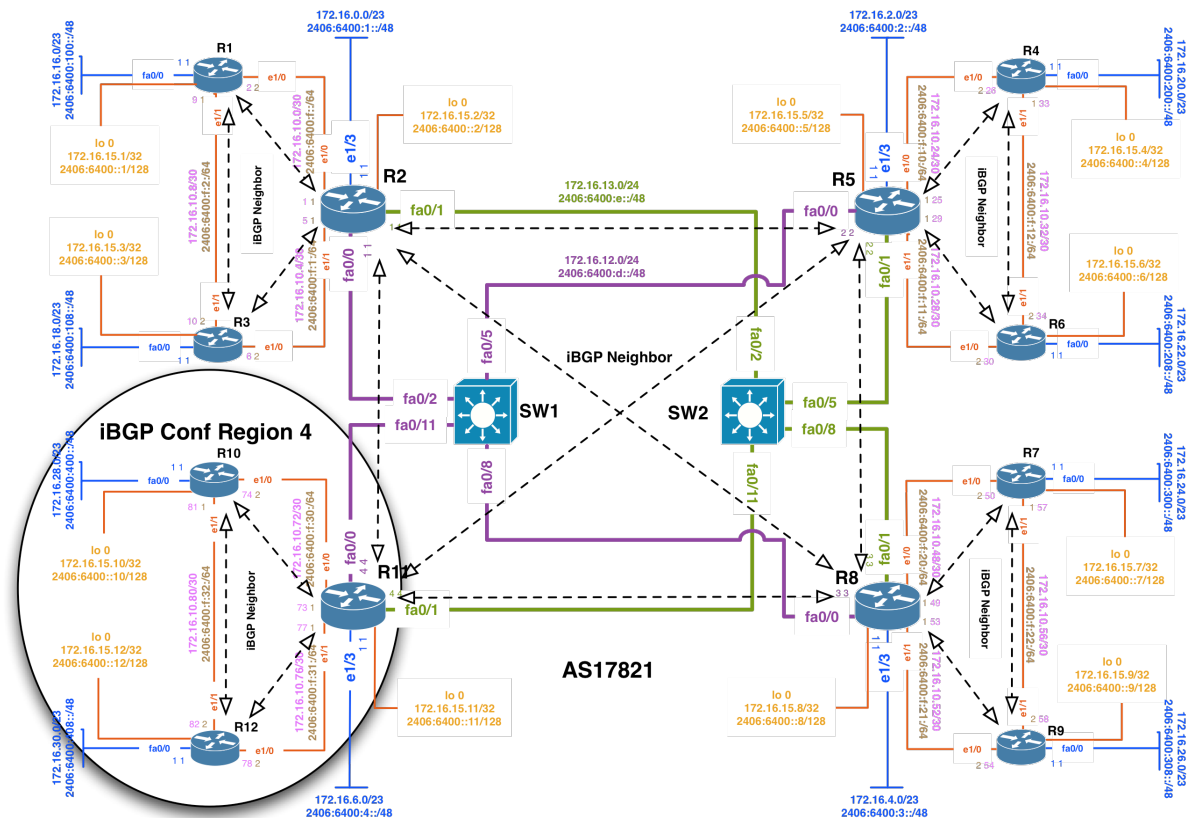


iBGP configuration for training ISP network Region4:



IPv4 iBGP Conf Router10:

```

config t
router bgp 17821
address-family ipv4
no auto-summary
no synchronization
neighbor 172.16.15.11 remote-as 17821
neighbor 172.16.15.11 update-source loopback 0
neighbor 172.16.15.11 activate
neighbor 172.16.15.12 remote-as 17821
neighbor 172.16.15.12 update-source loopback 0
neighbor 172.16.15.12 activate
network 172.16.28.0 mask 255.255.254.0
exit
exit
ip route 172.16.28.0 255.255.254.0 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 Router10:

