CCNA 200-301 Day 11
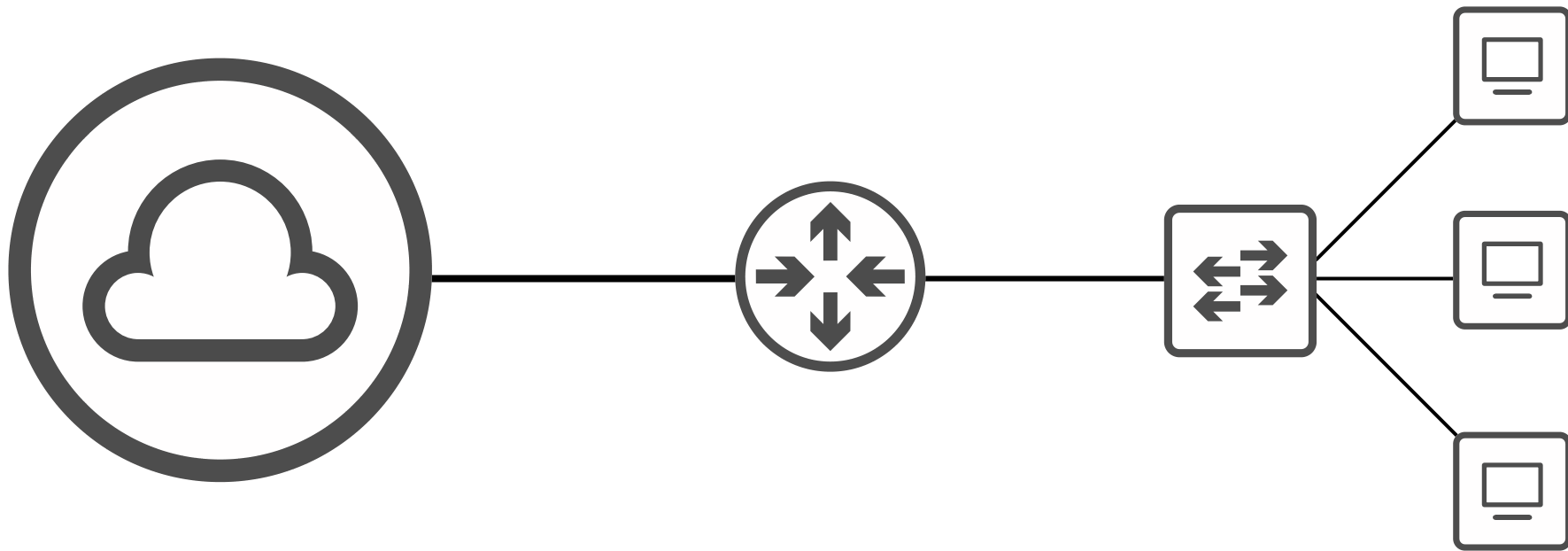
Static Routing

- IP routing process

- The routing table on a Cisco router

- Configuring static routes

Network Topology

192.168.1.0/24

Src: 192.168.1.1
Dst: 192.168.4.1

Is the destination in the same network?
=NO

Send the packet to the '**default gateway**'.
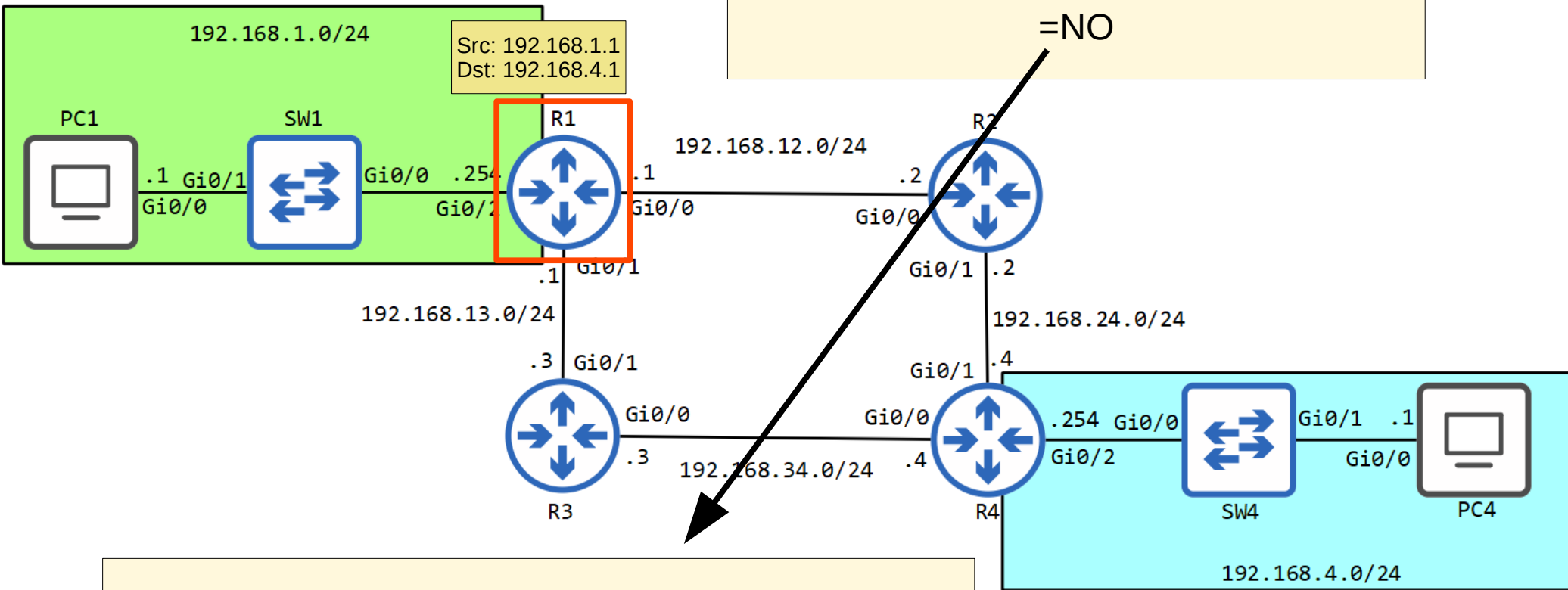
PC1 SW1 R1 R2
.1 Gi0/1 Gi0/0 .254 .1 192.168.12.0/24 .2
Gi0/0 Gi0/2 Gi0/0 Gi0/0

.1 Gi0/1 Gi0/1 .2
192.168.13.0/24 192.168.24.0/24

.3 Gi0/1 Gi0/1 .4
Gi0/0 Gi0/0 .254 Gi0/0 Gi0/1 .1
.3 192.168.34.0/24 .4 Gi0/2 Gi0/0

