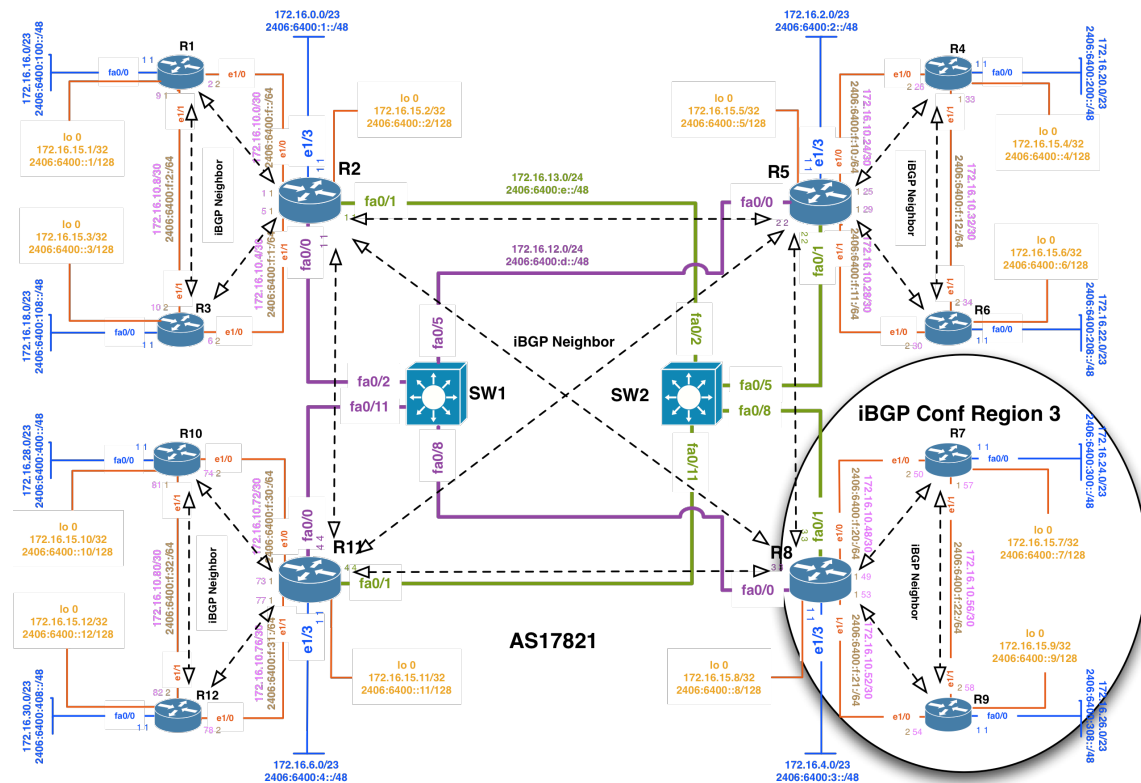


iBGP configuration for training ISP network Region3:



IPv4 iBGP Conf Router7:

```

config t
router bgp 17821
address-family ipv4
no auto-summary
no synchronization
neighbor 172.16.15.8 remote-as 17821
neighbor 172.16.15.8 update-source loopback 0
neighbor 172.16.15.8 activate
neighbor 172.16.15.9 remote-as 17821
neighbor 172.16.15.9 update-source loopback 0
neighbor 172.16.15.9 activate
network 172.16.24.0 mask 255.255.254.0
exit
exit
ip route 172.16.24.0 255.255.254.0 null 0 permanent
exit
wr
  
```

Verify IPV4 iBGP Configuration:

```

sh bgp ipv4 unicast summary
sh bgp ipv4 unicast
  
```

```
sh ip route bgp
sh bgp ipv4 unicast neighbors [router 1.....router12 loopback] advertised-
routes
sh bgp ipv4 unicast neighbors [router 1.....router12 loopback] received-
routes
sh ip route [R2, R5, R8, R11 datacenter prefix]
```

