

Fig.1

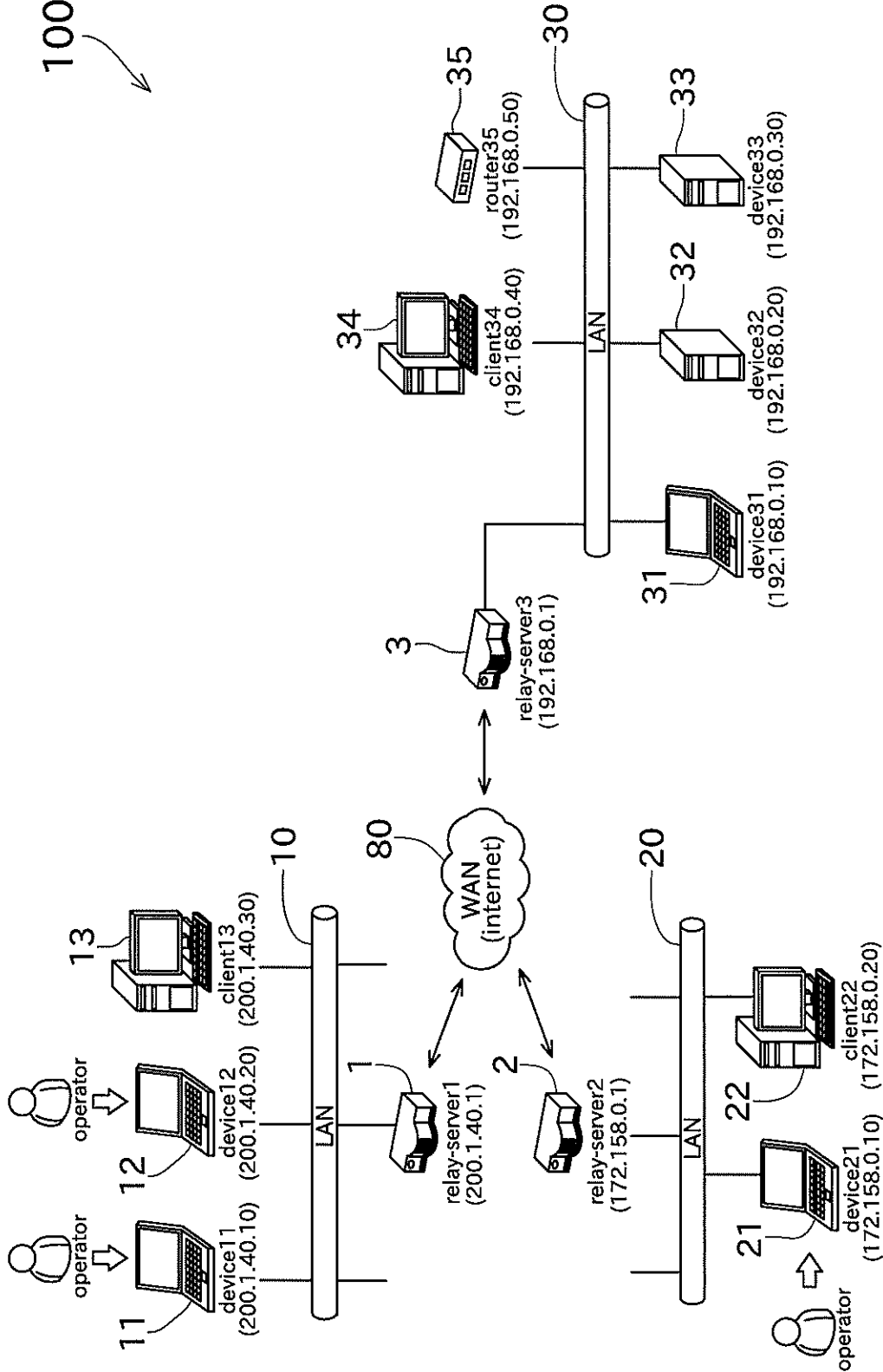


Fig.2

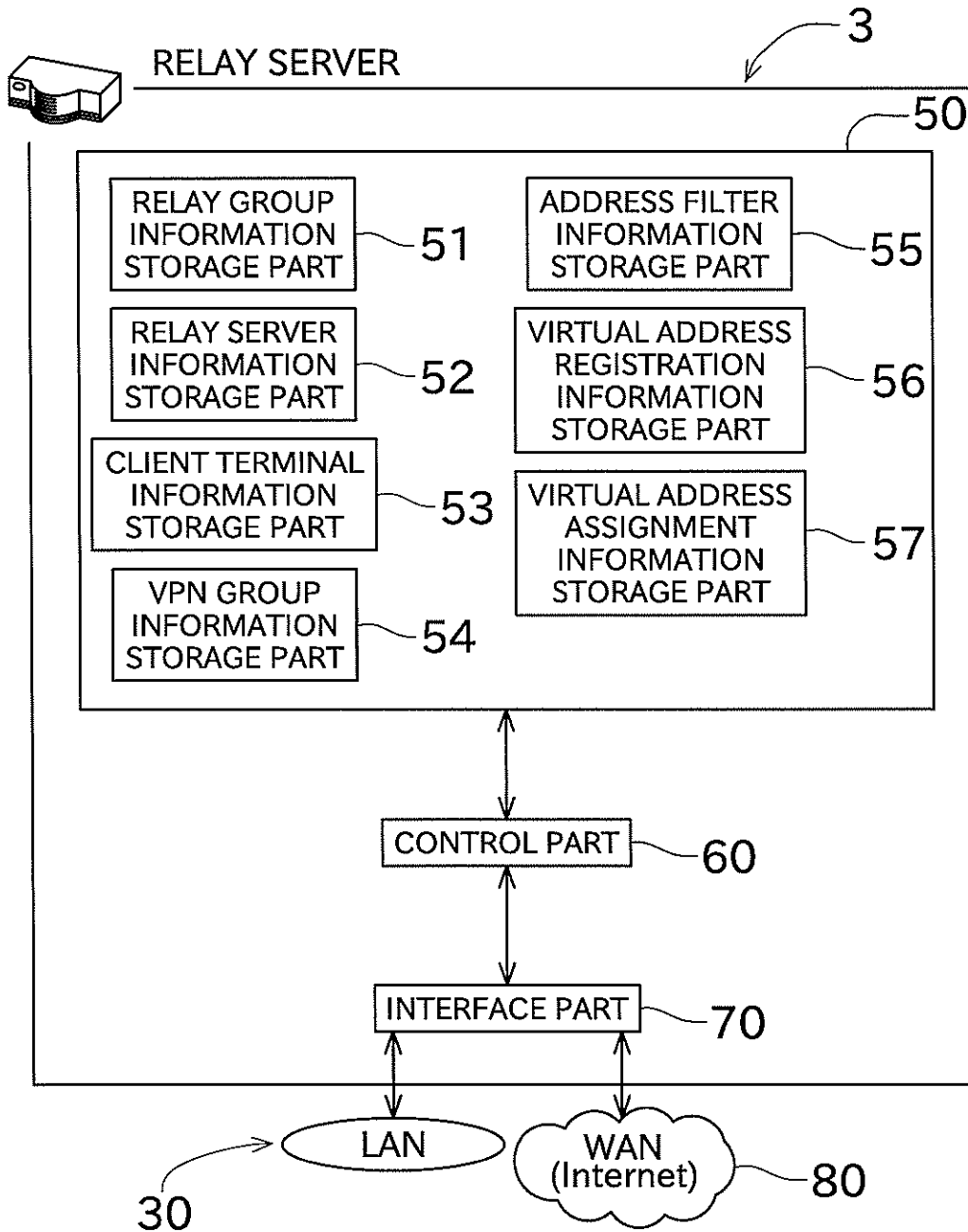


Fig.3

```

<?xml version="1.0" encoding="UTF-8" ?>
-<root>
  -<group id="group-a@relaysystem.net"
    lastmod="20090402133100" name="GROUP A">
    <site id="server1@relaysystem.net" rel="allow"/>
    <site id="server2@relaysystem.net" rel="allow"/>
    <site id="server3@relaysystem.net" rel="allow"/>
  </group>
-</root>

```

Diagrammatic annotations for the XML structure:

- A bracket on the right groups the opening tag of the <group> element and its three <site> child elements, labeled **511**.
- Another bracket on the right groups the three <site> child elements, labeled **512**.