R3 R4 SW4 PC4
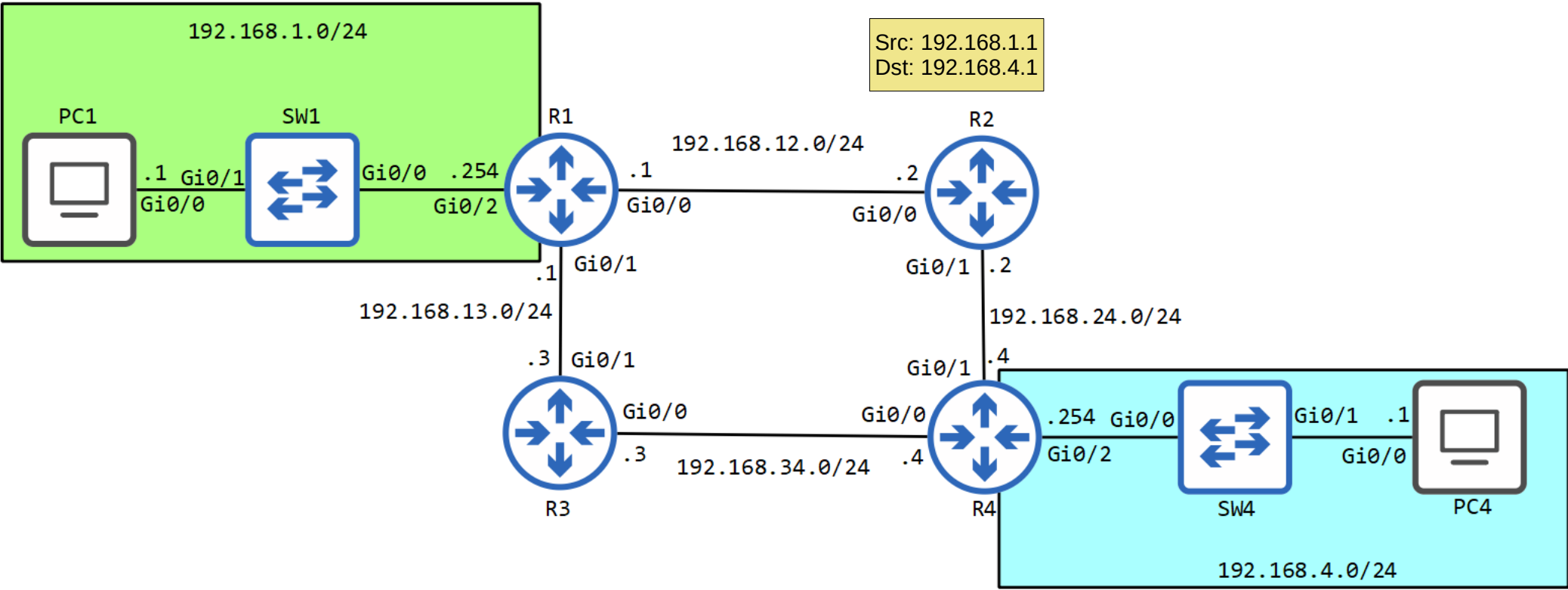
192.168.4.0/24

Network Topology

Compare the packet's destination IP address to the **routing table**.

`192.168.4.0/24` `via 192.168.24.4,` `Gi0/1`
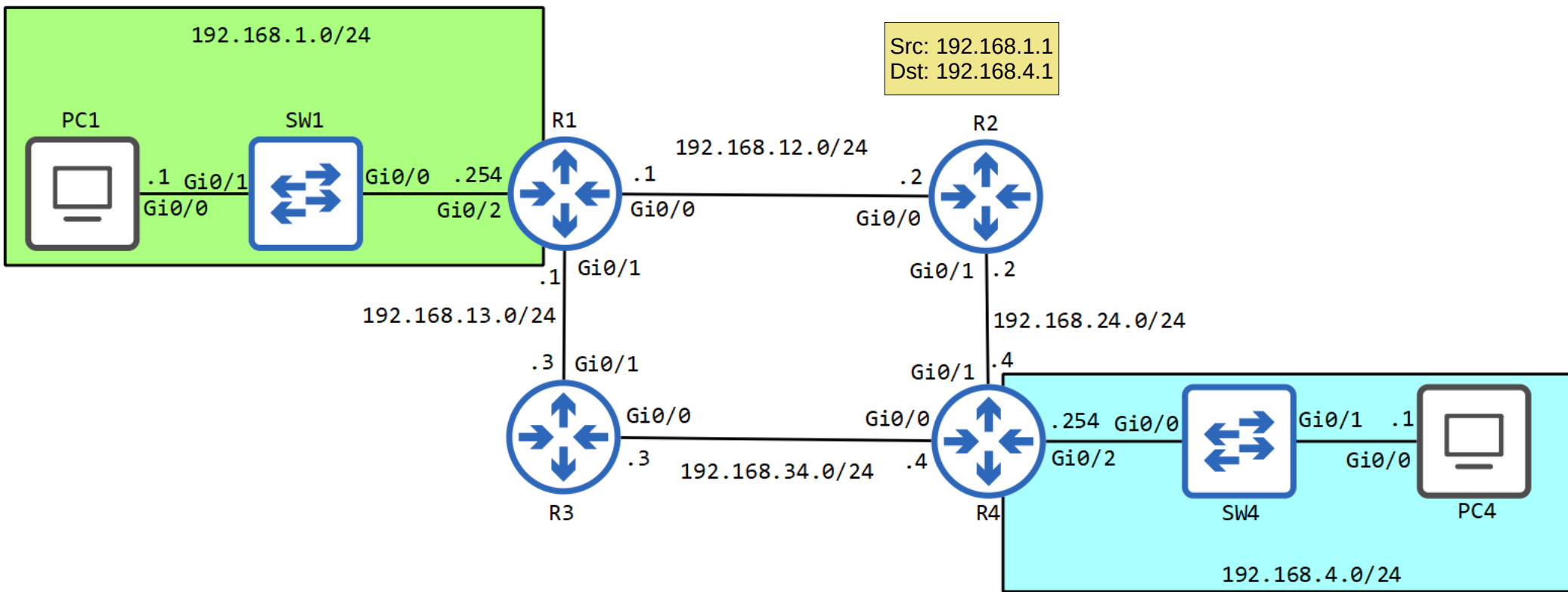
192.168.1.0/24

Src: 192.168.1.1
Dst: 192.168.4.1

PC1

SW1

R1

192.168.12.0/24

R2

.1 Gi0/1   Gi0/0 .254

.1

.2

Gi0/0

Gi0/2

Gi0/0

Gi0/0

.1 Gi0/1

Gi0/1 .2

192.168.13.0/24

192.168.24.0/24

.3 Gi0/1

.4

Gi0/1

Gi0/0

Gi0/0

.254 Gi0/0

Gi0/1 .1

.3   192.168.34.0/24   .4

Gi0/2

Gi0/0

R3

R4

SW4

PC4

192.168.4.0/24

Network Topology

Compare the packet's destination IP address to the **routing table**.

`192.168.4.0/24 is directly connected, Gi0/2`

192.168.1.0/24

PC1

SW1

R1
.1 Gi0/1   Gi0/0 .254
Gi0/0   Gi0/2

192.168.12.0/24

R2
.1   .2
Gi0/0   Gi0/0

.1 Gi0/1

Gi0/1 .2

192.168.13.0/24

192.168.24.0/24

.3 Gi0/1

Gi0/1 .4

Gi0/0   Gi0/0 .254 Gi0/0   Gi0/1 .1
.3   192.168.34.0/24 .4 Gi0/2   Gi0/0

R3

Src: 192.168.1.1
Dst: 192.168.4.1

SW4   PC4

192.168.4.0/24
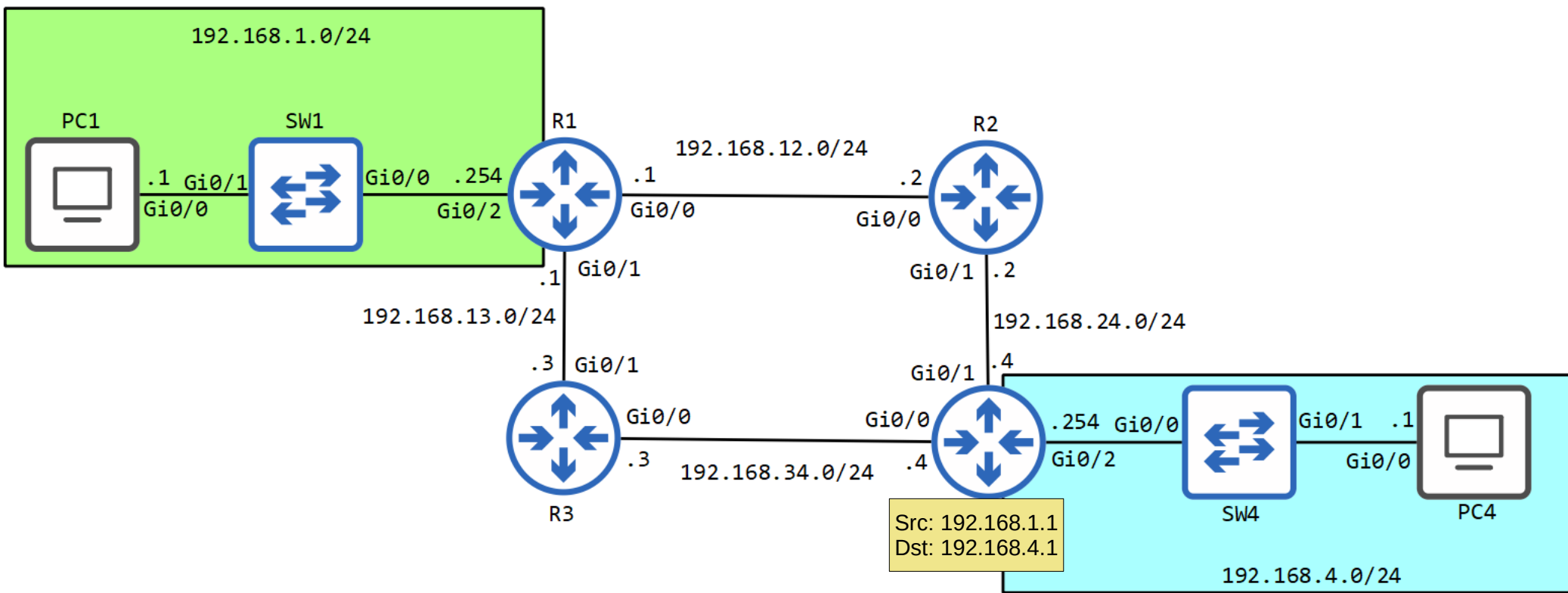
show ip route

```
PC1#show ip route
Codes: L - local, C - connected, S - static, R - RIP, M - mobile, B - BGP
       D -
       N1
       E1
       i -                                                        level-2
       ia                                                         tic route
       o -                                                        SP
       a - application route
       + - replicated route, % - next        p - overrides from PfR

Gateway of last resort is not set

      192.168.1.0/24 is variably subnetted, 2 subnets, 2 masks
C        192.168.1.0/24 is directly connected, GigabitEthernet0/0
L        192.168.1.1/32 is directly connected, GigabitEthernet0/0
PC1#
```

Connected route = the network the interface is connected to.