IPv6 iBGP Conf Router7:

```
config t
router bgp 17821
address-family ipv6
no synchronization
neighbor 2406:6400:0000:0000::8 remote-as 17821
neighbor 2406:6400:0000:0000::8 update-source loopback 0
neighbor 2406:6400:0000:0000::8 activate
neighbor 2406:6400:0000:0000::9 remote-as 17821
neighbor 2406:6400:0000:0000::9 update-source loopback 0
neighbor 2406:6400:0000:0000::9 activate
network 2406:6400:0300:0000::/45
exit
exit
ipv6 route 2406:6400:0300:0000::/45 null 0
exit
wr
```

Verify IPV6 iBGP Configuration:

```
sh bgp ipv6 unicast summary
sh bgp ipv6 unicast
sh ipv6 route bgp
sh bgp ipv6 unicast neighbors [router 1.....router12 loopback] advertised-
routes
sh bgp ipv6 unicast neighbors [router 1.....router12 loopback] received-
routes
sh ipv6 route [R2, R5, R8, R11 datacenter prefix]
```

IPv4 iBGP Conf Router8:

```
config t
router bgp 17821
address-family ipv4
no auto-summary
no synchronization
neighbor 172.16.15.7 remote-as 17821
neighbor 172.16.15.7 update-source loopback 0
neighbor 172.16.15.7 activate
neighbor 172.16.15.9 remote-as 17821
```

```
neighbor 172.16.15.9 update-source loopback 0
neighbor 172.16.15.9 activate
neighbor 172.16.15.2 remote-as 17821
neighbor 172.16.15.2 update-source loopback 0
neighbor 172.16.15.2 activate
neighbor 172.16.15.5 remote-as 17821
neighbor 172.16.15.5 update-source loopback 0
neighbor 172.16.15.5 activate
neighbor 172.16.15.11 remote-as 17821
neighbor 172.16.15.11 update-source loopback 0
neighbor 172.16.15.11 activate
network 172.16.4.0 mask 255.255.254.0
exit
exit
ip route 172.16.4.0 255.255.254.0 null 0 permanent
exit
wr
```

Verify IPV4 iBGP Configuration:

```
sh bgp ipv4 unicast summary
sh bgp ipv4 unicast
sh ip route bgp
sh bgp ipv4 unicast neighbors [router 1.....router12 loopback] advertised-
routes
sh bgp ipv4 unicast neighbors [router 1.....router12 loopback] received-
routes
sh ip route [R2, R5, R8, R11 datacenter prefix]
```

IPv6 iBGP Conf Router8:

```
config t
router bgp 17821
address-family ipv6
no synchronization
neighbor 2406:6400:0000:0000::7 remote-as 17821
neighbor 2406:6400:0000:0000::7 update-source loopback 0
neighbor 2406:6400:0000:0000::7 activate
neighbor 2406:6400:0000:0000::9 remote-as 17821
neighbor 2406:6400:0000:0000::9 update-source loopback 0
neighbor 2406:6400:0000:0000::9 activate
neighbor 2406:6400:0000:0000::2 remote-as 17821
neighbor 2406:6400:0000:0000::2 update-source loopback 0
neighbor 2406:6400:0000:0000::2 activate
neighbor 2406:6400:0000:0000::5 remote-as 17821
neighbor 2406:6400:0000:0000::5 update-source loopback 0
neighbor 2406:6400:0000:0000::5 activate
neighbor 2406:6400:0000:0000::11 remote-as 17821
```

```
neighbor 2406:6400:0000:0000::11 update-source loopback 0
neighbor 2406:6400:0000:0000::11 activate
network 2406:6400:0003:0000::/48
exit
exit
ipv6 route 2406:6400:0003:0000::/48 null 0
exit
wr
```

Verify IPV6 iBGP Configuration:

```
sh bgp ipv6 unicast summary
sh bgp ipv6 unicast
sh ipv6 route bgp
sh bgp ipv6 unicast neighbors [router 1.....router12 loopback] advertised-
routes
sh bgp ipv6 unicast neighbors [router 1.....router12 loopback] received-
routes
sh ipv6 route [R2, R5, R8, R11 datacenter prefix]
```

IPv4 iBGP Conf Router9:

```
config t
router bgp 17821
address-family ipv4
no auto-summary
no synchronization
neighbor 172.16.15.8 remote-as 17821
neighbor 172.16.15.8 update-source loopback 0
neighbor 172.16.15.8 activate
neighbor 172.16.15.7 remote-as 17821
neighbor 172.16.15.7 update-source loopback 0
neighbor 172.16.15.7 activate
network 172.16.26.0 mask 255.255.254.0
exit
exit
ip route 172.16.26.0 255.255.254.0 null 0 permanent
exit
wr
```

