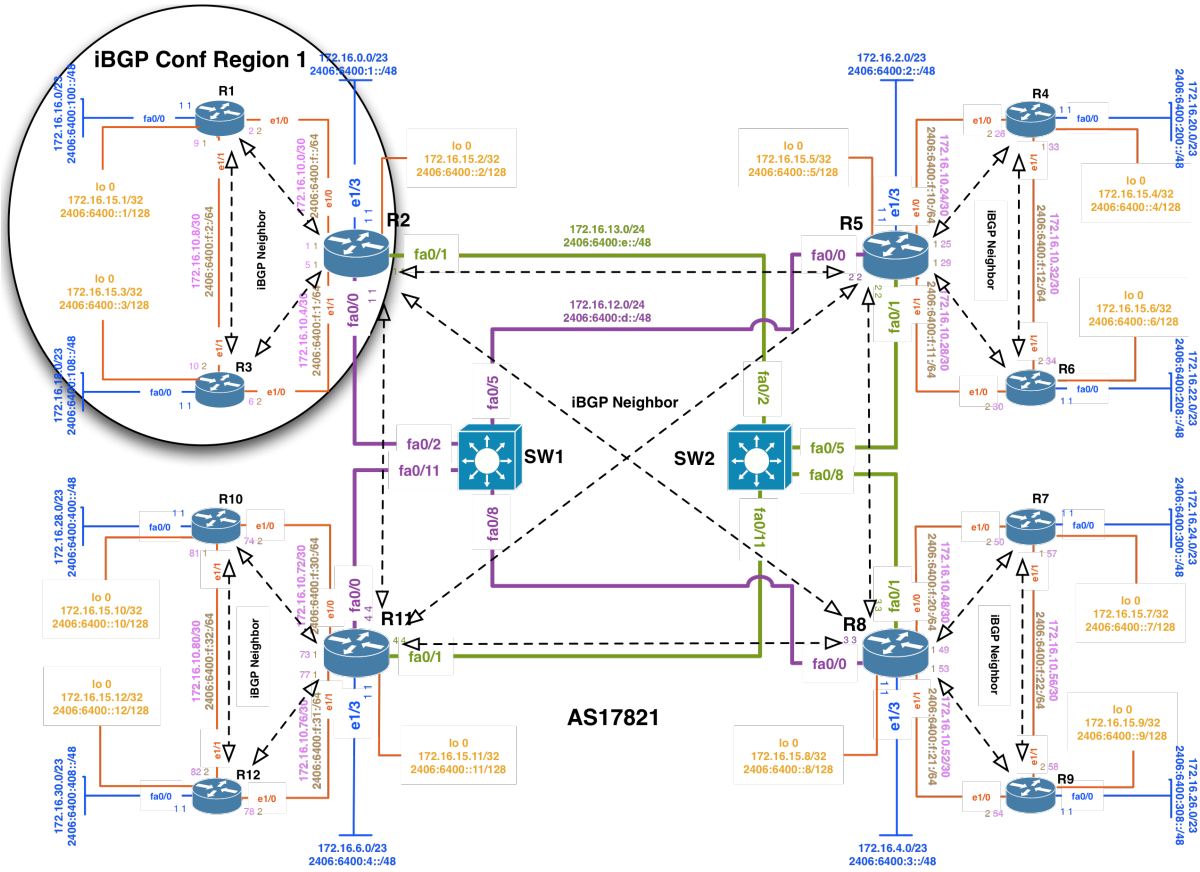
iBGP configuration for training ISP network Region1:



IPv4 iBGP Conf Router1:

```
config t
router bgp 17821
address-family ipv4
no auto-summary
no synchronization
neighbor 172.16.15.2 remote-as 17821
neighbor 172.16.15.2 update-source loopback 0
neighbor 172.16.15.2 activate
neighbor 172.16.15.3 remote-as 17821
neighbor 172.16.15.3 update-source loopback 0
neighbor 172.16.15.3 activate
network 172.16.16.0 mask 255.255.254.0
exit
exit
ip route 172.16.16.0 255.255.254.0 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 Router1:

config t
router bgp 17821
address-family ipv6
no synchronization
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::3 remote-as 17821
neighbor 2406:6400:0000:0000::3 update-source loopback 0
neighbor 2406:6400:0000:0000::3 activate
network 2406:6400:0100:0000::/45
exit
exit
ipv6 route 2406:6400:0100:0000::/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 Router2

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

neighbor 172.16.15.1 remote-as 17821
neighbor 172.16.15.1 update-source loopback 0
neighbor 172.16.15.1 activate
neighbor 172.16.15.3 remote-as 17821
neighbor 172.16.15.3 update-source loopback 0
neighbor 172.16.15.3 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
neighbor 172.16.15.11 remote-as 17821
neighbor 172.16.15.11 update-source loopback 0
neighbor 172.16.15.11 activate
network 172.16.0.0 mask 255.255.254.0