Fig.4

```

<?xml version="1.0" encoding="UTF-8" ?>
-<root>
  -<site id="server1@relaysystem.net"           } 521
    name="RELAY SERVER 1" stat="active">
      -<node group="group-a@relaysystem.net"
        id="client13@server1.net"
        name="CLIENT 13" site="server1@relaysystem.net"/> } 522
      </node>
    </site>
  -<site id="server2@relaysystem.net"           } 521
    name="RELAY SERVER 2" stat="active">
      -<node group="group-a@relaysystem.net"
        id="client22@server2.net"
        name="CLIENT 22" site="server2@relaysystem.net"/> } 522
      </node>
    </site>
  -<site id="server3@relaysystem.net"           } 521
    name="RELAY SERVER 3" stat="active">
      -<node group="group-a@relaysystem.net"
        id="client34@server3.net"
        name="CLIENT 34" site="server3@relaysystem.net"/> } 522
      </node>
    </site>
</root>

```

Fig.5

(a)

```
<?xml version="1.0" encoding="UTF-8" ?>
-<root>
  -<node addr="200.1.40.30"
    group="group-a@relaysystem.net"
    id="client13@server1.net"
    name="CLIENT 13" pass="abc" port="5070">
  </node>
</root>
```

(b)

```
<?xml version="1.0" encoding="UTF-8" ?>
-<root>
  -<node addr="172.158.0.20"
    group="group-a@relaysystem.net"
    id="client22@server2.net"
    name="CLIENT 22" pass="abc" port="5070">
  </node>
</root>
```

(c)

```
<?xml version="1.0" encoding="UTF-8" ?>
-<root>
  -<node addr="192.168.0.40"
    group="group-a@relaysystem.net"
    id="client34@server3.net"
    name="CLIENT 34" pass="abc" port="5070">
  </node>
</root>
```

Fig.6

```
<?xml version="1.0" encoding="UTF-8"?>
-<root>
  -<vnet group="group-a@relaysystem.net"
    id="vpn-group-1@relaysystem.net"
    lastmod="20090410162500" name="VPN-GROUP 1">
    <rp id="server1@relaysystem.net"/>
    <rp id="server3@relaysystem.net"/>
    <ssn sp="server3@relaysystem.net"
      ep="server1@relaysystem.net"/>
  </vnet>
</root>
```

} 541
 } 542
 } 543

Fig.7

(a)

ADDRESS FILTER INFORMATION	
ROUTING OBJECT ADDRESS	NAME
200.1.40.10	OPERATION PC 11
200.1.40.20	OPERATION PC 12

(b)

ADDRESS FILTER INFORMATION	
ROUTING OBJECT ADDRESS	NAME
172.158.0.10	OPERATION PC 21

(c)

ADDRESS FILTER INFORMATION	
ROUTING OBJECT ADDRESS	NAME
192.168.0.10	OBJECT TERMINAL 31
192.168.0.20	OBJECT TERMINAL 32
192.168.0.30	OBJECT TERMINAL 33

Fig.8

TERMINAL ID OF ROUTING APPARATUS	ADDRESS FILTER INFORMATION	
	ROUTING OBJECT ADDRESS	NAME
server1@relaysystem.net	200.1.40.10	OPERATION PC 11
	200.1.40.20	OPERATION PC 12
server3@relaysystem.net	192.168.0.10	OBJECT TERMINAL 31
	192.168.0.20	OBJECT TERMINAL 32
	192.168.0.30	OBJECT TERMINAL 33

SECOND ROUTING OBJECT ADDRESS

FIRST ROUTING OBJECT ADDRESS

Fig.9

VIRTUAL ADDRESS REGISTRATION INFORMATION	
150.100.10.0/24	
150.100.11.0/24	

Fig.10

VIRTUAL ADDRESS ASSIGNMENT INFORMATION		
NAME	ACTUAL ADDRESS	VIRTUAL ADDRESS
OPERATION PC 11	200.1.40.10	150.100.10.1
OPERATION PC 12	200.1.40.20	150.100.10.2

Fig.11

GATEWAY TABLE	
DESTINATION ADDRESS OF PACKET	GATEWAY
150.100.10.0/24	RELAY SERVER 3 (192.168.0.1)
150.100.11.0/24	
OTHERS	ROUTER 35 (192.168.0.50)