```
config t
router bgp 17821
address-family ipv6
no synchronization
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
neighbor 2406:6400:0000:0000::12 remote-as 17821
neighbor 2406:6400:0000:0000::12 update-source loopback 0
neighbor 2406:6400:0000:0000::12 activate
network 2406:6400:0400:0000::/45
exit
exit
ipv6 route 2406:6400:0400:0000::/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 Router11:

```
config t
router bgp 17821
address-family ipv4
no auto-summary
no synchronization
```

```

neighbor 172.16.15.10 remote-as 17821
neighbor 172.16.15.10 update-source loopback 0
neighbor 172.16.15.10 activate
neighbor 172.16.15.12 remote-as 17821
neighbor 172.16.15.12 update-source loopback 0
neighbor 172.16.15.12 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 172.16.15.8 remote-as 17821
neighbor 172.16.15.8 update-source loopback 0
neighbor 172.16.15.8 activate
network 172.16.6.0 mask 255.255.254.0
exit
exit
ip route 172.16.6.0 255.255.254.0 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 Router11:

```

config t
router bgp 17821
address-family ipv6
no synchronization
neighbor 2406:6400:0000:0000::10 remote-as 17821
neighbor 2406:6400:0000:0000::10 update-source loopback 0
neighbor 2406:6400:0000:0000::10 activate
neighbor 2406:6400:0000:0000::12 remote-as 17821
neighbor 2406:6400:0000:0000::12 update-source loopback 0
neighbor 2406:6400:0000:0000::12 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::8 remote-as 17821
neighbor 2406:6400:0000:0000::8 update-source loopback 0
neighbor 2406:6400:0000:0000::8 activate
network 2406:6400:0004:0000::/48
exit
exit
ipv6 route 2406:6400:0004:0000::/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 Router12:

```
config t
router bgp 17821
address-family ipv4
no auto-summary
no synchronization
neighbor 172.16.15.11 remote-as 17821
neighbor 172.16.15.11 update-source loopback 0
neighbor 172.16.15.11 activate
neighbor 172.16.15.10 remote-as 17821
neighbor 172.16.15.10 update-source loopback 0
neighbor 172.16.15.10 activate
network 172.16.30.0 mask 255.255.254.0
exit
exit
ip route 172.16.30.0 255.255.254.0 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]
```