exit
exit
ip route 172.16.0.0 255.255.254.0 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 Router2

config t
router bgp 17821
address-family ipv6
no synchronization
neighbor 2406:6400:0000:0000::1 remote-as 17821
neighbor 2406:6400:0000:0000::1 update-source loopback 0
neighbor 2406:6400:0000:0000::1 activate
neighbor 2406:6400:0000:0000::3 remote-as 17821
neighbor 2406:6400:0000:0000::3 update-source loopback 0
neighbor 2406:6400:0000:0000::3 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
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 2406:6400:0001:0000::/48
exit
exit
ipv6 route 2406:6400:0001:0000::/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 Router3

config t
router bgp 17821
address-family ipv4
no auto-summary
no synchronization
neighbor 172.16.15.2 remote-as 17821
neighbor 172.16.15.2 update-source loopback 0
neighbor 172.16.15.2 activate
neighbor 172.16.15.1 remote-as 17821
neighbor 172.16.15.1 update-source loopback 0
neighbor 172.16.15.1 activate
network 172.16.18.0 mask 255.255.254.0
exit
exit
ip route 172.16.18.0 255.255.254.0 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]

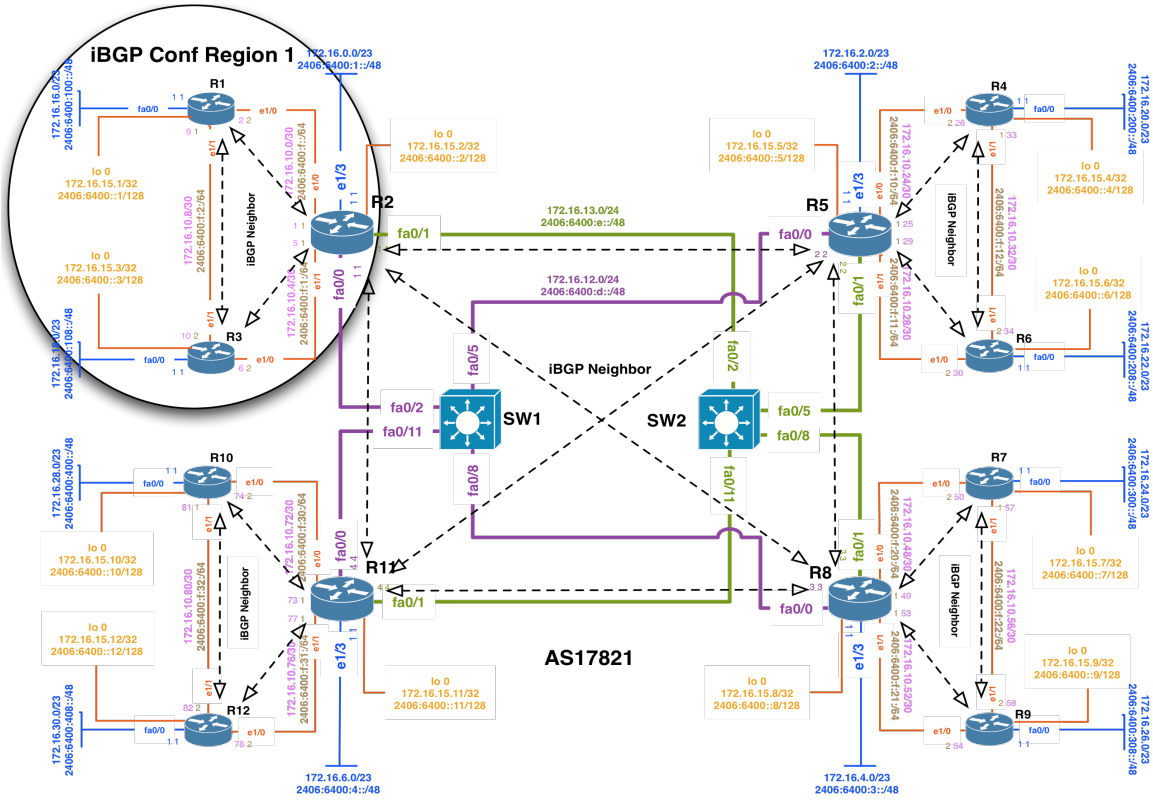
IPv6 iBGP Conf Router3

config t
router bgp 17821
address-family ipv6
no synchronization
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::1 remote-as 17821
neighbor 2406:6400:0000:0000::1 update-source loopback 0
