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IPv6 Route Maps

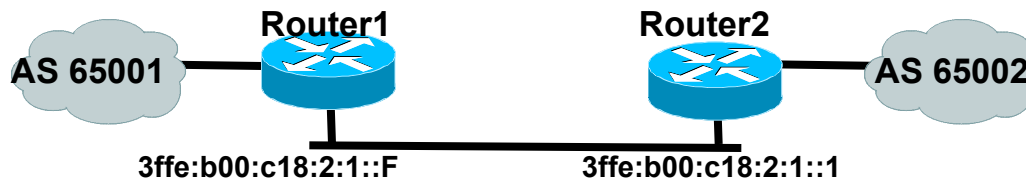
Multiprotocol extensions for BGP4

- Enables other protocols besides IPv4
- New identifier for the address family

IPv6 specific extensions:

- Scoped addresses: NEXT_HOP contains a global IPv6 address and potentially a link-local address (only when there is a link-local reachability with the peer)
- NEXT_HOP and NLRI are expressed as IPv6 addresses and prefix in the multiprotocol attributes

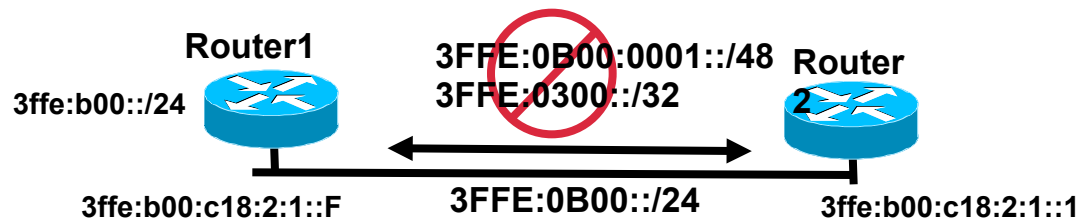
Cisco BGP4+



```
Router1#  
interface Ethernet0  
  ipv6 address 3FFE:B00:C18:2:1::F/64  
  router bgp 65001  
  no bgp default ipv4-unicast  
  neighbor 3FFE:B00:C18:2:1::1 remote-as 65002  
  address-family ipv6  
    neighbor 3FFE:B00:C18:2:1::1 activate  
    neighbor 3FFE:B00:C18:2:1::1 prefix-list bgp65002in in  
    neighbor 3FFE:B00:C18:2:1::1 prefix-list bgp65002out out  
  exit-address-family
```

BGP4+ Prefix Filtering

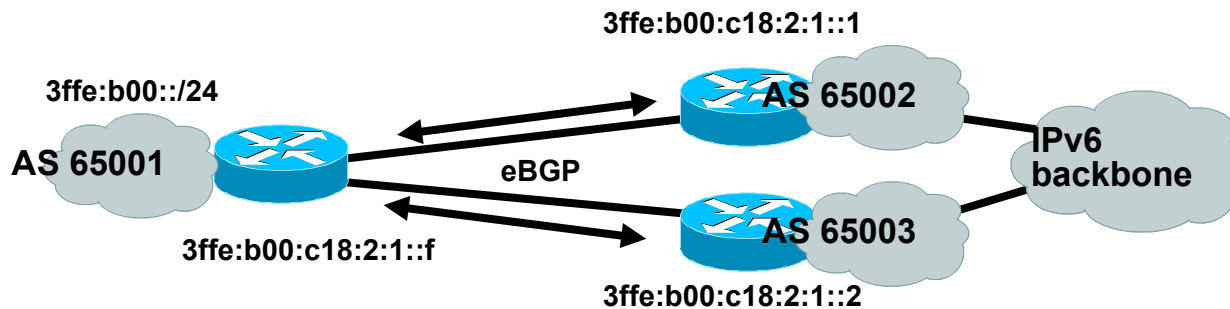
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- Filtering BGP routing updates

```
Router1#  
router bgp 65001  
no bgp default ipv4-unicast  
neighbor 3FFE:B00:C18:2:1::1 remote-as 65002  
address-family ipv6  
neighbor 3FFE:B00:C18:2:1::1 activate  
neighbor 3FFE:B00:C18:2:1::1 prefix-list bgp65002in in  
neighbor 3FFE:B00:C18:2:1::1 prefix-list bgp65002out out  
network 3FFE:B00::/24  
exit-address-family  
  
ipv6 prefix-list bgp65002in seq 5 permit 3FFE::/16 le 24  
ipv6 prefix-list bgp65002out seq 5 permit 3FFE::/16 le 24
```

