IPv6 Routing

- IPv6 routing works the same way as IPv4 routing, but the processes are separate, and there are separate IPv4 and IPv6 routing tables
- If a router receives an IPv4 packet, it will route it according to its IPv4 routing table
- If a router receives an IPv6 packet, it will route it according to its IPv6 routing table
- The routing tables are built in the same way, through static routes or dynamic routing protocols



IPv6 Routing

- IPv4 routing is enabled by default on a Cisco IOS router
- IPv6 routing is disabled by default
- Enter the command 'ipv6 unicast-routing' to enable it
- You can still configure IPv6 addresses on a router without ipv6 unicastrouting enabled and send and receive IPv6 traffic, but the router will not forward IPv6 traffic to other networks



Connected and Local Routes

The administrator configures IP addresses on the router's interfaces

```
R1#show run
interface FastEthernet0/0
 ip address 10.10.1.1 255.255.255.0
 duplex full
 ipv6 address 2001:DB8:0:1::1/64
interface FastEthernet2/0
 ip address 10.10.0.1 255.255.255.0
 duplex full
 ipv6 address 2001:DB8::1/64
```



show ip route – IPv4 Routes

- This will automatically enter connected and local routes in the routing table.
- Local IPv4 routes always have a /32 mask and show the IP address configured on the interface



show ipv6 route - Connected Routes

Local routes always have a /128 mask and show the IP address configured on the interface

```
R1#show ipv6 route
C 2001:DB8::/64 [0/0]
   via FastEthernet2/0, directly connected
C 2001:DB8:0:1::/64 [0/0]
   via FastEthernet0/0, directly connected
L 2001:DB8::1/128 [0/0]
   via FastEthernet2/0, receive
L 2001:DB8:0:1::1/128 [0/0]
   via FastEthernet0/0, receive
! truncated
```



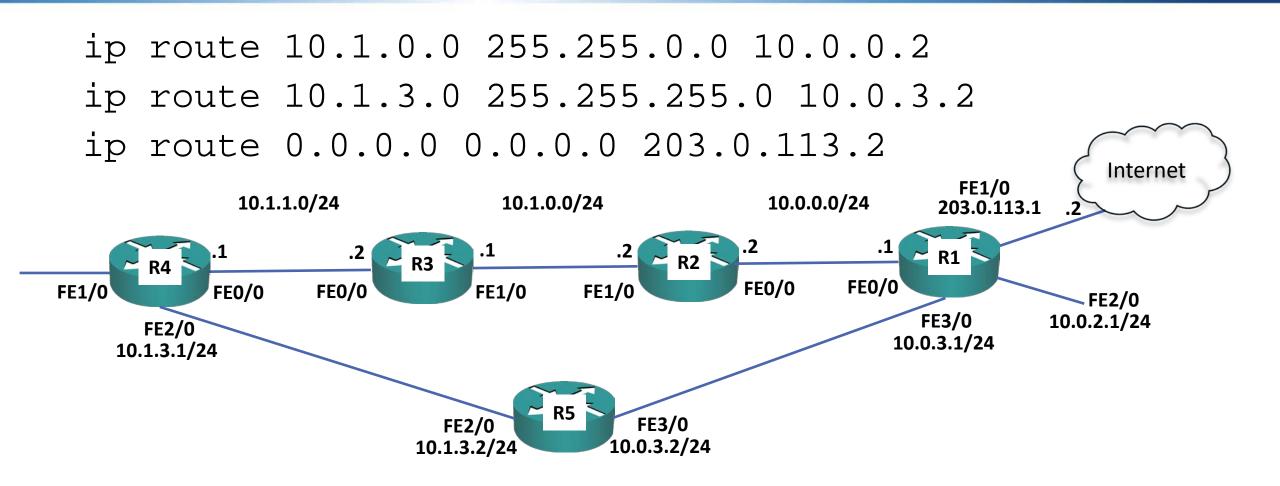
Routing

- If a router receives traffic for a network which it is not directly attached to, it needs to know how to get there in order to forward the traffic
- An administrator can manually add a static route to the destination, or the router can learn it via a routing protocol

IPv4 Static Routes

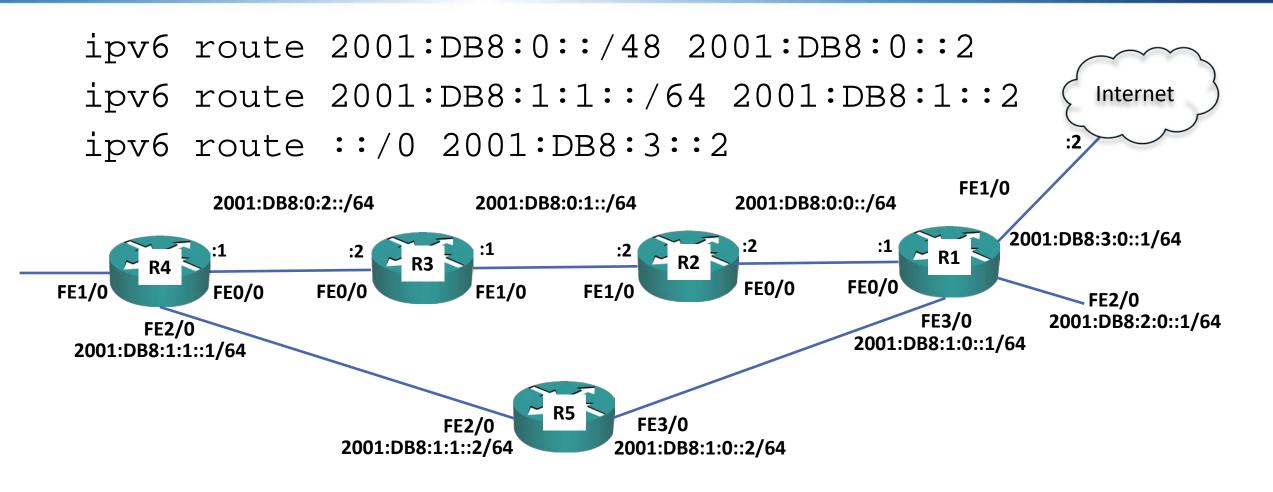
IPv6 Static Routes

IPv4 Summary and Default Route





IPv6 Summary and Default Route





Lab