Local route = the actual IP address on the interface (with a /32 mask)

192.168.1.1/24
192.168.1.2/24
192.168.1.3/24
192.168.1.4/24

```
PC1#show ip route
Codes: L - local, C - connected, S - static, R - RIP, M - mobile, B - BGP
       D - EIGRP, EX - EIGRP external, O - OSPF, IA - OSPF inter area
       N1 - OSPF NSSA external type 1, N2 - OSPF NSSA external type 2
       E1 - OSPF external type 1, E2 - OSPF external type 2
       i - IS-IS, su - IS-IS summary, L1 - IS-IS level-1, L2 - IS-IS level-2
       ia - IS-IS inter area, * - candidate default, U - per-user static route
       o - ODR, P - periodic downloaded static route, H - NHRP, l - LISP
       a - application route
       + - replicated route, % - next hop override, p - overrides from PfR

Gateway of last resort is not set

      192.168.1.0/24 is variably subnetted, 2 subnets, 2 masks
C        192.168.1.0/24 is directly connected, GigabitEthernet0/0
L        192.168.1.1/32 is directly connected, GigabitEthernet0/0
PC1#
```

- To configure the **gateway of last resort** on a Cisco router, you must configure a **default route**.
- A **default route** is a route that matches ALL possible destinations.
- It is used only if a more specific route match isn't found in the routing table.
- The default route is the least specific route possible:

  IP Address: **0.0.0.0**

  Mask: **0.0.0.0**

To set the default route/gateway of last resort, configure a route to 0.0.0.0/0

The **0.0.0.0/0** range includes 0.0.0.0 ~ 255.255.255.255

= ALL possible addresses

192.168.1.0 /24

255.255.255.0

=FIXED (can't change)

=not fixed

192.168.1.1
192.168.1.2
192.168.1.3

192.168.1.0/24 matches 192.168.1.0 ~ 192.168.1.255

192.168.1.1 /32
255.255.255.255

```
        192.168.1.0/24 is variably subnetted, 2 subnets, 2 masks
C          192.168.1.0/24 is directly connected, GigabitEthernet0/0
L          192.168.1.1/32 is directly connected, GigabitEthernet0/0
PC1#
```

