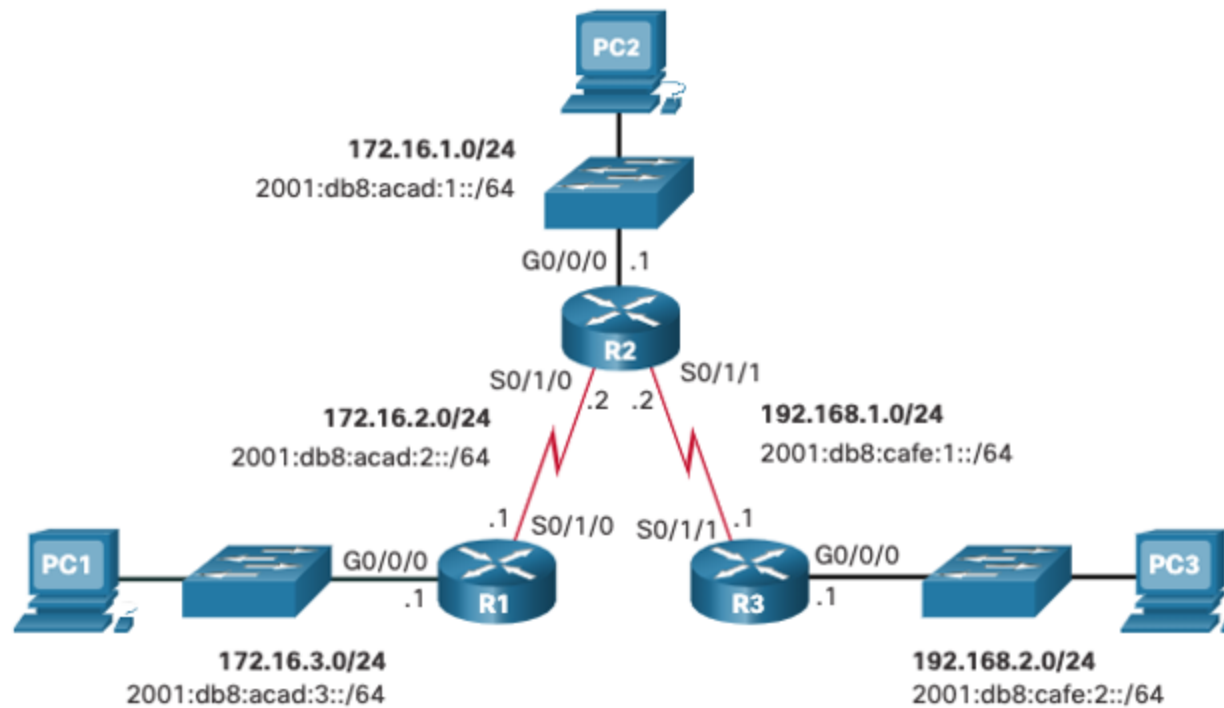# IP Static Routing

Types of Static Routes

- **Standard static route**: AD=1
- **Default static route**: Edge router to internet, stub router. AD=1
- **Floating static route**: backup path to a primary or dynamic route. Higher AD.
- **Host route**: Automatically (Local route: L) or Static
- **Summary static route**

Next-Hop Options

- **Next-hop route**: next-hop IP address
- **Directly connected static route**: router exit interface
- **Fully specified static route**: next-hop IP address + router exit interface

Dual-Stack Topology

R1 - IPv4 and IPv6 Next-Hop Static Routes

```
R1(config)# ip route 172.16.1.0 255.255.255.0 172.16.2.2
R1(config)# ip route 192.168.1.0 255.255.255.0 172.16.2.2
R1(config)# ip route 192.168.2.0 255.255.255.0 172.16.2.2
R1(config)# ipv6 unicast-routing
R1(config)# ipv6 route 2001:db8:acad:1::/64 2001:db8:acad:2::2
R1(config)# ipv6 route 2001:db8:cafe:1::/64 2001:db8:acad:2::2
R1(config)# ipv6 route 2001:db8:cafe:2::/64 2001:db8:acad:2::2
```

R1 - IPv4 and IPv6 Directly Connected Static Route

```
R1(config)# ip route 172.16.1.0 255.255.255.0 s0/1/0
R1(config)# ip route 192.168.1.0 255.255.255.0 s0/1/0
R1(config)# ip route 192.168.2.0 255.255.255.0 s0/1/0
R1(config)# ipv6 unicast-routing
R1(config)# ipv6 route 2001:db8:acad:1::/64 s0/1/0
R1(config)# ipv6 route 2001:db8:cafe:1::/64 s0/1/0
R1(config)# ipv6 route 2001:db8:cafe:2::/64 s0/1/0
```

R1 - IPv4 and IPv6 Fully Specified Static Route

```
R1(config)# ip route 172.16.1.0 255.255.255.0 s0/1/0 172.16.2.2
R1(config)# ip route 192.168.1.0 255.255.255.0 s0/1/0 172.16.2.2
R1(config)# ip route 192.168.2.0 255.255.255.0 s0/1/0 172.16.2.2
R1(config)# ipv6 route 2001:db8:acad:1::/64 fe80::2
%Link-local address as next-hop => fully specified route
R1(config)# ipv6 route 2001:db8:acad:1::/64 s0/1/0 fe80::2
R1# show ip route
R1# show ipv6 route
```

R1 - IPv4 and IPv6 Default Static Routes

```
R1(config)# ip route 0.0.0.0 0.0.0.0 172.16.2.2
R1(config)# ipv6 route ::/0 2001:db8:acad:2::2
R1# show ip route static
R1# show ipv6 route static
```

R1 - IPv4 and IPv6 Floating Static Routes

```
R1(config)# ip route 0.0.0.0 0.0.0.0 172.16.2.2
R1(config)# ip route 0.0.0.0 0.0.0.0 10.10.10.2 5
R1(config)# ipv6 route ::/0 2001:db8:acad:2::2
R1(config)# ipv6 route ::/0 2001:db8:feed:10::2 5
```

R1 - IPv4 and IPv6 Static Host Routes

```
Branch(config)# ip route 209.165.200.238 255.255.255.255 198.51.100.2
Branch(config)# ipv6 route 2001:db8:acad:2::238/128 2001:db8:acad:1::2
Branch(config)# ipv6 route 2001:db8:acad:2::238/128 s0/1/0 fe80::2
```