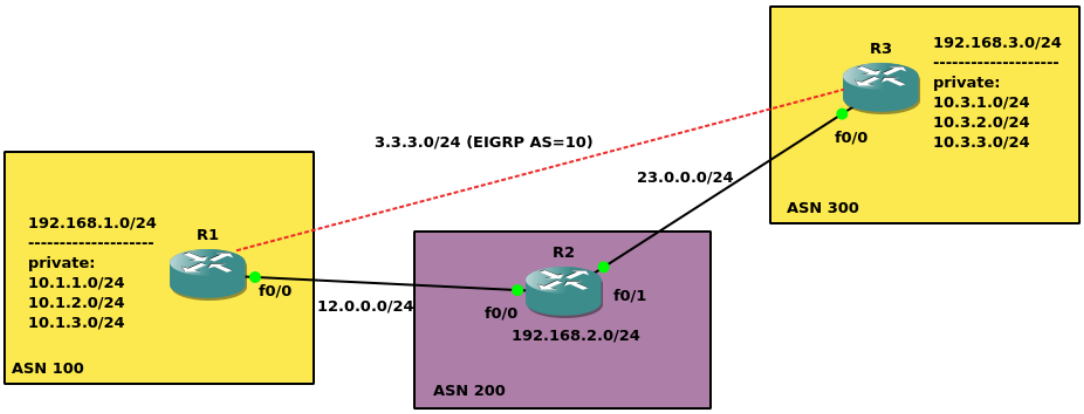
VPN

March 24, 2020

1 GRE



1.0.1 Step 1 : Configure Interfaces

```
!r1
conf t
    int f0/0
        ip add  12.0.0.1 255.255.255.0
        no sh
    int l0
        ip add  192.168.1.1 255.255.255.0
    int l1
        ip add  10.1.1.1 255.255.255.0
    int l2
        ip add  10.1.2.1 255.255.255.0
    int l3
        ip add  10.1.3.1 255.255.255.0
end

!r2
conf t
    int f0/0
        ip add  12.0.0.2 255.255.255.0
```

```
        no sh
    int f0/1
        ip add  23.0.0.2 255.255.255.0
        no sh
    int l0
        ip add  192.168.2.1 255.255.255.0
end

!r3
conf t
    int f0/0
        ip add  23.0.0.3 255.255.255.0
        no sh
    int l0
        ip add  192.168.3.1 255.255.255.0
    int l1
        ip add  10.3.1.1 255.255.255.0
    int l2
        ip add  10.3.2.1 255.255.255.0
    int l3
        ip add  10.3.3.1 255.255.255.0
end
```

1.0.2 Step 2 : Configure Underlay routing protocol (BGP)

```
!r1
conf t
    !bgp oconfig (undelay)
    router bgp 100
        no auto
        no syn

        nei 12.0.0.2 remote-as 200
        nei 12.0.0.2 version 4
        nei 12.0.0.2 password cisco

        net 192.168.1.0 mask 255.255.255.0
end

!r2
conf t
    !bgp oconfig (undelay)
    router bgp 200
        no auto
        no syn

        nei 12.0.0.1 remote-as 100
```

```
        nei 12.0.0.1 version 4
        nei 12.0.0.1 password cisco

        nei 23.0.0.3 remote-as 300
        nei 23.0.0.3 version 4
        nei 23.0.0.3 password cisco

        net 192.168.2.0 mask 255.255.255.0
end

!r3
conf t
    !bgp oconfig (undelay)
    router bgp 300
        no auto
        no syn

        nei 23.0.0.2 remote-as 200
        nei 23.0.0.2 version 4
        nei 23.0.0.2 password cisco

        net 192.168.3.0 mask 255.255.255.0
end
```