192.168.1.1/32 matches ONLY 192.168.1.1

0 . 0 . 0 . 0 /0

0 . 0 . 0 . 0

=not fixed

0.0.0.0/0 matches 0.0.0.0 ~ 255.255.255.255

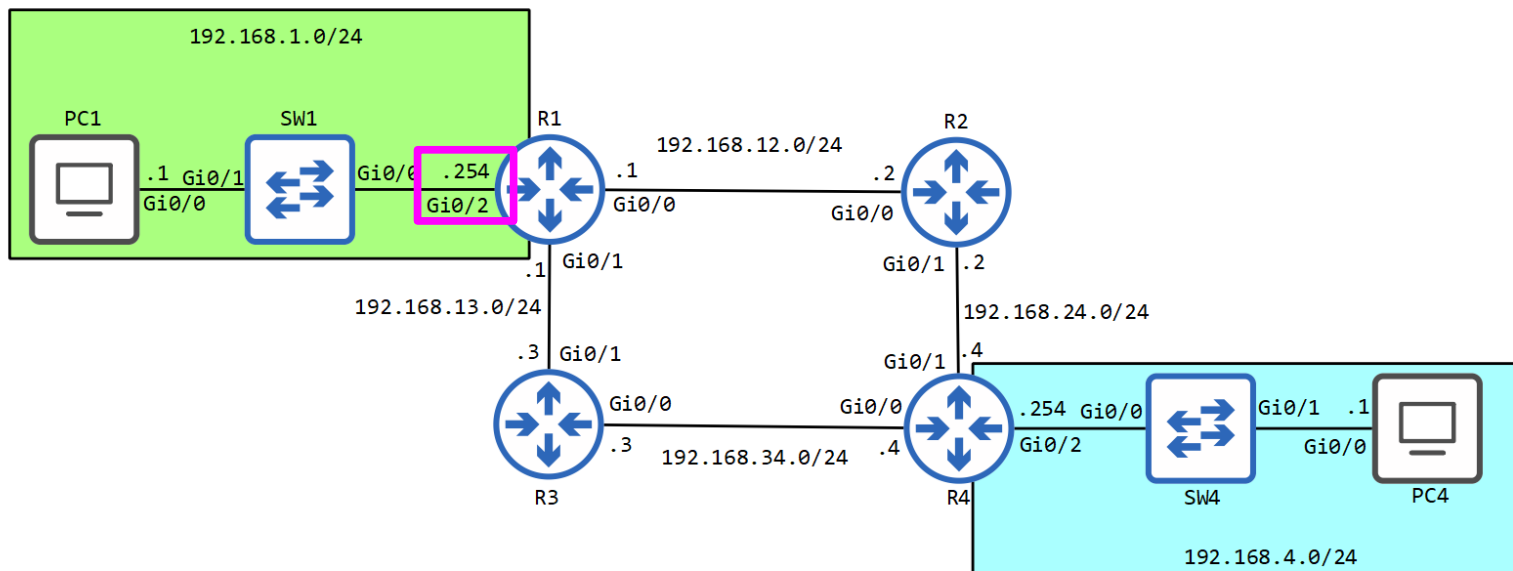= ALL possible addresses

Configuring a **Static Route**

`ip route` *destination-address* *mask* *next-hop*

```
PC1#conf t
Enter configuration commands, one per line.  End with CNTL/Z.
PC1(config)#ip route 0.0.0.0 0.0.0.0 192.168.1.254
```

```
PC1(config)#do sh ip route
Codes: L - local, C - connected, S - static, R - RIP, M - mobile, B - BGP
       D - EIGRP, EX - EIGRP external, O - OSPF, IA - OSPF inter area
       N1 - OSPF NSSA external type 1, N2 - OSPF NSSA external type 2
       E1 - OSPF external type 1, E2 - OSPF external type 2
       i - IS-IS, su - IS-IS summary, L1 - IS-IS level-1, L2 - IS-IS level-2
       ia - IS-IS inter area, * - candidate default, U - per-user static route
       o - ODR, P - periodic downloaded static route, H - NHRP, l - LISP
       a - application route
       + - replicated route, % - next hop override, p - overrides from PfR

Gateway of last resort is 192.168.1.254 to network 0.0.0.0

S*    0.0.0.0/0 [1/0] via 192.168.1.254
       192.168.1.0/24 is variably subnetted, 2 subnets, 2 masks
C         192.168.1.0/24 is directly connected, GigabitEthernet0/0
L         192.168.1.1/32 is directly connected, GigabitEthernet0/0
PC1(config)#
```
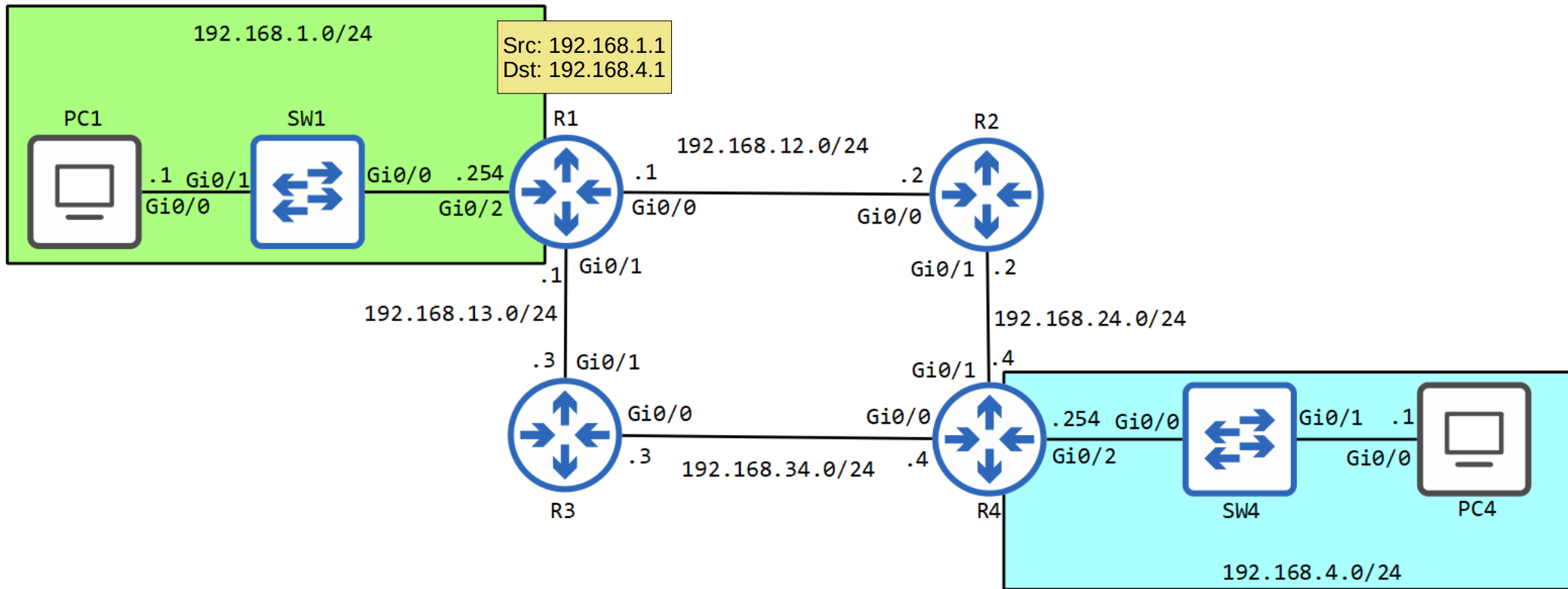
Network Topology

Jeremy's IT Lab

192.168.1.0/24

Src: 192.168.1.1
Dst: 192.168.4.1

PC1   SW1   R1   192.168.12.0/24   R2

.1 Gi0/1   Gi0/0 .254   .1   .2
Gi0/0   Gi0/2   Gi0/0   Gi0/0

.1 Gi0/1   Gi0/1 .2

192.168.13.0/24   192.168.24.0/24

.3 Gi0/1   Gi0/1 .4

Gi0/0   Gi0/0   .254 Gi0/0   Gi0/1 .1

.3   192.168.34.0/24   .4   Gi0/2   Gi0/0

R3   R4   SW4   PC4

192.168.4.0/24

```
R1#show ip route
Codes: L - local, C - connected, S - static, R - RIP, M - mobile, B - BGP
```

Switches **flood** frames with unknown destinations (destinations not in the MAC table).

Routers **drop** packets with unknown destinations.

```
      + - replicated route, % - next hop override, p - overrides from PfR

Gateway of last resort is not set

      192.168.1.0/24 is variably subnetted, 2 subnets, 2 masks
C        192.168.1.0/24 is directly connected, GigabitEthernet0/2
L        192.168.1.254/32 is directly connected, GigabitEthernet0/2
      192.168.12.0/24 is variably subnetted, 2 subnets, 2 masks
C        192.168.12.0/24 is directly connected, GigabitEthernet0/0
L        192.168.12.1/32 is directly connected, GigabitEthernet0/0
      192.168.13.0/24 is variably subnetted, 2 subnets, 2 masks
C        192.168.13.0/24 is directly connected, GigabitEthernet0/1
L        192.168.13.1/32 is directly connected, GigabitEthernet0/1
R1#
```
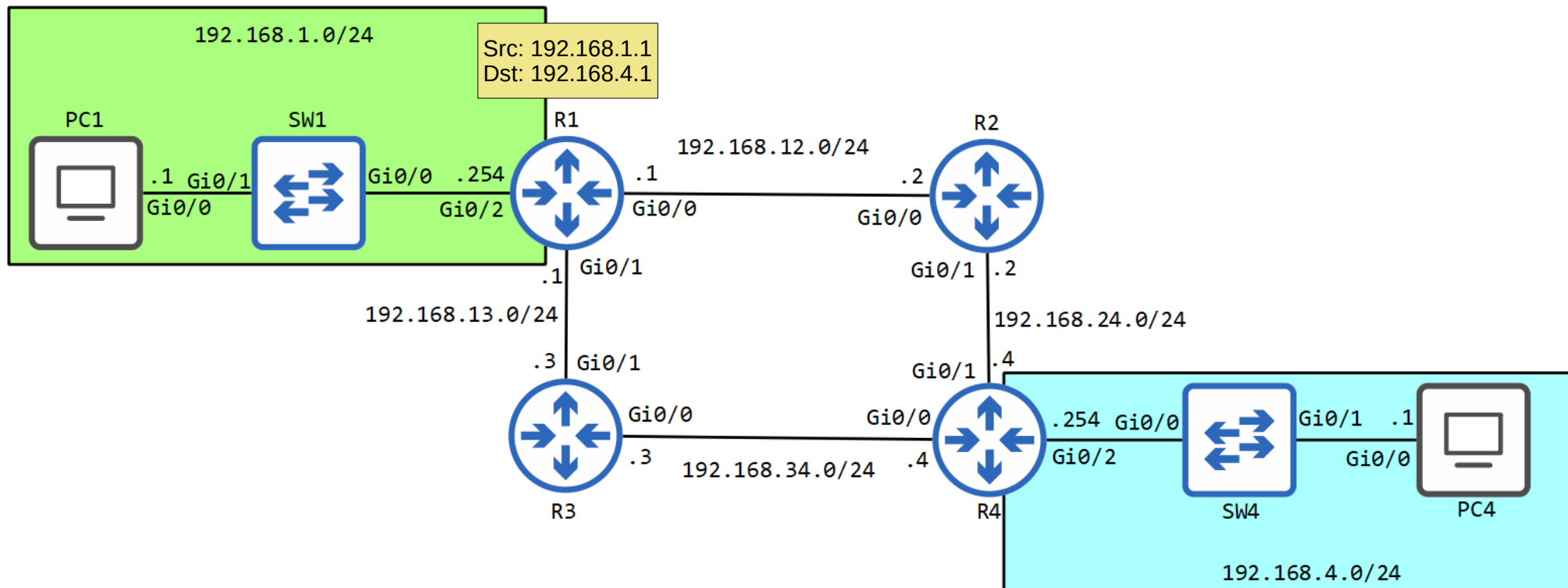
Network Topology

ip route *destination-address* *mask* *exit-interface*

```
R1(config)#ip route 192.168.4.0 255.255.255.0 g0/0
```


