the second routing object address having the virtual address assigned thereto, and forwarding the packet to the routing session.