

BGP CASE STUDY SOLUTION----

-all solved in pdf

Chapter 6. Lab 6-5, BGP Case Study

Today I'm starting to describe some labs from CCNP ROUTE 6.0 course. Today I will describe to you BGP case study Lab. I hope later I will describe to you all case study labs from routing course and later from switching course. So let's start.

First in PDF manual we see some network topology with IP addresses. As written in PDF we must:

1. Configure the addressing scheme shown in the diagram.

I think there is no big interesting actions, that's why I decided do not write about this.

2. Configure the ITA network to be in EIGRP AS 65001.

R1 configuration:

```
R1(config)#router eigrp 65001
R1(config-router)#net 10.1.1.1 0.0.0.255
R1(config-router)#net 192.168.14.0 0.0.0.3
R1(config-router)#net 10.1.103.0 0.0.0.7
R1(config-router)#net 10.1.102.0 0.0.0.7
```

R2 configuration:

```
R2(config)#router eigrp 65001
R2(config-router)#net 10.2.2.2 0.0.0.255
R2(config-router)#net 10.20.0.0 0.0.7.255
R2(config-router)#net 10.1.203.0 0.0.0.7
R2(config-router)#net 10.1.102.0 0.0.0.7
```

R3 configuration:

```
R3(config)#router eigrp 65001
```

```
R3(config-router)#net 10.3.3.0 0.0.0.255
R3(config-router)#net 10.1.203.0 0.0.0.7
R3(config-router)#net 192.168.34.0 0.0.0.3
R3(config-router)#net 10.1.103.0 0.0.0.7
```

After this configuration we must check routing tables on all three routers, after this we must see all routes except routes from R4 router.

3. Configure the TDP network to be in EIGRP AS 65002.

R4 configuration:

```
R4(config)#router eigrp 65002
R4(config-router)#net 172.16.0.0 0.0.15.255
R4(config-router)#net 192.168.14.0 0.0.0.3
R4(config-router)#net 192.168.34.0 0.0.0.3
```

4. Disable automatic summarization in both EIGRP domains. On all router in router eigrp section we must execute no auto-summary command.

```
R(1-4)(config-router):no auto-summary
```

5. Configure the ITA network to be in BGP AS 65001, and the TDP network to be in BGP AS 65002.

```
R1(config)#router bgp 65001
R1(config-router)#neighbor 10.1.102.2 remote-as 65001
R1(config-router)#neighbor 10.1.103.3 remote-as 65001
R1(config-router)#neighbor 192.168.14.2 remote-as 65002
```

```
R1(config-router)#net 192.168.14.0 mask 255.255.255.252
```

```
R1(config-router)#net 10.1.103.0 mask 255.255.255.248
```

```
R1(config-router)#net 10.1.102.0 mask 255.255.255.248
```

```
R1(config-router)#net 10.1.1.0 mask 255.255.255.0
```

```
#####
```

```
R2(config)#router bgp 65001
R2(config-router)#neigh 10.1.102.1 remote-as 65001
R2(config-router)#neigh 10.1.203.3 remote-as 65001
```