192.168.1.0/24

Src: 192.168.1.1
Dst: 192.168.4.1

PC1   SW1   R1   192.168.12.0/24   R2

.1 Gi0/1   Gi0/0 .254   .1   .2
Gi0/0   Gi0/2   Gi0/0   Gi0/0

.1 Gi0/1   Gi0/1 .2

192.168.13.0/24   192.168.24.0/24

.3 Gi0/1   .4
Gi0/1

Gi0/0   Gi0/0   .254 Gi0/0   Gi0/1 .1

.3   192.168.34.0/24   .4   Gi0/2   Gi0/0

R3   R4   SW4   PC4

192.168.4.0/24

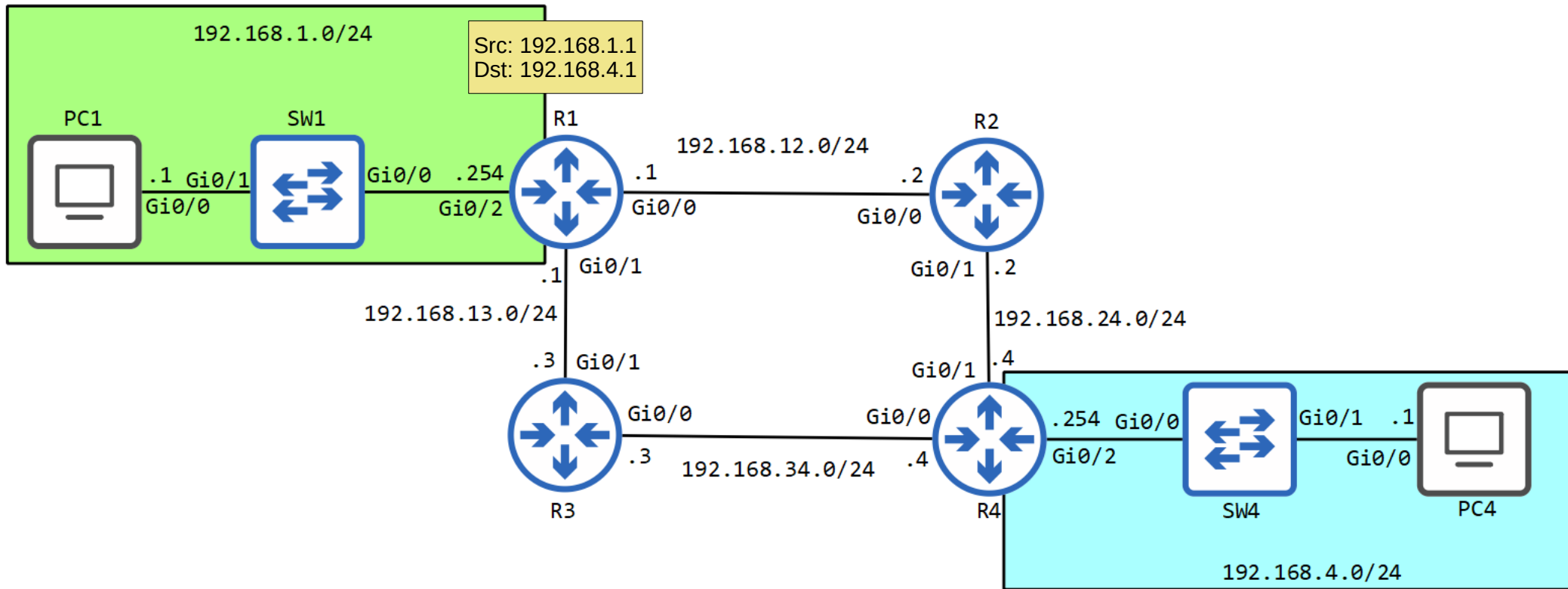# R1 Routing Table

```
R1(config)#do show ip route
Codes: L - local, C - connected, S - static, R - RIP, M - mobile, B - BGP
       D - EIGRP, EX - EIGRP external, O - OSPF, IA - OSPF inter area
       N1 - OSPF NSSA external type 1, N2 - OSPF NSSA external type 2
       E1 - OSPF external type 1, E2 - OSPF external type 2
       i - IS-IS, su - IS-IS summary, L1 - IS-IS level-1, L2 - IS-IS level-2
       ia - IS-IS inter area, * - candidate default, U - per-user static route
       o - ODR, P - periodic downloaded static route, H - NHRP, l - LISP
       a - application route
       + - replicated route, % - next hop override, p - overrides from PfR

Gateway of last resort is not set

      192.168.1.0/24 is variably subnetted, 2 subnets, 2 masks
C        192.168.1.0/24 is directly connected, GigabitEthernet0/2
L        192.168.1.254/32 is directly connected, GigabitEthernet0/2
S        192.168.4.0/24 is directly connected, GigabitEthernet0/0
      192.168.12.0/24 is variably subnetted, 2 subnets, 2 masks
C        192.168.12.0/24 is directly connected, GigabitEthernet0/0
L        192.168.12.1/32 is directly connected, GigabitEthernet0/0
      192.168.13.0/24 is variably subnetted, 2 subnets, 2 masks
C        192.168.13.0/24 is directly connected, GigabitEthernet0/1
L        192.168.13.1/32 is directly connected, GigabitEthernet0/1
```