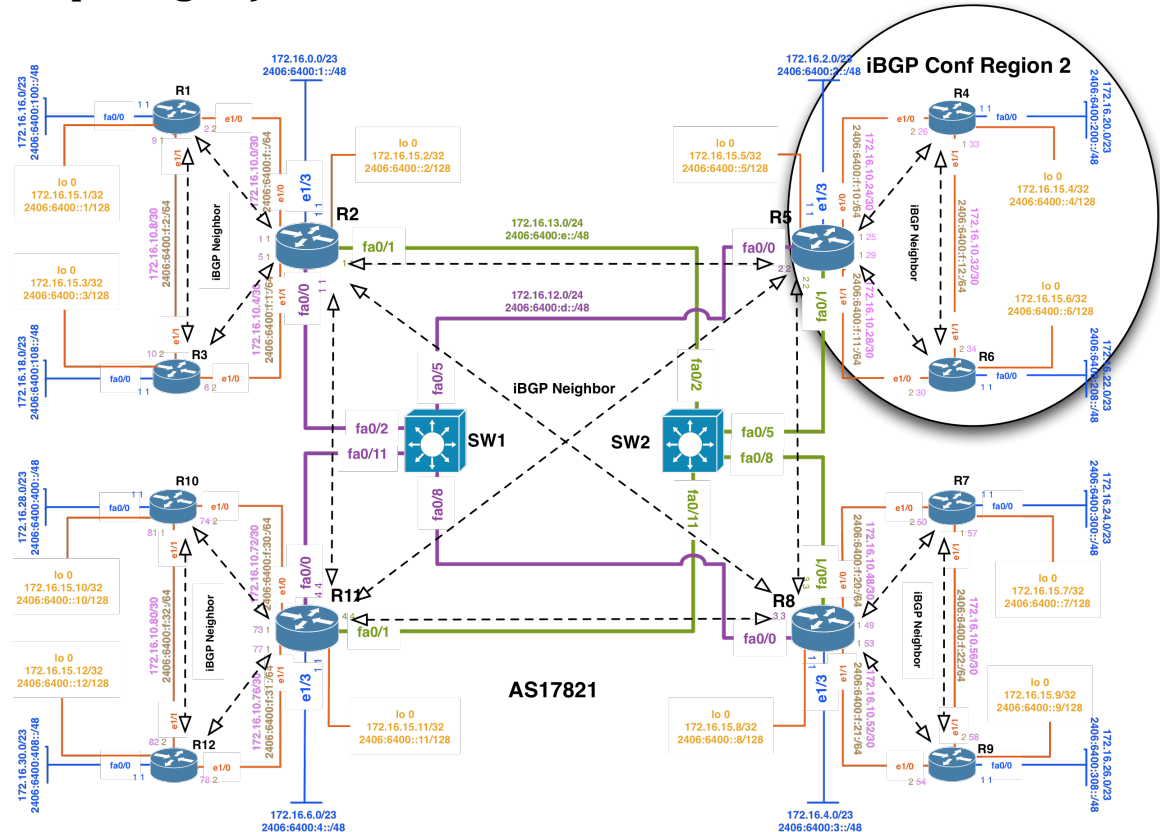
IPv6 iBGP Conf Router12:

```
config t
router bgp 17821
address-family ipv6
no synchronization
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
neighbor 2406:6400:0000:0000::10 remote-as 17821
neighbor 2406:6400:0000:0000::10 update-source loopback 0
neighbor 2406:6400:0000:0000::10 activate
network 2406:6400:0408:0000::/45
exit
exit
ipv6 route 2406:6400:0408:0000::/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 4 (One RR per region):



IPv4 RR Configuration on Router11 (One RR Server per region):

```

config t
router bgp 17821
address-family ipv4
neighbor 172.16.15.10 route-reflector-client
neighbor 172.16.15.12 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 on Router11 (One RR Server per region):

```
config t
router bgp 17821
address-family ipv6
neighbor 2406:6400:0000:0000::10 route-reflector-client
neighbor 2406:6400:0000:0000::12 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 the network configuration for AS17821. It shows connections to external networks (IPv6 and Internet) and internal network components (routers and switches).

External Networks:

- IPv6:** Connected to R2 (fa0/0) and R5 (fa0/0). R2 has a loopback address of 172.16.15.2/32 and 2406:6400::2/128. R5 has a loopback address of 172.16.2.0/23 and 2406:6400:2::/48.
- Internet:** Connected to TS (AS6939) and NTV (AS4608). TS is connected to R2 (fa0/0) and SW1 (fa0/5). NTV is connected to R5 (fa0/0) and SW2 (fa0/11).

Internal Network Components:

- Routers:** R2, R5, R11, and R8. R2 and R5 are connected to the Internet. R11 and R8 are connected to the IPv6 cloud.
- Switches:** SW1 and SW2. SW1 is connected to R2 (fa0/1) and R11 (fa0/0). SW2 is connected to R5 (fa0/0) and R8 (fa0/0).

AS17821: The central autonomous system, represented by a large blue cloud, containing all the internal components.

```
config t
router bgp 17821
address-family ipv6
neighbor 2406:6400:000D:0000::5 remote-as 45192
neighbor 2406:6400:000D:0000::5 activate
neighbor 2406:6400:000E:0000::5 remote-as 45192
neighbor 2406:6400:000E:0000::5 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 2406:6400:000D:0000::5 advertised-routes

sh bgp ipv6 unicast neighbors 2406:6400:000D:0000::5 received-routes

sh ipv6 route [All global prefix]