Verify IPV4 iBGP Configuration:

```
sh bgp ipv4 unicast summary
sh bgp ipv4 unicast
sh ip route bgp
sh bgp ipv4 unicast neighbors [router 1.....router12 loopback] advertised-
routes
```

```
sh bgp ipv4 unicast neighbors [router 1.....router12 loopback] received-  
routes  
sh ip route [R2, R5, R8, R11 datacenter prefix]
```

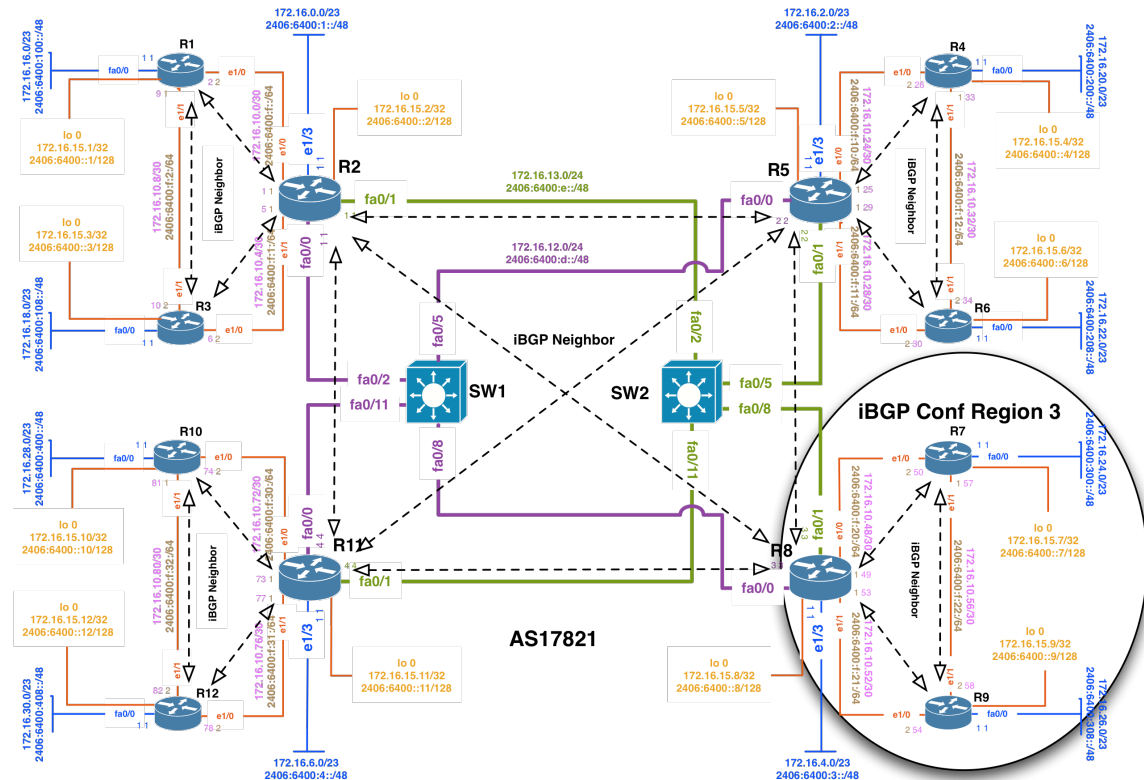
IPv6 iBGP Conf Router9:

```
config t  
router bgp 17821  
address-family ipv6  
no synchronization  
neighbor 2406:6400:0000:0000::8 remote-as 17821  
neighbor 2406:6400:0000:0000::8 update-source loopback 0  
neighbor 2406:6400:0000:0000::8 activate  
neighbor 2406:6400:0000:0000::7 remote-as 17821  
neighbor 2406:6400:0000:0000::7 update-source loopback 0  
neighbor 2406:6400:0000:0000::7 activate  
network 2406:6400:0308:0000::/45  
exit  
exit  
ipv6 route 2406:6400:0308:0000::/45 null 0  
exit  
wr
```