Network Topology

192.168.1.0/24

Src: 192.168.1.1
Dst: 192.168.4.1

PC1

SW1

R1

192.168.12.0/24

R2

.1 Gi0/1   Gi0/0 .254
Gi0/0   Gi0/2

.1   Gi0/0

.2
Gi0/0

.1 Gi0/1

192.168.13.0/24

Gi0/1 .2

192.168.24.0/24

.3 Gi0/1

Gi0/1 .4

R3

Gi0/0

Gi0/0

.254 Gi0/0

Gi0/1 .1

.3   192.168.34.0/24   .4

Gi0/2

Gi0/0

R4

SW4

PC4

192.168.4.0/24

R2 Routing Table

```
R2(config)#ip route 192.168.4.0 255.255.255.0 192.168.24.4
R2(config)#do show ip route
Codes: L - local, C - connected, S - static, R - RIP, M - mobile, B - BGP
       D - EIGRP, EX - EIGRP external, O - OSPF, IA - OSPF inter area
       N1 - OSPF NSSA external type 1, N2 - OSPF NSSA external type 2
       E1 - OSPF external type 1, E2 - OSPF external type 2
       i - IS-IS, su - IS-IS summary, L1 - IS-IS level-1, L2 - IS-IS level-2
       ia - IS-IS inter area, * - candidate default, U - per-user static route
       o - ODR, P - periodic downloaded static route, H - NHRP, l - LISP
       a - application route
       + - replicated route, % - next hop override, p - overrides from PfR


Gateway of last resort is not set

S        192.168.4.0/24 [1/0] via 192.168.24.4
         192.168.12.0/24 is variably subnetted, 2 subnets, 2 masks
C           192.168.12.0/24 is directly connected, GigabitEthernet0/0
L           192.168.12.2/32 is directly connected, GigabitEthernet0/0
         192.168.24.0/24 is variably subnetted, 2 subnets, 2 masks
C           192.168.24.0/24 is directly connected, GigabitEthernet0/1
L           192.168.24.2/32 is directly connected, GigabitEthernet0/1
```
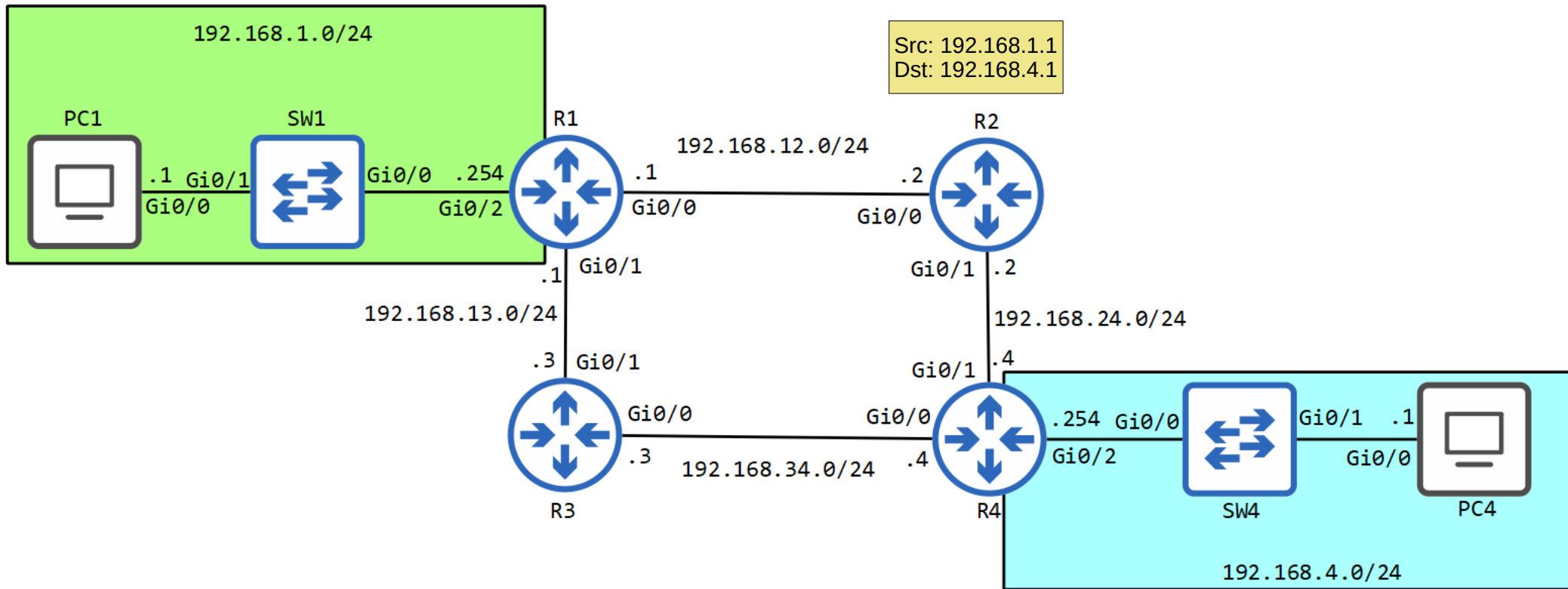
Network Topology

```
R4#show ip route
Codes: L - local, C - connected, S - static, R - RIP, M - mobile, B - BGP
       D - EIGRP, EX - EIGRP external, O - OSPF, IA - OSPF inter area
       N1 - OSPF NSSA external type 1, N2 - OSPF NSSA external type 2
       E1 - OSPF external type 1, E2 - OSPF external type 2
       i - IS-IS, su - IS-IS summary, L1 - IS-IS level-1, L2 - IS-IS level-2
       ia - IS-IS inter area, * - candidate default, U - per-user static route
       o - ODR, P - periodic downloaded static route, H - NHRP, l - LISP
       a - application route
       + - replicated route, % - next hop override, p - overrides from PfR

Gateway of last resort is not set

      192.168.4.0/24 is variably subnetted, 2 subnets, 2 masks
C        192.168.4.0/24 is directly connected, GigabitEthernet0/2
L        192.168.4.254/32 is directly connected, GigabitEthernet0/2
      192.168.24.0/24 is variably subnetted, 2 subnets, 2 masks
C        192.168.24.0/24 is directly connected, GigabitEthernet0/1
L        192.168.24.4/32 is directly connected, GigabitEthernet0/1
      192.168.34.0/24 is variably subnetted, 2 subnets, 2 masks
C        192.168.34.0/24 is directly connected, GigabitEthernet0/0
L        192.168.34.4/32 is directly connected, GigabitEthernet0/0
```
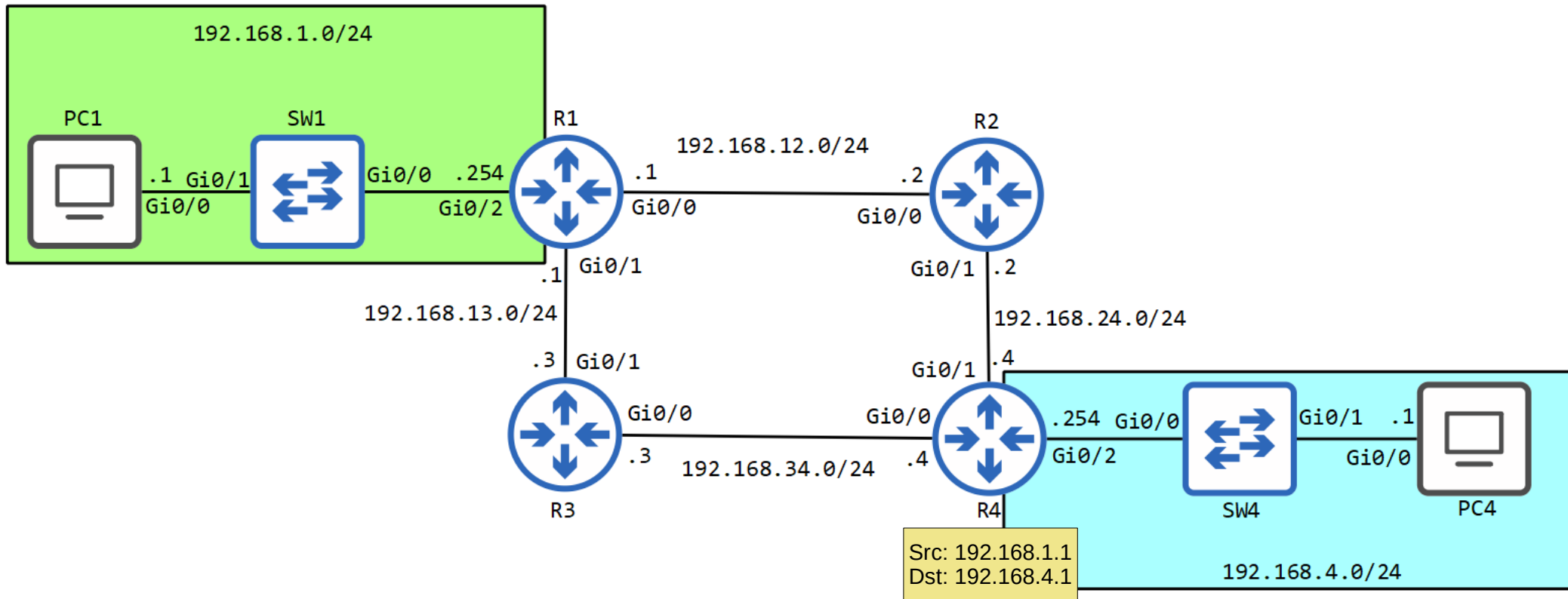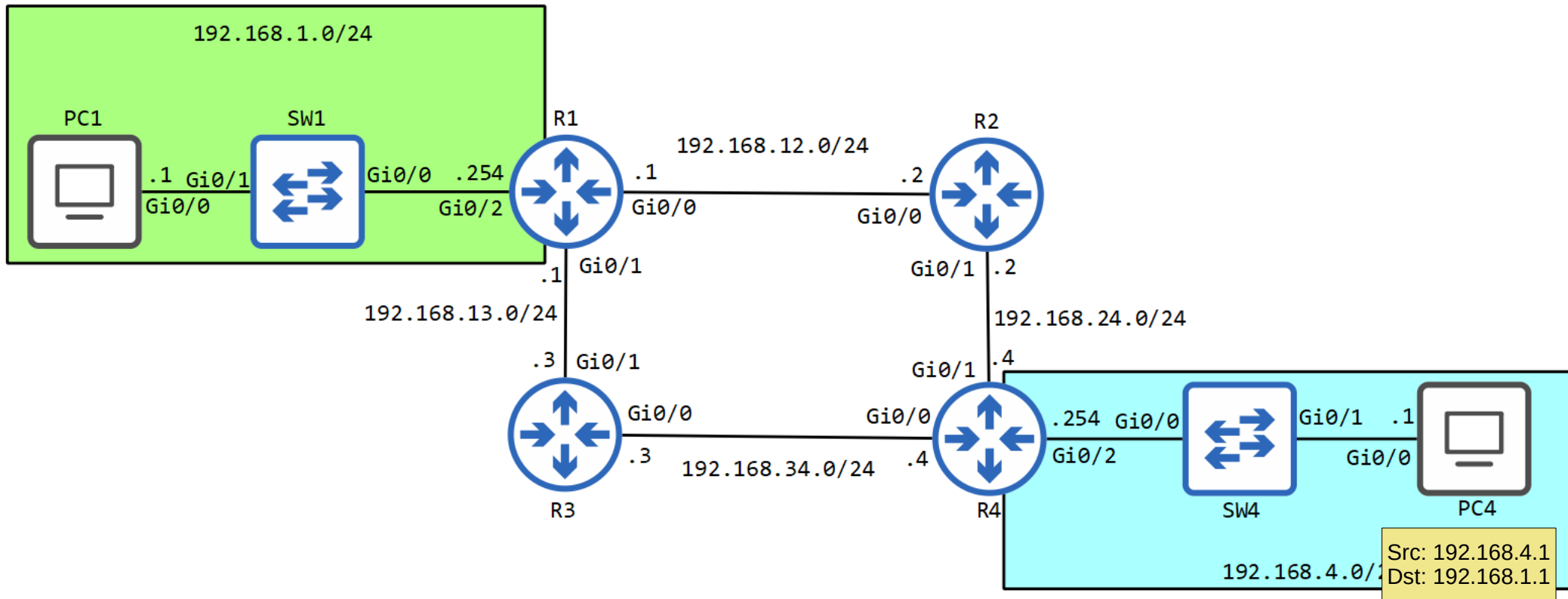
```
PC1#ping 192.168.4.1
Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 192.168.4.1, timeout is 2 seconds:
.....
Success rate is 0 percent (0/5)
PC1#
```