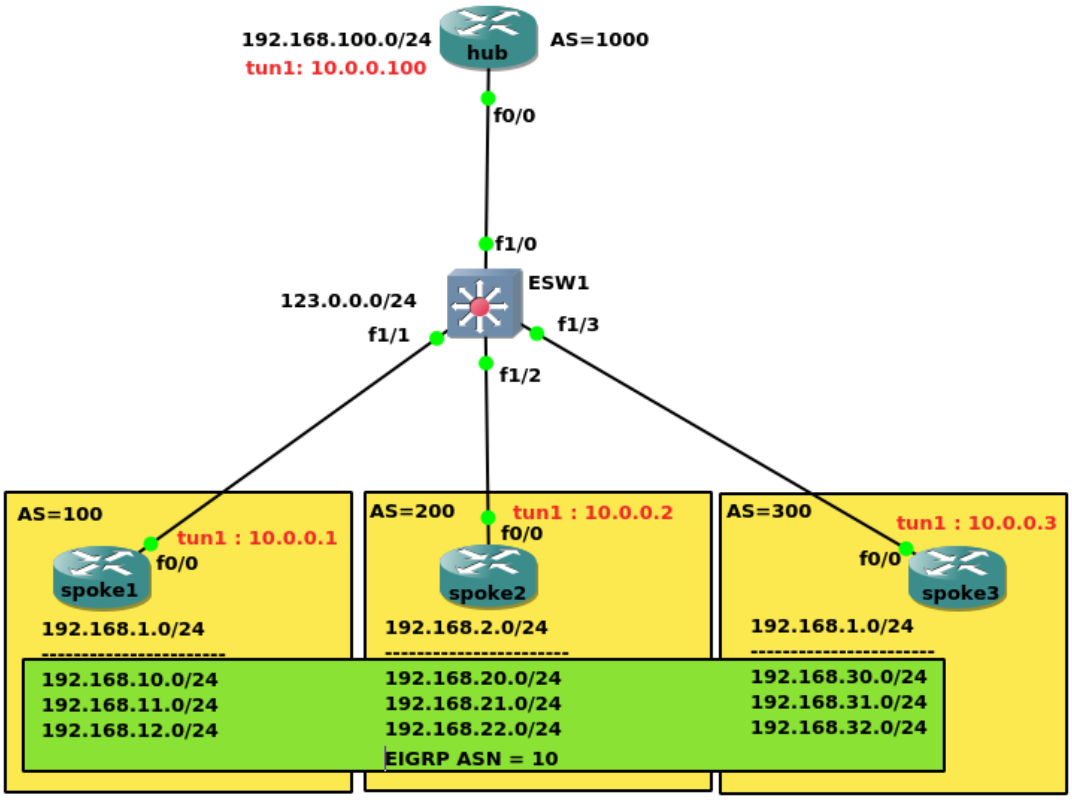
1.0.3 Step 3 : Create a Bidirectional Tunnel

```
!r1
conf t
    !tunnel config
    int tunnel 1                        ! add  virtual tunnel interface
        ip add 3.3.3.1 255.255.255.0    ! set ip address of tunnel
        tunnel sour 192.168.1.1         ! set source interface or IP address
        tunnel dest 192.168.3.1         ! set destination int or IP address
end

!r3
conf t
    !tunnel config
    int tunnel 1
        ip add 3.3.3.2 255.255.255.0
        tunnel sour 192.168.3.1
        tunnel dest 192.168.1.1
end
```

1.0.4 Step 4 : Configure Overlay routing (EIGRP)

```
!r1
conf t
    !eigrp config (overlay)
    router eigrp 10
        no auto
        passive def

        net 3.3.3.1 0.0.0.0
        net 10.1.1.1 0.0.0.0
        net 10.1.2.1 0.0.0.0
        net 10.1.3.1 0.0.0.0

        no passive tunnel 1
end

!r3
conf t
    !eigrp config (overlay)
    router eigrp 10
        no auto
        passive def

        net 3.3.3.2 0.0.0.0
        net 10.3.1.1 0.0.0.0
        net 10.3.2.1 0.0.0.0
        net 10.3.3.1 0.0.0.0

        no passive tunnel 1
end
```