Verify IPV6 iBGP Configuration:

```
sh bgp ipv6 unicast summary  
sh bgp ipv6 unicast  
sh ipv6 route bgp  
sh bgp ipv6 unicast neighbors [router 1.....router12 loopback] advertised-  
routes  
sh bgp ipv6 unicast neighbors [router 1.....router12 loopback] received-  
routes  
sh ipv6 route [R2, R5, R8, R11 datacenter prefix]
```

Route Reflector (RR) Conf Training ISP Network Region 3 (One RR per region):



IPv4 RR Configuration on Router8 (One RR Server per region):

```

config t
router bgp 17821
address-family ipv4
neighbor 172.16.15.7 route-reflector-client
neighbor 172.16.15.9 route-reflector-client
exit
exit
exit
wr

```

Verify IPv4 RR Configuration:

```

sh bgp ipv4 unicast summary
sh bgp ipv4 unicast
sh ip route bgp
sh bgp ipv4 unicast neighbors [router 1.....router12 loopback] advertised-
routes
sh bgp ipv4 unicast neighbors [router 1.....router12 loopback] received-
routes
sh ip route [R2, R5, R8, R11 datacenter prefix]

```

IPv6 RR Configuration Router8 (One RR Server per region):

```
config t
router bgp 17821
address-family ipv6
neighbor 2406:6400:0000:0000::7 route-reflector-client
neighbor 2406:6400:0000:0000::9 route-reflector-client
exit
exit
exit
wr
```

Verify IPV6 RR Configuration:

```
sh bgp ipv6 unicast summary
sh bgp ipv6 unicast
sh ipv6 route bgp
sh bgp ipv6 unicast neighbors [router 1.....router12 loopback] advertised-
routes
sh bgp ipv6 unicast neighbors [router 1.....router12 loopback] received-
routes
sh ipv6 route [R2, R5, R8, R11 datacenter prefix]
```

The diagram illustrates a network topology with three Autonomous Systems (ASes) and their connections to the Internet and each other.

- AS131107 (Hurricane)**: Connected to the Internet via Hurricane (AS6939) and NTV (AS4608). It has a router R2 with interfaces e1/3, e1/1, fa0/0, and fa0/1. It is connected to switch SW1 via fa0/5 and fa0/11.
- AS45192 (APNIC NCC)**: Connected to the Internet via Hurricane (AS6939) and NTV (AS4608). It has a router R5 with interfaces e1/3, e1/1, fa0/0, and fa0/1. It is connected to switch SW2 via fa0/2 and fa0/11.
- AS17821**: Connected to the Internet via Hurricane (AS6939) and NTV (AS4608). It has routers R11 and R8. R11 is connected to SW1 via fa0/0 and fa0/1. R8 is connected to SW2 via fa0/0 and fa0/1.

The diagram also shows various IP addresses and interfaces for both IPv4 and IPv6. For example, R2 has IPv4 addresses 172.16.13.0/24 and 2406:6400::5/48 on its fa0/1 interface. R5 has IPv4 addresses 172.16.2.0/23 and 2406:6400:2::/48 on its e1/3 interface. The diagram also shows various interfaces and IP addresses for both IPv4 and IPv6.

```
config t
interface Tunnel0
tunnel source 172.16.12.3
tunnel destination 192.168.1.1
tunnel mode ipv6ip
ipv6 address 2406:6400:F:42::2/64
ipv6 enable
exit
exit
wr
```

```
sh ip int bri (up up)
ping 2406:6400:F:42::2 [!!!!]
ping 2406:6400:F:42::1 [!!!!]
```


IPv6 eBGP Peering Conf Router8:

```
config t
router bgp 17821
address-family ipv6
neighbor 2406:6400:F:42::1 remote-as 23456
neighbor 2406:6400:F:42::1 activate
exit
exit
exit
wr
```

Verify eBGP Peering:

```
sh bgp ipv6 unicast summary
sh bgp ipv6 unicast
sh ipv6 route bgp
sh bgp ipv6 unicast neighbors 2406:6400:F:42::1 advertised-routes
sh bgp ipv6 unicast neighbors 2406:6400:F:42::1 received-routes
sh ipv6 route [All global prefix]
```