one-way reachability

```
R4#show ip route
Codes: L - local, C - connected, S - static, R - RIP, M - mobile, B - BGP
       D - EIGRP, EX - EIGRP external, O - OSPF, IA - OSPF inter area
       N1 - OSPF NSSA external type 1, N2 - OSPF NSSA external type 2
       E1 - OSPF external type 1, E2 - OSPF external type 2
       i - IS-IS, su - IS-IS summary, L1 - IS-IS level-1, L2 - IS-IS level-2
       ia - IS-IS inter area, * - candidate default, U - per-user static route
       o - ODR, P - periodic downloaded static route, H - NHRP, l - LISP
       a - application route
       + - replicated route, % - next hop override, p - overrides from PfR

Gateway of last resort is not set

      192.168.4.0/24 is variably subnetted, 2 subnets, 2 masks
C        192.168.4.0/24 is directly connected, GigabitEthernet0/2
L        192.168.4.254/32 is directly connected, GigabitEthernet0/2
      192.168.24.0/24 is variably subnetted, 2 subnets, 2 masks
C        192.168.24.0/24 is directly connected, GigabitEthernet0/1
L        192.168.24.4/32 is directly connected, GigabitEthernet0/1
      192.168.34.0/24 is variably subnetted, 2 subnets, 2 masks
C        192.168.34.0/24 is directly connected, GigabitEthernet0/0
L        192.168.34.4/32 is directly connected, GigabitEthernet0/0
```

```
R2(config)#ip route 192.168.4.0 255.255.255.0 192.168.24.4
R2(config)#do show ip route
Codes: L - local, C - connected, S - static, R - RIP, M - mobile, B - BGP
       D - EIGRP, EX - EIGRP external, O - OSPF, IA - OSPF inter area
       N1 - OSPF NSSA external type 1, N2 - OSPF NSSA external type 2
       E1 - OSPF external type 1, E2 - OSPF external type 2
       i - IS-IS, su - IS-IS summary, L1 - IS-IS level-1, L2 - IS-IS level-2
       ia - IS-IS inter area, * - candidate default, U - per-user static route
       o - ODR, P - periodic downloaded static route, H - NHRP, l - LISP
       a - application route
       + - replicated route, % - next hop override, p - overrides from PfR


Gateway of last resort is not set


S        192.168.4.0/24 [1/0] via 192.168.24.4
         192.168.12.0/24 is variably subnetted, 2 subnets, 2 masks
C           192.168.12.0/24 is directly connected, GigabitEthernet0/0
L           192.168.12.2/32 is directly connected, GigabitEthernet0/0
         192.168.24.0/24 is variably subnetted, 2 subnets, 2 masks
C           192.168.24.0/24 is directly connected, GigabitEthernet0/1
L           192.168.24.2/32 is directly connected, GigabitEthernet0/1
```

```
PC4(config)#ip route 0.0.0.0 0.0.0.0 192.168.4.254
PC4(config)#do show ip route
Codes: L - local, C - connected, S - static, R - RIP, M - mobile, B - BGP
       D - EIGRP, EX - EIGRP external, O - OSPF, IA - OSPF inter area
       N1 - OSPF NSSA external type 1, N2 - OSPF NSSA external type 2
       E1 - OSPF external type 1, E2 - OSPF external type 2
       i - IS-IS, su - IS-IS summary, L1 - IS-IS level-1, L2 - IS-IS level-2
       ia - IS-IS inter area, * - candidate default, U - per-user static route
       o - ODR, P - periodic downloaded static route, H - NHRP, l - LISP
       a - application route
       + - replicated route, % - next hop override, p - overrides from PfR

Gateway of last resort is 192.168.4.254 to network 0.0.0.0

S*      0.0.0.0/0 [1/0] via 192.168.4.254
        192.168.4.0/24 is variably subnetted, 2 subnets, 2 masks
C          192.168.4.0/24 is directly connected, GigabitEthernet0/0
L          192.168.4.1/32 is directly connected, GigabitEthernet0/0
```

```
R4(config)#ip route 192.168.1.0 255.255.255.0 192.168.24.2
R4(config)#do show ip route
Codes: L - local, C - connected, S - static, R - RIP, M - mobile, B - BGP
       D - EIGRP, EX - EIGRP external, O - OSPF, IA - OSPF inter area
       N1 - OSPF NSSA external type 1, N2 - OSPF NSSA external type 2
       E1 - OSPF external type 1, E2 - OSPF external type 2
       i - IS-IS, su - IS-IS summary, L1 - IS-IS level-1, L2 - IS-IS level-2
       ia - IS-IS inter area, * - candidate default, U - per-user static route
       o - ODR, P - periodic downloaded static route, H - NHRP, l - LISP
       a - application route
       + - replicated route, % - next hop override, p - overrides from PfR

Gateway of last resort is not set

S        192.168.1.0/24 [1/0] via 192.168.24.2
         192.168.4.0/24 is variably subnetted, 2 subnets, 2 masks
C            192.168.4.0/24 is directly connected, GigabitEthernet0/2
L            192.168.4.254/32 is directly connected, GigabitEthernet0/2
         192.168.24.0/24 is variably subnetted, 2 subnets, 2 masks
C            192.168.24.0/24 is directly connected, GigabitEthernet0/1
L            192.168.24.4/32 is directly connected, GigabitEthernet0/1
         192.168.34.0/24 is variably subnetted, 2 subnets, 2 masks
C            192.168.34.0/24 is directly connected, GigabitEthernet0/0
L            192.168.34.4/32 is directly connected, GigabitEthernet0/0
```

```
R2(config)#ip route 192.168.1.0 255.255.255.0 192.168.12.1
R2(config)#do show ip route
Codes: L - local, C - connected, S - static, R - RIP, M - mobile, B - BGP
       D - EIGRP, EX - EIGRP external, O - OSPF, IA - OSPF inter area
       N1 - OSPF NSSA external type 1, N2 - OSPF NSSA external type 2
       E1 - OSPF external type 1, E2 - OSPF external type 2
       i - IS-IS, su - IS-IS summary, L1 - IS-IS level-1, L2 - IS-IS level-2
       ia - IS-IS inter area, * - candidate default, U - per-user static route
       o - ODR, P - periodic downloaded static route, H - NHRP, l - LISP
       a - application route
       + - replicated route, % - next hop override, p - overrides from PfR

Gateway of last resort is not set

S       192.168.1.0/24 [1/0] via 192.168.12.1
S       192.168.4.0/24 [1/0] via 192.168.24.4
        192.168.12.0/24 is variably subnetted, 2 subnets, 2 masks
C          192.168.12.0/24 is directly connected, GigabitEthernet0/0
L          192.168.12.2/32 is directly connected, GigabitEthernet0/0
        192.168.24.0/24 is variably subnetted, 2 subnets, 2 masks
C          192.168.24.0/24 is directly connected, GigabitEthernet0/1
L          192.168.24.2/32 is directly connected, GigabitEthernet0/1
```
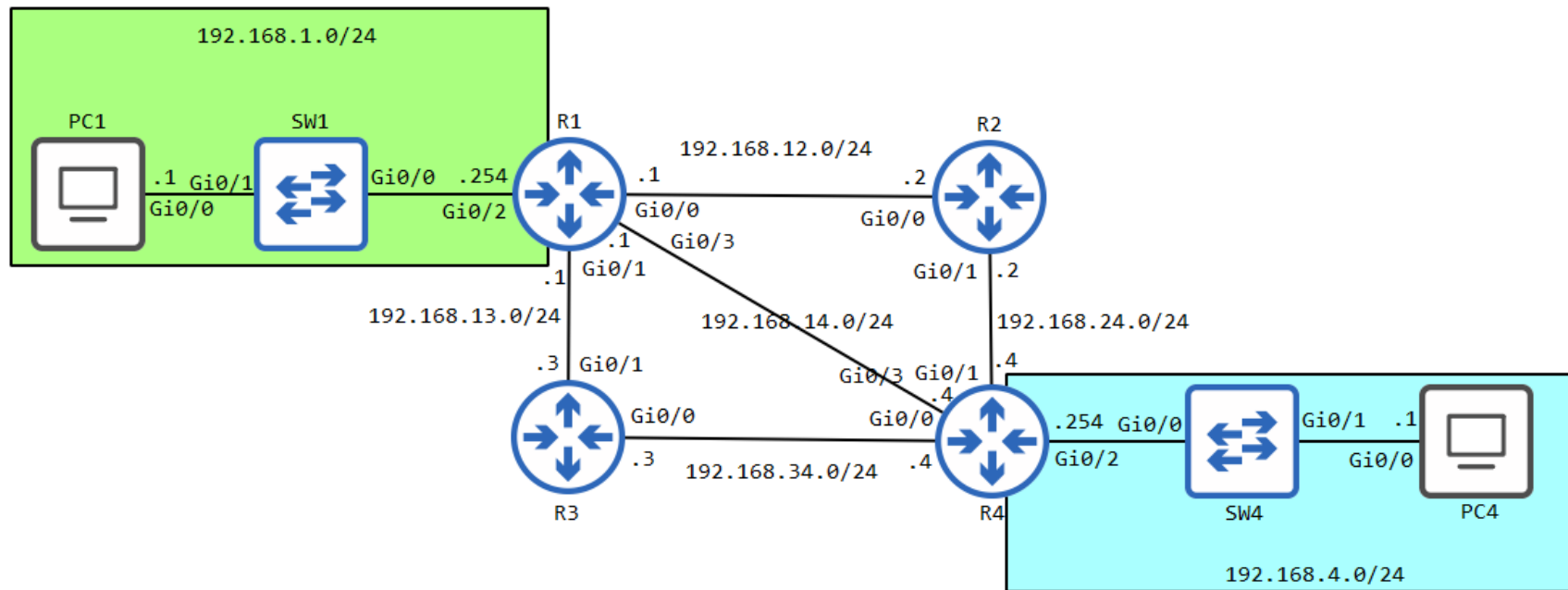
```
PC1#ping 192.168.4.1
Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 192.168.4.1, timeout is 2 seconds:
!!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 26/31/41 ms
PC1#
```

