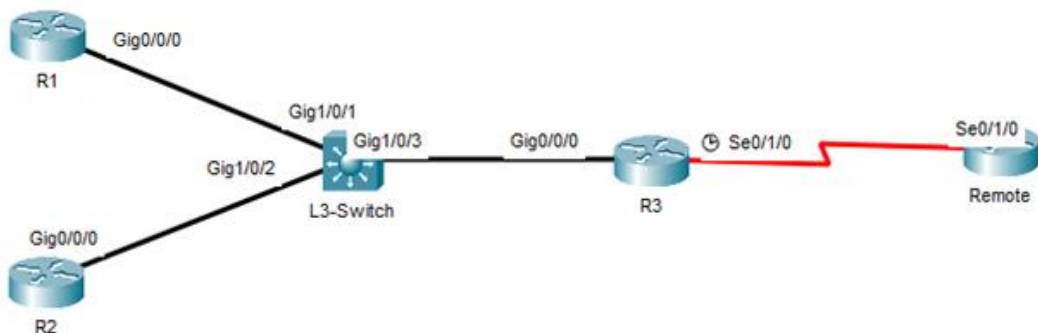


OSPF Network Type

Lab Summary

Modify OSPF network type from broadcast to point-to-point on all connected Ethernet interfaces and verify lab.

Figure 1 Lab Topology



Lab Configuration

Start Packet Tracer File: **ospf network type.pkt**

Click on *L3-Switch* and select the *CLI* folder.

Step 1: Enter enable mode.

```
L3-Switch>enable
```

Step 2: Verify the OSPF network type on all connected Ethernet interfaces is the default broadcast type.

```
L3-Switch#show ip ospf interface Gi1/0/1
```

<output omitted>

GigabitEthernet1/0/1 is up, line protocol is up

Internet address is 192.168.1.2/30, Area 0

Process ID 1, Router ID 192.168.255.5, **Network Type BROADCAST**, Cost: 1

Transmit Delay is 1 sec, **State DR**, Priority 1

Designated Router (ID) 192.168.255.5, Interface address 192.168.1.2

Backup Designated Router (ID) 192.168.255.1, Interface address 192.168.1.1

L3-Switch#**show ip ospf interface Gi1/0/2**

<output omitted>

GigabitEthernet1/0/2 is up, line protocol is up

Internet address is 192.168.2.2/30, Area 0

Process ID 1, Router ID 192.168.255.5, **Network Type BROADCAST**, Cost: 1

Transmit Delay is 1 sec, **State DR**, Priority 1

Designated Router (ID) 192.168.255.5, Interface address 192.168.2.2

Backup Designated Router (ID) 192.168.255.2, Interface address 192.168.2.1

L3-Switch#**show ip ospf interface Gi1/0/3**

<output omitted>

GigabitEthernet1/0/3 is up, line protocol is up

Internet address is 192.168.3.1/30, Area 0

Process ID 1, Router ID 192.168.255.5, **Network Type BROADCAST**, Cost: 1

Transmit Delay is 1 sec, **State DR**, Priority 1

Designated Router (ID) 192.168.255.5, Interface address 192.168.3.1

Backup Designated Router (ID) 192.168.255.3, Interface address 192.168.3.2

Click on *R1* router and select the *CLI* folder.

Step 3: Enter enable mode.

R1>**enable**

Step 4: Verify the OSPF network type on Ethernet interface Gi0/0/0 is the default broadcast type.

R1#**show ip ospf interface Gi0/0/0**

<output omitted>

GigabitEthernet0/0/0 is up, line protocol is up

Internet address is 192.168.1.1/30, Area 0

Process ID 1, Router ID 192.168.255.1, **Network Type BROADCAST**, Cost: 1

Transmit Delay is 1 sec, **State BDR**, Priority 1

Designated Router (ID) 192.168.255.5, Interface address 192.168.1.2

Backup Designated Router (ID) 192.168.255.1, Interface address 192.168.1.1

Click on *R2* router and select the *CLI* folder.

Step 5: Enter enable mode.

```
R2>enable
```

Step 6: Verify the OSPF network type on Ethernet interface Gi0/0/0 is the default broadcast type.

```
R2#show ip ospf interface Gi0/0/0
```

```
<output omitted>
```

```
GigabitEthernet0/0/0 is up, line protocol is up
```

```
Internet address is 192.168.2.1/30, Area 0
```

```
Process ID 1, Router ID 192.168.255.2, Network Type BROADCAST, Cost: 1
```

```
Transmit Delay is 1 sec, State BDR, Priority 1
```

```
Designated Router (ID) 192.168.255.5, Interface address 192.168.2.2
```

```
Backup Designated Router (ID) 192.168.255.2, Interface address 192.168.2.1
```

Click on *R3* router and select the *CLI* folder.