Example

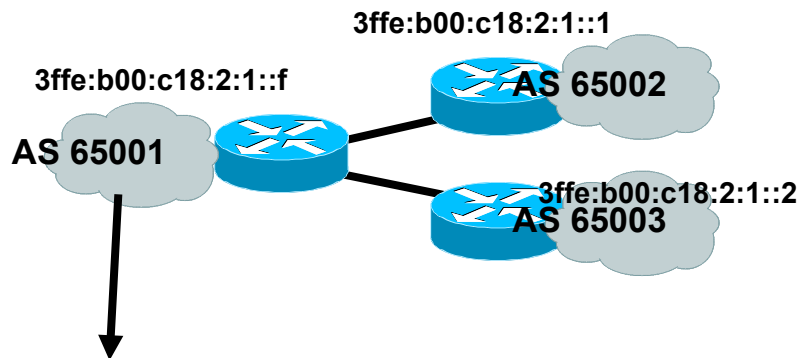


Tasks:

- **Configure BGP to accept legal IPv6 prefixes only (prefix-list)**
- **Prefer routes from AS 65002 (local preference)**

Example with Filtering

Configure BGP to accept legal prefixes only (prefix-list)

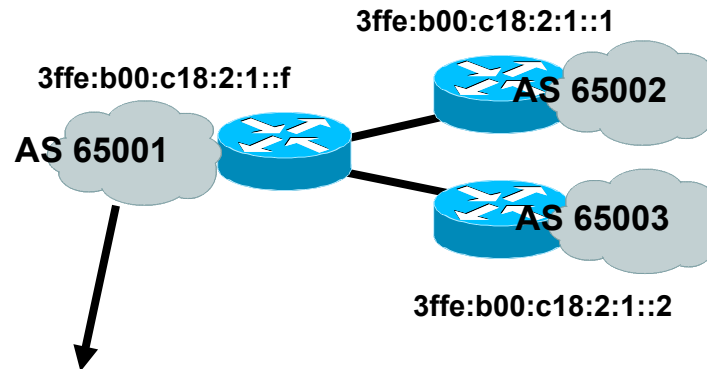


```
router bgp 65001
no bgp default ipv4-unicast
neighbor 3FFE:B00:C18:2:1::1 remote-as 65002
neighbor 3FFE:B00:C18:2:1::2 remote-as 65003
address-family ipv6
neighbor 3FFE:B00:C18:2:1::1 activate
neighbor 3FFE:B00:C18:2:1::2 activate
neighbor 3FFE:B00:C18:2:1::1 prefix-list Legal in
neighbor 3FFE:B00:C18:2:1::2 prefix-list Legal in
network 3FFE:B00::/24
exit-address-family

ipv6 prefix-list Legal seq 5 permit 2001::/16 le 35
ipv6 prefix-list Legal seq 10 permit 3FFE::/17 ge 24 le 24
ipv6 prefix-list Legal seq 15 permit 3FFE:8000::/17 ge 28 le 28
ipv6 prefix-list Legal seq 20 permit 2002::/16
```

Example With Preferred Routes

Prefer routes from AS 65002 (local preference)



```
router bgp 65001
no bgp default ipv4-unicast
neighbor 3FFE:B00:C18:2:1::1 remote-as 65002
neighbor 3FFE:B00:C18:2:1::2 remote-as 65003
address-family ipv6
neighbor 3FFE:B00:C18:2:1::1 activate
neighbor 3FFE:B00:C18:2:1::2 activate
neighbor 3FFE:B00:C18:2:1::1 prefix-list Legal in
neighbor 3FFE:B00:C18:2:1::1 route-map From_65002 in
neighbor 3FFE:B00:C18:2:1::2 prefix-list Legal in
network 3FFE:B00::/24
exit-address-family
```

```
route-map From_65002 permit 10
set local-preference 120
```