neighbor 2406:6400:0000:0000::1 activate
network 2406:6400:0108:0000::/45
exit
exit
ipv6 route 2406:6400:0108:0000::/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 1 (One RR per region):



IPv4 RR Configuration on Router2 (One RR Server per region):

config t
router bgp 17821
address-family ipv4
neighbor 172.16.15.1 route-reflector-client
neighbor 172.16.15.3 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]

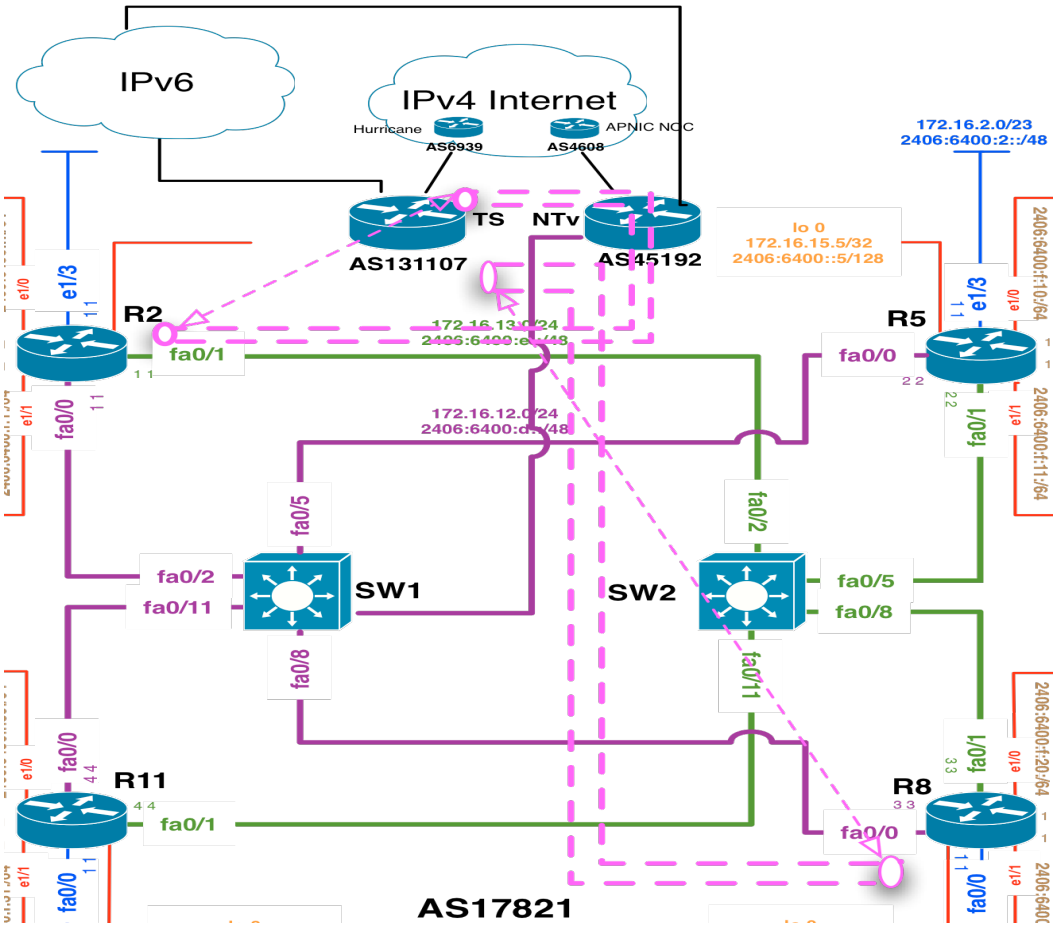
IPV6 RR Configuration Router2 (One RR Server per region):

```
config t
router bgp 17821
address-family ipv6
neighbor 2406:6400:0000:0000::1 route-reflector-client
neighbor 2406:6400:0000:0000::3 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]
```

IPv6 eBGP Tunnel Transit Conf Region 1 (Only Region Core Router):



IPV6 Tunnel Interface Conf Router2:

config t
interface Tunnel0
tunnel source 172.16.12.1
tunnel destination 192.168.1.1
tunnel mode ipv6ip
ipv6 address 2406:6400:F:40::2/64
ipv6 enable
exit
exit
wr

Verify Tunnel Interface:

sh ip int bri (up up)
ping 2406:6400:F:40::2 [!!!!!]
ping 2406:6400:F:40::1 [!!!!!]

IPv6 eBGP Peering Conf Router2:

```
config t
router bgp 17821
address-family ipv6
neighbor 2406:6400:F:40::1 remote-as 23456
neighbor 2406:6400:F:40::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:40::1 advertised-routes
sh bgp ipv6 unicast neighbors 2406:6400:F:40::1 received-routes
sh ipv6 route [All global prefix]
```