2 DMVPN



2.0.1 Step 1: intererface config

```
!hub
conf t
    int f0/0
        ip add 123.0.0.100 255.255.255.0
        no sh
    int l0
        ip add 192.168.1.100 255.255.255.0
end

!spoke1
conf t
    int f0/0
        ip add 123.0.0.1 255.255.255.0
        no sh
    int l0
        ip add 192.168.1.1 255.255.255.0
    int l1
        192.168.10.1 255.255.255.0
```

```
    int l2
        192.168.11.1 255.255.255.0
    int l3
        192.168.12.1 255.255.255.0
end


!spoke2
conf t
    int f0/0
        ip add 123.0.0.2 255.255.255.0
        no sh
    int l0
        ip add 192.168.2.1 255.255.255.0
    int l1
        192.168.20.1 255.255.255.0
    int l2
        192.168.21.1 255.255.255.0
    int l3
        192.168.22.1 255.255.255.0
end

!spoke3
conf t
    int f0/0
        ip add 123.0.0.3 255.255.255.0
        no sh
    int l0
        ip add 192.168.3.1 255.255.255.0
    int l1
        192.168.30.1 255.255.255.0
    int l2
        192.168.31.1 255.255.255.0
    int l3
        192.168.32.1 255.255.255.0
end
```

2.0.2 Step 2: Overlay Routing (BGP)

```
!hub
conf t
    router bgp 1000
        no synchronization
        no auto-summary

        neighbor 123.0.0.1 remote-as 100
```

```
        neighbor 123.0.0.1 password cisco

        neighbor 123.0.0.2 remote-as 200
        neighbor 123.0.0.2 password cisco

        neighbor 123.0.0.3 remote-as 300
        neighbor 123.0.0.3 password cisco
end

!spoke1
conf t
    router bgp 100
        no synchronization
        no auto-summary

        neighbor 123.0.0.100 remote-as 1000
        neighbor 123.0.0.100 password cisco

        network 192.168.1.0
end

!spoke2
conf t
    router bgp 100
        no synchronization
        no auto-summary

        neighbor 123.0.0.100 remote-as 1000
        neighbor 123.0.0.100 password cisco

        network 192.168.2.0
end

!spoke3
conf t
    router bgp 100
        no synchronization
        no auto-summary

        neighbor 123.0.0.100 remote-as 1000
        neighbor 123.0.0.100 password cisco

        network 192.168.3.0
end
```

2.0.3 Step 3 : Configure DMVPN Tunnel

```
!hub
conf t
    interface Tunnel1
         ip address 10.0.0.100 255.255.255.0
         tunnel source FastEthernet0/0
         tunnel mode gre multipoint           ! set mGRE mode

         ip nhrp network-id 1                 ! grup ID
         ip nhrp map multicast dynamic        ! to accommodate eigrp multicast

         no ip next-hop-self eigrp 10
         no ip split-horizon eigrp 10         ! for eigrp
end

!spokes
conf t
    interface Tunnel1
        ip address 10.0.0.1 255.255.255.0
        tunnel source FastEthernet0/0
        tunnel mode gre multipoint

        ip nhrp network-id 1                  ! match group ID
        ip nhrp nhs 10.0.0.100                ! specify NHRP server (hub)
        ip nhrp map 10.0.0.100 123.0.0.100    ! map NHS tun : phy addr
        ip nhrp map multicast dynamic         ! for eigrp
end
```

2.0.4 Step 4 : Overlay Routing (EIGRP)

```
!hub
conf t
    router eigrp 10
         no auto-summary
         passive-interface default
         network 10.0.0.100 0.0.0.0
         no passive-interface Tunnel1
end

!spoke1
conf t
    router eigrp 10
         no auto-summary
         passive-interface default

         network 10.0.0.1 0.0.0.0
```

```
         network 192.168.10.1 0.0.0.0
         network 192.168.11.1 0.0.0.0
         network 192.168.12.1 0.0.0.0

         no passive-interface Tunnel1
end

!spoke2
conf t
    router eigrp 10
         no auto-summary
         passive-interface default

         network 10.0.0.2 0.0.0.0
         network 192.168.20.1 0.0.0.0
         network 192.168.21.1 0.0.0.0
         network 192.168.22.1 0.0.0.0

         no passive-interface Tunnel1
end

!spoke3
conf t
    router eigrp 10
         no auto-summary
         passive-interface default

         network 10.0.0.3 0.0.0.0
         network 192.168.30.1 0.0.0.0
         network 192.168.31.1 0.0.0.0
         network 192.168.32.1 0.0.0.0

         no passive-interface Tunnel1
end
```

[ ]: