Advanced BGP Lab

In this free GNS3 Lab you will be configuring EIGRP, OSPF, IBGP and BGP across multiple autonomous systems. You will also configure Point-to-Point and Point-to-Multipoint Frame-Relay. For this lab we are using an old INE topology consists of 9 routers and 4 level 3 switches. Routers with switching modules install have been substituted for level 3 switches as GNS3 does not support level 3 switches.

## Learning Objectives:

* Point-to-point Frame-Relay
* Point-to-Multipoint Frame-Relay
* VLANs
* Port Channel
* EIGRP
* OSPF
* IBGP
* BGP
* Update Source

## Tasks:

1. Configure VLANs as shown in the network drawing.
2. Configure Port Channel on SW4 and SW2 as shown in the network drawing.
3. Configure Frame Relay cloud 1 and 2 as shown in the network drawing.
4. Using the network address table configure the Loopback interface 0 on all routers and switches.
5. Using the network address table configure Fast Ethernet interfaces on all routers and switches as shown in the network drawing.
6. Using the address table configure Serial interfaces on R1, 2, 3, 4, 5, 6, and BB1 as shown in the network drawing.
7. Configure serial interfaces S0/1 and S0/2 of R3 to have a clock rate of 125000.
8. Configure serial interfaces S0/1 of R4 to have a clock rate of 125000.
9. Configure Frame Relay encapsulation on S0/0 interface of R1, 2, 3, 4, 5, 6 and BB1
10. Configure R1, 2, 3, 4, and 5 to be part of a hub and spoke Frame Relay network as shown in the network drawing.
11. Configure R6 and BB1 to be part of a point to point Frame Relay network as shown in the network drawing.
12. Configure R1, 4, and 6 to be part of the OSPF routing process 1.
13. Configure R1, 4, and 6 interfaces to be in OSPF area 0 as shown in the network drawing.
14. Configure R3 and 5 as well as SW1, 2, 3, and 4 to be in EIGRP AS 1 as shown in the network drawing.
15. Configure R1, 4, and 6 to be in BGP AS 100 as shown in the network drawing.
16. Configure R2 to be in BGP AS 200 as shown in the network drawing.
17. Configure R3 as well as SW1 and 3 to be in BGP AS 300 as shown in the network drawing.
18. Configure R5 as well as SW2 and 4 to be in BGP AS 400 as shown in the network drawing.
19. Configure BB1 and BB3 to be in BGP AS 54 as shown in the network drawing.
20. Configure BB2 to be in BGP AS 254 as shown in the network drawing.
21. Configure BGP neighbor relationships on all routers and switches as shown in the network diagram.
22. Configure Loopback 0 to be the BGP update source on all routers and switches.
23. Configure SW1 and SW2 as BGP route reflectors.
24. Configure R2 BGP neighbor 192.10.1.254 with the password CISCO
25. Configure R1, 2, 3, 4 and 5 to prefer the Frame Relay interface.
26. Verify full connectivity to all network from each device.