Fig.12

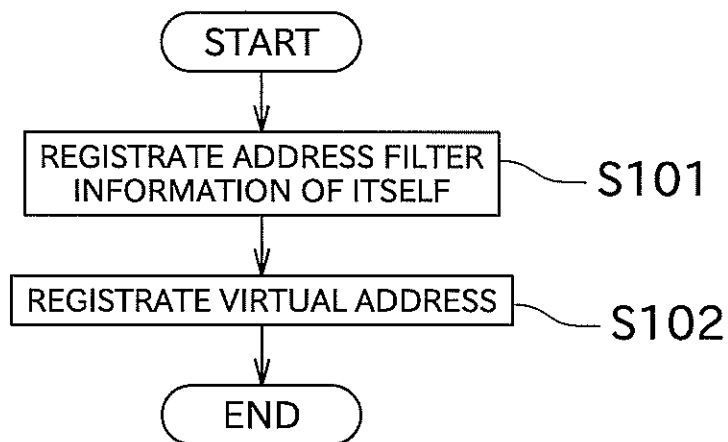


Fig.13

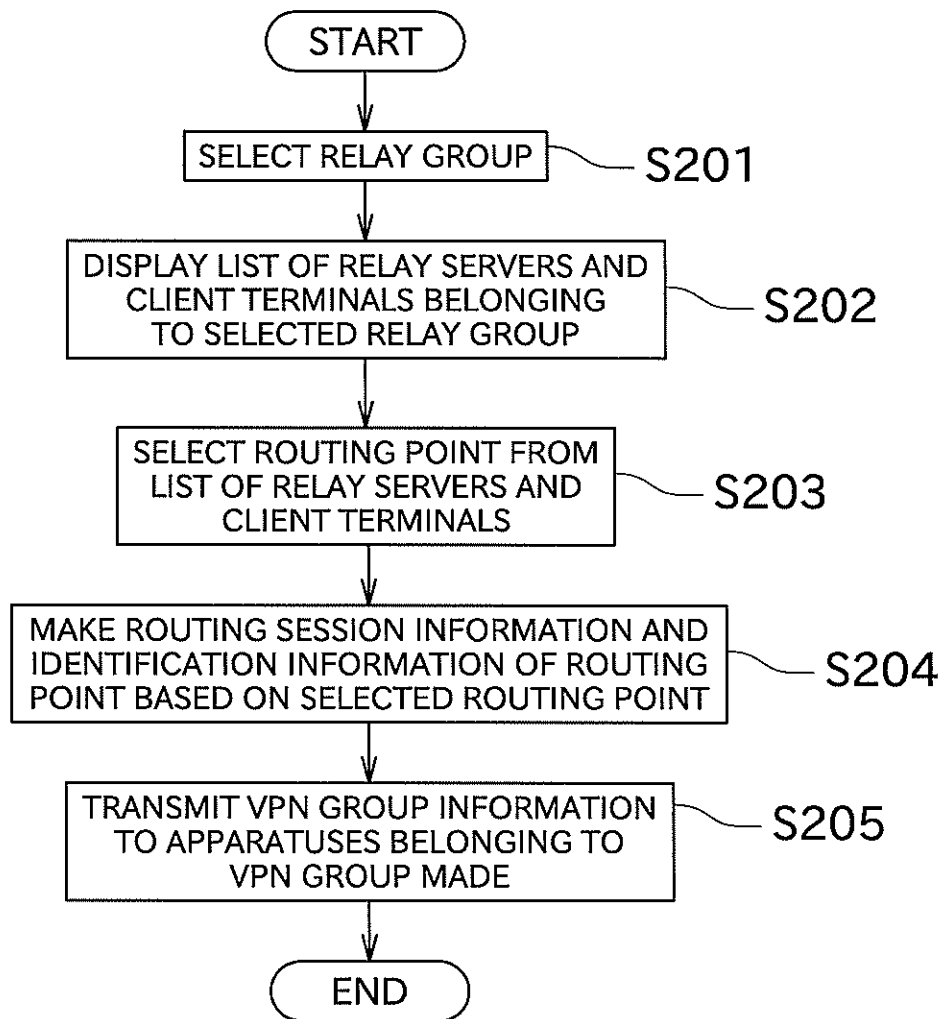


Fig.14

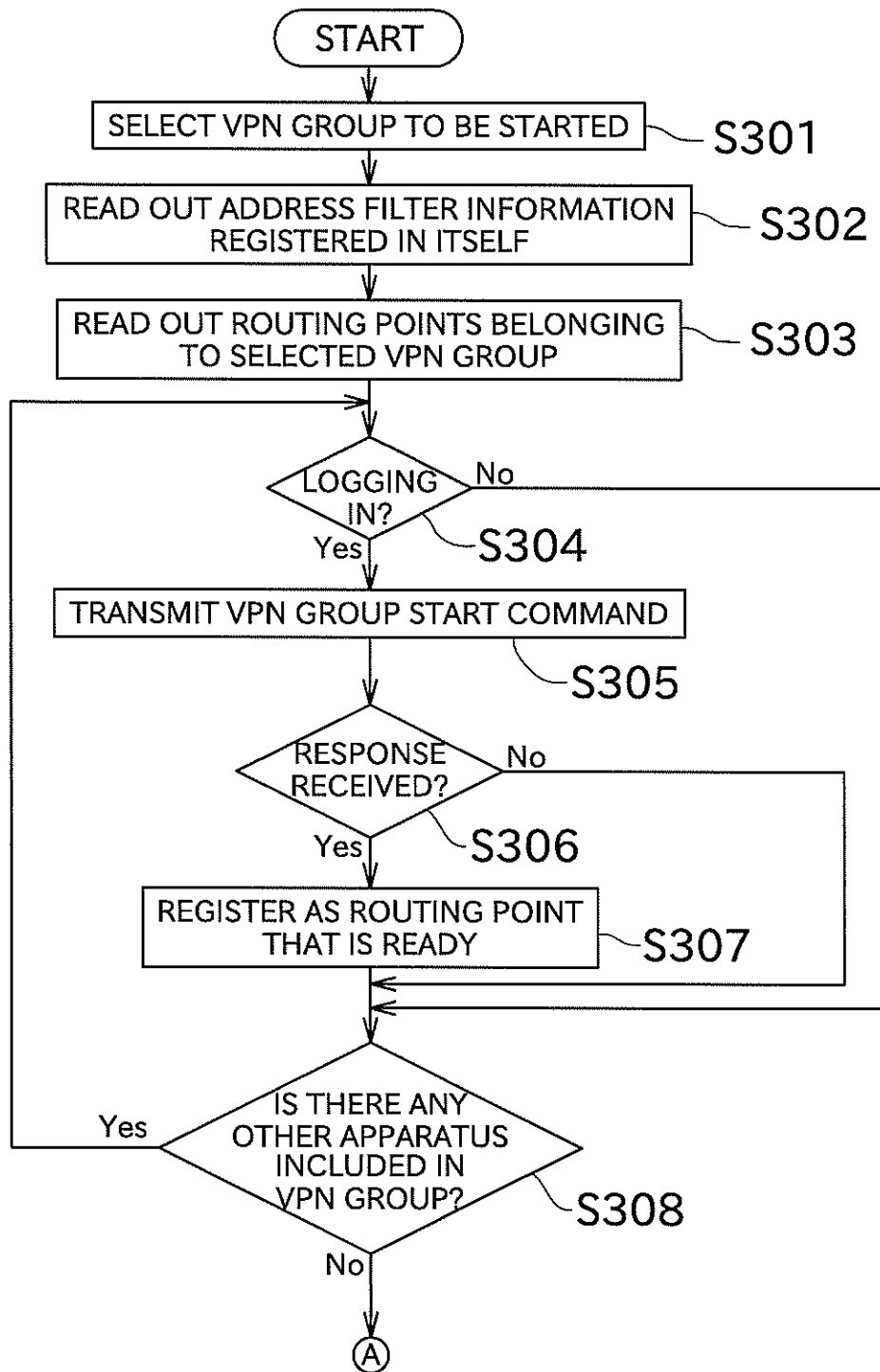


Fig.15

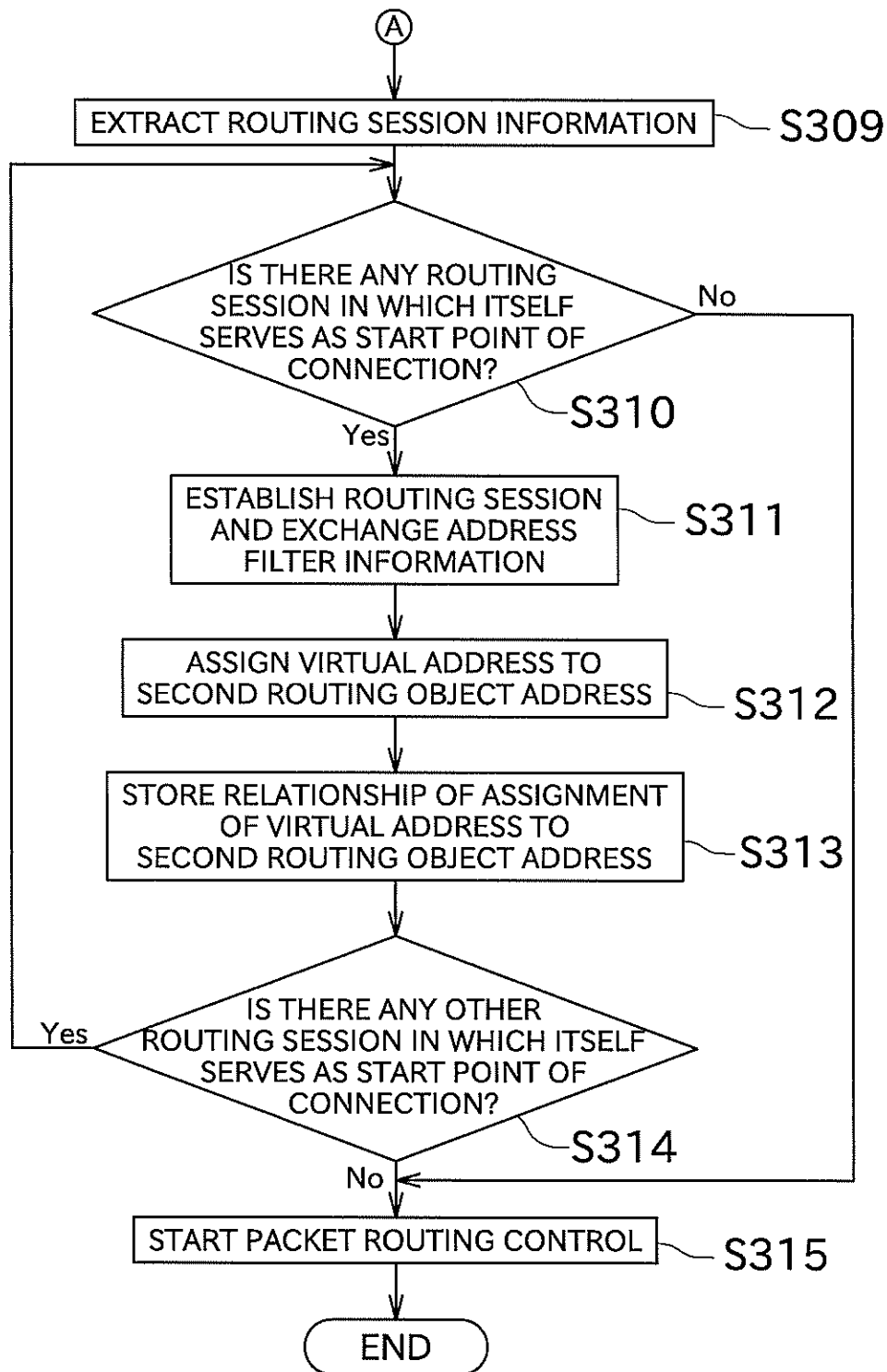


Fig.16

