Packet Tracer - Modify Single-Area OSPFv2

Addressing Table

Device	Interface	IPv4 Address	Subnet Mask	Default Gateway
R1	G0/0	172.16.1.1	255.255.255.0	N/A
	S0/0/0	172.16.3.1	255.255.255.252	
	S0/0/1	192.168.10.5	255.255.255.252	
R2	G0/0	172.16.2.1	255.255.255.0	N/A
	S0/0/0	172.16.3.2	255.255.255.252	
	S0/0/1	192.168.10.9	255.255.255.252	
	S0/1/0	209.165.200.225	255.255.255.224	
R3	G0/0	192.168.1.1	255.255.255.0	N/A
	S0/0/0	192.168.10.6	255.255.255.252	
	S0/0/1	192.168.10.10	255.255.255.252	
PC1	NIC	172.16.1.2	255.255.255.0	172.16.1.1
PC2	NIC	172.16.2.2	255.255.255.0	172.16.2.1
PC3	NIC	192.168.1.2	255.255.255.0	192.168.1.1
Web Server	NIC	64.100.1.2	255.255.255.0	64.100.1.1

Objectives

Part 1: Modify OSPF Default Settings

Part 2: Verify Connectivity

Scenario

In this activity, OSPF is already configured and all end devices currently have full connectivity. You will modify the default OSPF routing configurations by changing the hello and dead timers and adjusting the bandwidth of a link. Then you will verify that full connectivity is restored for all end devices.

Instructions

Part 1: Modify OSPF Default Settings

Step 1: Test connectivity between all end devices.

Before modifying the OSPF settings, verify that all PCs can ping the web server and each other.

Step 2: Adjust the hello and dead timers between R1 and R2.

a. Enter the following commands on **R1**.

```
R1(config)# interface s0/0/0
R1(config-if)# ip ospf hello-interval 15
R1(config-if)# ip ospf dead-interval 60
```

b. After a short period of time, the OSPF connection with **R2** will fail, as shown in the router output.

```
00:02:40: %OSPF-5-ADJCHG: Process 1, Nbr 209.165.200.225 on Serial0/0/0 from FULL to
DOWN, Neighbor Down: Dead timer expired

00:02:40: %OSPF-5-ADJCHG: Process 1, Nbr 209.165.200.225 on Serial0/0/0 from FULL to
DOWN, Neighbor Down: Interface down or detached
```

Both sides of the connection need to have the same timer values in order for the adjacency to be maintained. Identify the interface on R2 that is connected to R1. Adjust the timers on the R2 interface to match the settings on **R1**.

After a brief period of time you should see a status message that indicates that the OSPF adjacency has been reestablished.

```
00:21:52: %OSPF-5-ADJCHG: Process 1, Nbr 192.168.10.5 on Serial0/0/0 from
LOADING to FULL, Loading Done
```

Step 3: Adjust the bandwidth setting on R1.

a. Trace the path between **PC1** and the web server located at 64.100.1.2. Notice that the path from **PC1** to 64.100.1.2 is routed through **R2**. OSPF prefers the lower cost path.

```
C:\> tracert 64.100.1.2

Tracing route to 64.100.1.2 over a maximum of 30 hops:

1 1 ms 0 ms 8 ms 172.16.1.1
2 0 ms 1 ms 0 ms 172.16.3.2
3 1 ms 9 ms 2 ms 209.165.200.226
4 * 1 ms 0 ms 64.100.1.2

Trace complete.
```

b. On the **R1** Serial 0/0/0 interface, set the bandwidth to 64 Kb/s. This does not change the actual port speed, only the metric that the OSPF process on **R1** will use to calculate best routes.

```
R1(config-if)# bandwidth 64
```

c. Trace the path between **PC1** and the web server located at 64.100.1.2. Notice that the path from **PC1** to 64.100.1.2 is redirected through **R3**. OSPF prefers the lower cost path.

```
C:\> tracert 64.100.1.2

Tracing route to 64.100.1.2 over a maximum of 30 hops:

1 1 ms 0 ms 3 ms 172.16.1.1
2 8 ms 1 ms 1 ms 192.168.10.6
3 2 ms 0 ms 2 ms 172.16.3.2
4 2 ms 3 ms 1 ms 209.165.200.226
5 2 ms 11 ms 11 ms 64.100.1.2

Trace complete.
```

Part 2: Verify Connectivity

Verify that all PCs can ping the web server and each other.