R2(config-router)#net 10.1.102.0 mask 255.255.255.248

R2(config-router)#net 10.1.203.0 mask 255.255.255.248

R2(config-router)#net 10.2.2.0 mask 255.255.255.0

R2(config-router)#net 10.20.0.0 mask 255.255.255.0

R2(config-router)#net 10.20.1.0 mask 255.255.255.0

R2(config-router)#net 10.20.2.0 mask 255.255.255.0

R2(config-router)#net 10.20.3.0 mask 255.255.255.0

#####

R3(config)#router bgp 65001

R3(config-router)#neigh 10.1.103.1 remote-as 65001

R3(config-router)#neigh 10.1.203.2 remote-as 65001

R3(config-router)#neighbor 192.168.34.2 remote-as 65002

R3(config-router)#net 10.3.3.0 mask 255.255.255.0

R3(config-router)#net 192.168.34.0 mask 255.255.255.252

R3(config-router)#net 10.1.103.0 mask 255.255.255.248

R3(config-router)#net 10.1.203.0 mask 255.255.255.248

#####

R4(config)#router bgp 65002

R4(config-router)#neigh 192.168.14.1 remote-as 65001

R4(config-router)#neigh 192.168.34.1 remote-as 65001

R4(config-router)#net 192.168.14.0 mask 255.255.255.252

R4(config-router)#net 192.168.34.0 mask 255.255.255.252

R4(config-router)#net 172.16.0.0 mask 255.255.252.0

R4(config-router)#net 172.16.4.0 mask 255.255.252.0

R4(config-router)#net 172.16.8.0 mask 255.255.252.0

R4(config-router)#net 172.16.12.0 mask 255.255.252.0

6. Advertise the 192.168.14.0/30 and 192.168.34.0/30 networks in both EIGRP autonomous systems.

We already added these networks in advertising process.

7. Configure the interfaces on the border routers between the two EIGRP autonomous systems, so they

do not send EIGRP packets.

Here we should configure interfaces on all border routers as passive interface in eigrp process.

8. All routers will be participating in BGP. Configure all routers for a full mesh of IBGP peers in each system.

This point is also ready, we configured this when we pointed all neighbors on each router.

9. Peer R1 and R2 using loopback addresses, not their directly connected interfaces.

```
R1(config)#router bgp 65001
```

```
R1(config-router)#neighbor 10.2.2.2 remote-as 65001
```

```
R1(config-router)#neigh 10.2.2.2 update-source lo1
```

```
#####
```

```
R2(config)#router bgp 65001
```

```
R2(config-router)#neigh 10.1.1.1 remote-as 65001
```

```
R2(config-router)#neighbor 10.1.1.1 update-source lo2
```

10. Advertise all loopback interfaces into the BGP process, except on R2, where the only loopback advertised should be loopback 2.

We described this configuration above except specially R2 configuration, that's why we must configure only R2:

```
R2(config-router)#no net 10.20.0.0 mask 255.255.255.0
```

```
R2(config-router)#no net 10.20.1.0 mask 255.255.255.0
```

```
R2(config-router)#no net 10.20.2.0 mask 255.255.255.0
```

```
R2(config-router)#no net 10.20.3.0 mask 255.255.255.0
```

11. On R2, create a static summary route for the rest of its loopback interfaces and advertise this static route in BGP.

```
R2(config)#ip route 10.20.0.0 255.255.252.0 null0
```

```
R2(config)#router bgp 65001
```

```
R2(config-router)#red i
```

```
R2(config-router)#redistribute static
```

12. R4 should send a summary route to ITA representing all the R4 loopback interfaces.

```
R4(config)#router bgp 65002
```

```
R4(config-router)#aggregate-address 172.16.0.0 255.255.240.0 summary-only
```

```
R4(config-router)#net 172.16.0.0 mask 255.255.240.0
R4(config-router)#no net 172.16.0.0 mask 255.255.252.0
R4(config-router)#no net 172.16.4.0 mask 255.255.252.0
R4(config-router)#no net 172.16.8.0 mask 255.255.252.0
R4(config-router)#no net 172.16.12.0 mask 255.255.252.0
```

13. R4 should prefer the path to ITA networks via the Ethernet link between R1 and R4. Accomplish this by modifying the MED advertised to TDP.

```
R1(config-route-map)#access-list 1 permit any
R1(config)#route-map INJECTION-R4 permit 10
R1(config-route-map)#match ip add
R1(config-route-map)#match ip address 1
R1(config-route-map)#set metric 100
R1(config)#router bgp 65001
R1(config-router)#neigh 192.168.14.2 route-map INJECTION-R4 out
#####
#####

R3(config)#router bgp 65001
R3(config-router)#neigh 192.168.34.2 route-map INJECTION-R4 out
R3(config-router)#route-map INJECTION-R4 permit 10
R3(config-route-map)#set metric 100
```

14. Routers in the ITA AS should prefer the path to TDP networks via the Ethernet link between R1 and

R4. Accomplish this by modifying the local preference of routes being advertised in from TDP.

```
R1(config)#router bgp 65001
R1(config-router)#neigh 192.168.14.2 route-map IBGP_PEERS in
R1(config-router)#route-map IBGP_PEERS permit 10
R1(config-route-map)#set local-preference 160
```

That's all, but I suggest to you, complete all labs in bgp section for better bgp understanding. Good luck!!!