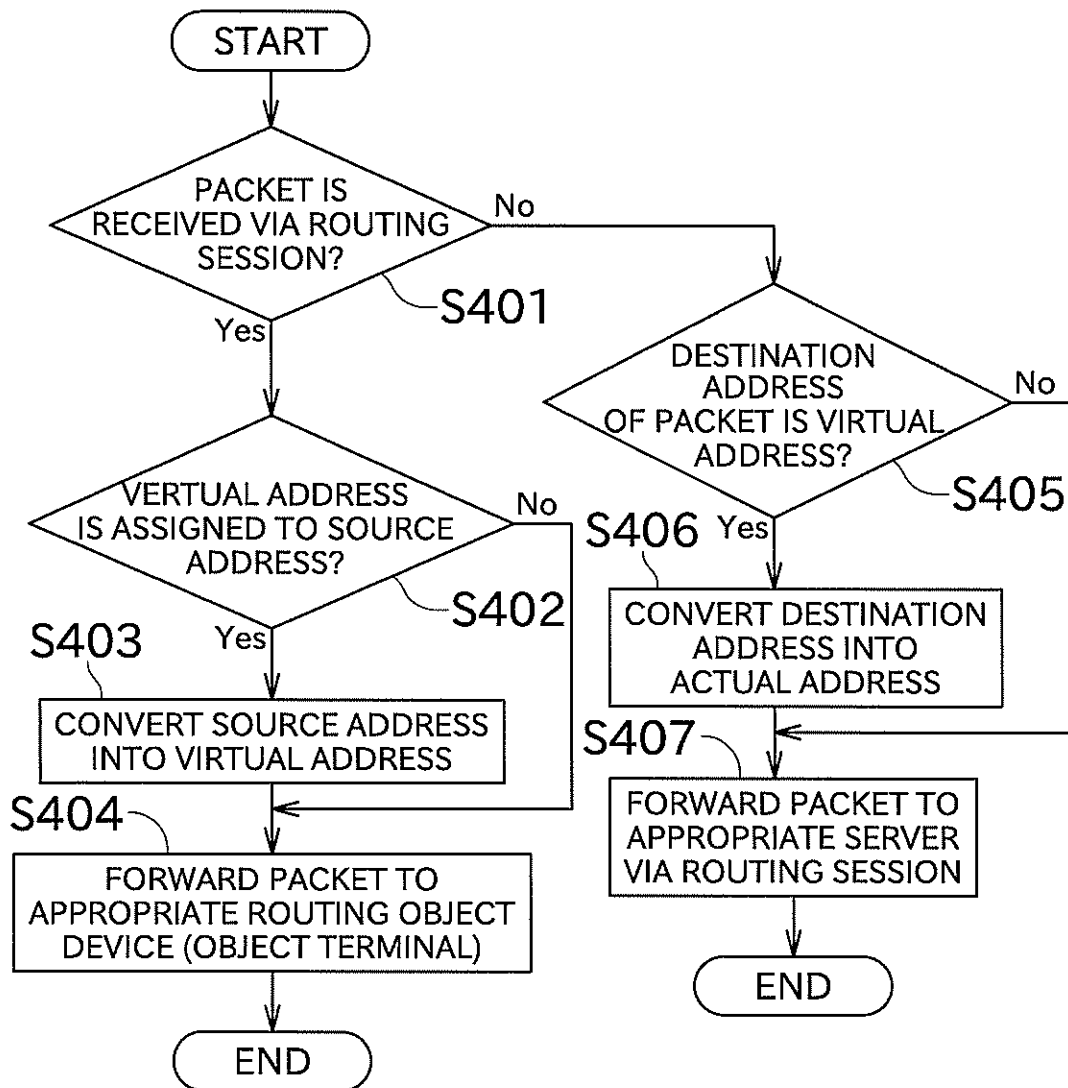
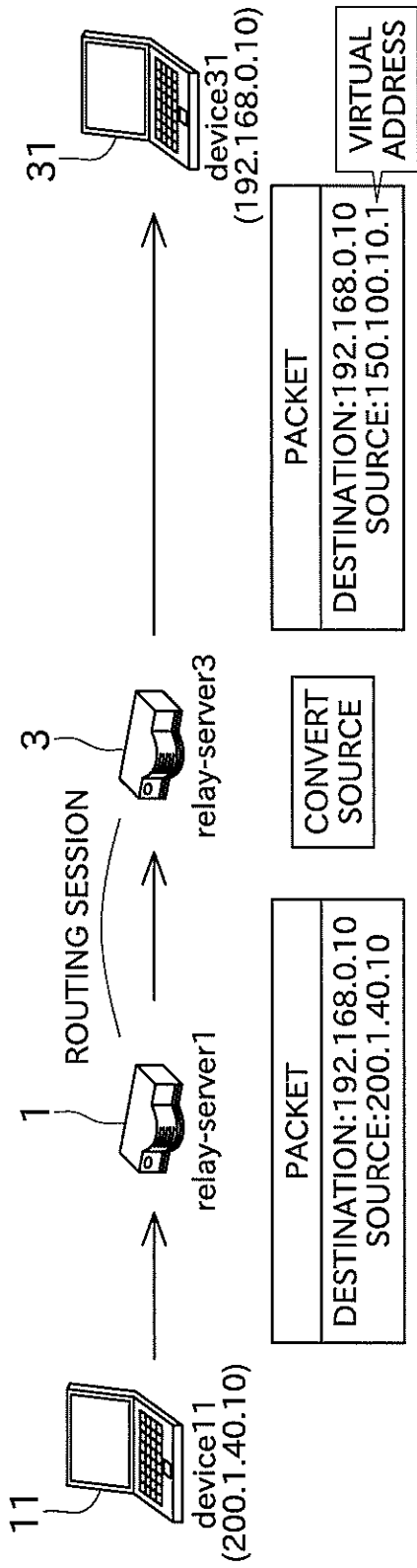


Fig.17

(a) WHEN RELAY SERVER 3 RECEIVES PACKET FROM WAN SIDE (ROUTING SESSION)



(b) WHEN RELAY SERVER 3 RECEIVES PACKET FROM LAN SIDE

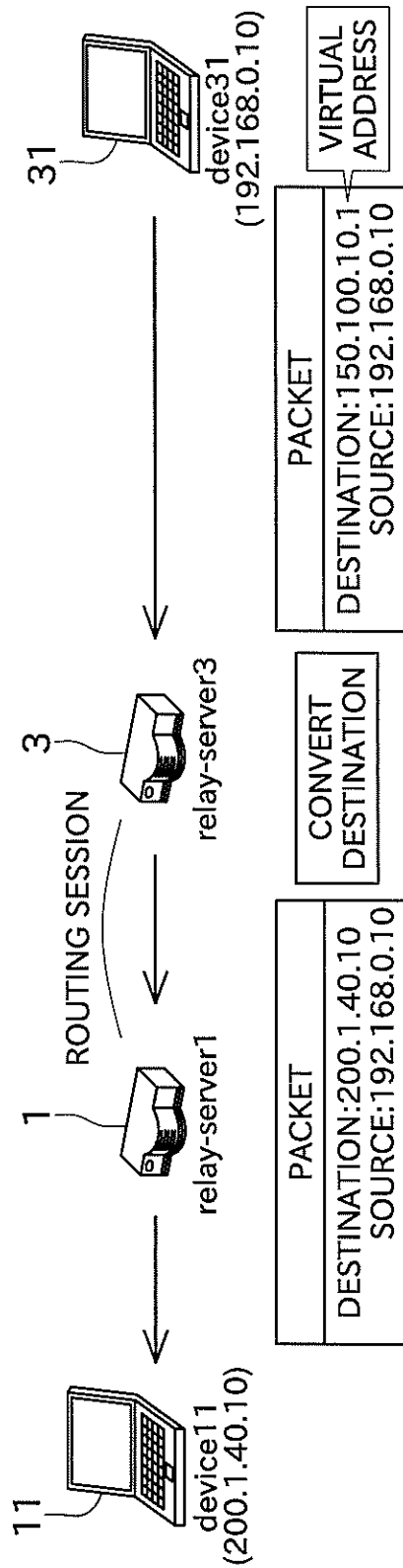


Fig.18

VIRTUAL ADDRESS MANAGEMENT INFORMATION		
NAME	ADDRESS USED	VIRTUAL ADDRESS ASSIGNMENT IN CASE OF SESSION DISCONNECTION
RELAY SERVER 1	VIRTUAL ADDRESS	DE-ASSIGN
RELAY SERVER 2	VIRTUAL ADDRESS	MAINTAIN
RELAY SERVER 4	ACTUAL ADDRESS	—