- When a router looks up a destination address in its routing table, it looks for the **most specific matching** route.
- Most specific = longest prefix length (/32 > /24 > /16 > /8 > /0)

Most Specific Matching Route

ping 192.168.4.1

```
S       192.0.0.0/8 [1/0] via 192.168.13.3
        192.168.1.0/24 is variably subnetted, 2 subnets, 2 masks
C           192.168.1.0/24 is directly connected, GigabitEthernet0/2
L           192.168.1.254/32 is directly connected, GigabitEthernet0/2
        192.168.4.0/24 is variably subnetted, 2 subnets, 2 masks
S           192.168.4.0/24 is directly connected, GigabitEthernet0/0
S           192.168.4.1/32 [1/0] via 192.168.14.4
        192.168.12.0/24 is variably subnetted, 2 subnets, 2 masks
C           192.168.12.0/24 is directly connected, GigabitEthernet0/0
L           192.168.12.1/32 is directly connected, GigabitEthernet0/0
        192.168.13.0/24 is variably subnetted, 2 subnets, 2 masks
C           192.168.13.0/24 is directly connected, GigabitEthernet0/1
L           192.168.13.1/32 is directly connected, GigabitEthernet0/1
        192.168.14.0/24 is variably subnetted, 2 subnets, 2 masks
C           192.168.14.0/24 is directly connected, GigabitEthernet0/3
L           192.168.14.1/32 is directly connected, GigabitEthernet0/3
```

Most Specific Matching Route

ping 192.168.4.254

```
S        192.0.0.0/8 [1/0] via 192.168.13.3
         192.168.1.0/24 is variably subnetted, 2 subnets, 2 masks
C           192.168.1.0/24 is directly connected, GigabitEthernet0/2
L           192.168.1.254/32 is directly connected, GigabitEthernet0/2
         192.168.4.0/24 is variably subnetted, 2 subnets, 2 masks
S           192.168.4.0/24 is directly connected, GigabitEthernet0/0
S           192.168.4.1/32 [1/0] via 192.168.14.4
         192.168.12.0/24 is variably subnetted, 2 subnets, 2 masks
C           192.168.12.0/24 is directly connected, GigabitEthernet0/0
L           192.168.12.1/32 is directly connected, GigabitEthernet0/0
         192.168.13.0/24 is variably subnetted, 2 subnets, 2 masks
C           192.168.13.0/24 is directly connected, GigabitEthernet0/1
L           192.168.13.1/32 is directly connected, GigabitEthernet0/1
         192.168.14.0/24 is variably subnetted, 2 subnets, 2 masks
C           192.168.14.0/24 is directly connected, GigabitEthernet0/3
L           192.168.14.1/32 is directly connected, GigabitEthernet0/3
```

- IP routing process
- The routing table on a Cisco router
- Configuring static routes

```
ip route destination-address mask [next-hop | exit-interface]
```

QUIZ

The IP address configured on a router interface will appear in the routing table as what kind of route?

a) Static
b) Connected
c) Local
d) Internal

```
Gateway of last resort is not set

      192.168.1.0/24 is variably subnetted, 2 subnets, 2 masks
C        192.168.1.0/24 is directly connected, GigabitEthernet0/0
L        192.168.1.1/32 is directly connected, GigabitEthernet0/0
```

Local routes use a /32 mask, which specifies the exact address configured on the interface.
Connected routes represent the network that the local address is part of.
Static routes are manually configured addresses, unlike connected and local addresses which are automatically added when you configure an IP address on an interface and enable it.
Internal is not a type of route you can find in the routing table.

Which command configures a default route on a Cisco router?

    a) `ip route 0.0.0.0 0.0.0.0 10.1.1.254`

    b) `ip route 0.0.0.0/0 10.1.1.254`

    c) `ip route 0.0.0.0 255.255.255.255 10.1.1.254`

    d) `ip route 0.0.0.0/32 10.1.1.254`

ip route *destination-address mask* [*next-hop | exit-interface*]

Which is an accurate statement about the behavior of routers and switches?

a) Routers flood packets with an unknown destination IP address, switches flood frames with an unknown destination MAC address.

b) Routers drop packets with an unknown destination IP address, switches drop frames with an unknown destination MAC address.

c) Routers drop packets with an unknown destination IP address, switches flood frames with an unknown destination MAC address.

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Which two types of addresses are automatically added to the routing table when you configure an IP address on an interface and enable it?

a) Connected, Static

b) Local, Static

c) Default, Local

d) Connected, Local

```
Gateway of last resort is not set

      10.0.0.0/8 is variably subnetted, 5 subnets, 4 masks
S        10.0.0.0/8 [1/0] via 192.168.12.2
S        10.1.0.0/16 [1/0] via 192.168.13.3
S        10.1.1.0/24 [1/0] via 192.168.14.4
S        10.1.1.2/32 is directly connected, GigabitEthernet0/0
S        10.1.1.14/32 is directly connected, GigabitEthernet0/1
S     192.0.0.0/8 [1/0] via 192.168.13.3
      192.168.1.0/24 is variably subnetted, 2 subnets, 2 masks
C        192.168.1.0/24 is directly connected, GigabitEthernet0/2
L        192.168.1.254/32 is directly connected, GigabitEthernet0/2
      192.168.4.0/24 is variably subnetted, 2 subnets, 2 masks
S        192.168.4.0/24 is directly connected, GigabitEthernet0/0
S        192.168.4.1/32 [1/0] via 192.168.14.4
      192.168.12.0/24 is variably subnetted, 2 subnets, 2 masks
C        192.168.12.0/24 is directly connected, GigabitEthernet0/0
L        192.168.12.1/32 is directly connected, GigabitEthernet0/0
      192.168.13.0/24 is variably subnetted, 2 subnets, 2 masks
C        192.168.13.0/24 is directly connected, GigabitEthernet0/1
L        192.168.13.1/32 is directly connected, GigabitEthernet0/1
      192.168.14.0/24 is variably subnetted, 2 subnets, 2 masks
C        192.168.14.0/24 is directly connected, GigabitEthernet0/3
L        192.168.14.1/32 is directly connected, GigabitEthernet0/3
```
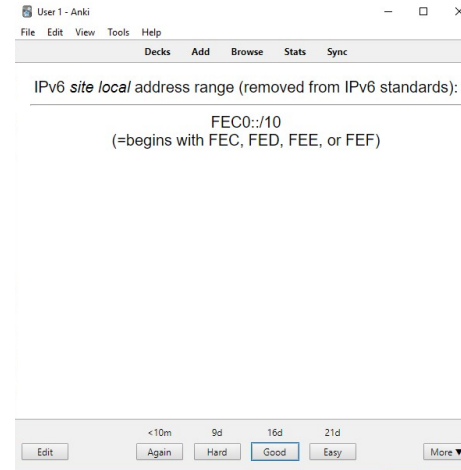
Which interface will be used to forward a packet with a destination IP address of *10.1.1.1?*

GigabitEthernet0/3

- Review flash cards
(link in the description)

- Packet Tracer lab