Step 7: Enter enable mode.

```
R3>enable
```

Step 8: Verify the OSPF network type on Ethernet interface Gi0/0/0 is the default broadcast type.

```
R3#show ip ospf interface Gi0/0/0
```

```
<output omitted>
```

```
GigabitEthernet0/0/0 is up, line protocol is up
```

```
Internet address is 192.168.3.2/30, Area 0
```

```
Process ID 1, Router ID 192.168.255.3, Network Type BROADCAST, Cost: 1
```

```
Transmit Delay is 1 sec, State BDR, Priority 1
```

```
Designated Router (ID) 192.168.255.5, Interface address 192.168.3.1
```

```
Backup Designated Router (ID) 192.168.255.3, Interface address 192.168.3.2
```

Step 9: Verify the OSPF network type on Serial0/1/0 interface is the default point-to-point type.

```
R3#show ip ospf interface Se0/1/0
```

```
<output omitted>
```

```
Serial0/1/0 is up, line protocol is up
```

```
Internet address is 192.168.4.1/30, Area 0
```

```
Process ID 1, Router ID 192.168.255.3, Network Type POINT-TO-POINT, Cost: 64
```

```
Transmit Delay is 1 sec, State POINT-TO-POINT
```

Click on *Remote* router and select the *CLI* folder.

Step 10: Enter enable mode.

```
Remote>enable
```

Step 11: Verify the OSPF network type on Serial0/1/0 interface is the default point-to-point type.

```
Remote#show ip ospf interface Se0/1/0
```

```
<output omitted>
```

```
Serial0/1/0 is up, line protocol is up
```

```
Internet address is 192.168.4.2/30, Area 0
```

```
Process ID 1, Router ID 192.168.255.4, Network Type POINT-TO-POINT, Cost: 64
```

```
Transmit Delay is 1 sec, State POINT-TO-POINT
```

Click on *R1* router and select the *CLI* folder.

Step 12: Enter global configuration mode.

```
R1#configure terminal
```

Step 13: Configure OSPF point-to-point network type on interface Gi0/0/0.

```
R1(config)#interface Gi0/0/0
```

```
R1(config-if)#ip ospf network point-to-point
```

```
R1(config-if)#end
```

```
R1#copy running-config startup-config
```

Click on *R2* router and select the *CLI* folder.

Step 14: Enter global configuration mode.

```
R2#configure terminal
```

Step 15: Configure OSPF point-to-point network type on interface Gi0/0/0.

```
R2(config)#interface Gi0/0/0  
R2(config-if)#ip ospf network point-to-point  
R2(config-if)#end  
R2#copy running-config startup-config
```

Click on *R3* router and select the *CLI* folder.

Step 16: Enter global configuration mode.

```
R3# configure terminal
```

Step 17: Configure OSPF point-to-point network type on interface Gi0/0/0.

```
R3(config)#interface Gi0/0/0  
R3(config-if)#ip ospf network point-to-point  
R3(config-if)#end  
R3#copy running-config startup-config
```

Click on *L3-Switch* and select the *CLI* folder.

Step 18: Enter global configuration mode.

```
L3-Switch# configure terminal
```

Step 19: Configure OSPF point-to-point network type on interface Gi1/0/1.

```
L3-Switch(config)#interface Gi1/0/1  
L3-Switch(config-if)#ip ospf network point-to-point
```

Step 20: Configure OSPF point-to-point network type on interface Gi1/0/2.

```
L3-Switch(config)#interface Gi1/0/2  
L3-Switch(config-if)#ip ospf network point-to-point
```

Step 21: Configure OSPF point-to-point network type on interface Gi1/0/3.

```
L3-Switch(config)#interface Gi1/0/3  
L3-Switch(config-if)#ip ospf network point-to-point  
L3-Switch(config-if)#end  
L3-Switch#copy running-config startup-config
```

Step 22: Verify Lab

Verify the OSPF network type for Ethernet interfaces is point-to-point.

L3-Switch#**show ip ospf interface G1/0/1**

GigabitEthernet1/0/1 is up, line protocol is up
Internet address is 192.168.1.2/30, Area 0
Process ID 1, Router ID 192.168.255.5, **Network Type POINT-TO-POINT**, Cost: 1
Transmit Delay is 1 sec, **State POINT-TO-POINT**

L3-Switch#**show ip ospf interface G1/0/2**

GigabitEthernet1/0/2 is up, line protocol is up
Internet address is 192.168.2.2/30, Area 0
Process ID 1, Router ID 192.168.255.5, **Network Type POINT-TO-POINT**, Cost: 1
Transmit Delay is 1 sec, **State POINT-TO-POINT**

L3-Switch#**show ip ospf interface G1/0/3**

GigabitEthernet1/0/3 is up, line protocol is up
Internet address is 192.168.3.1/30, Area 0
Process ID 1, Router ID 192.168.255.5, **Network Type POINT-TO-POINT**, Cost: 1
Transmit Delay is 1 sec, **State POINT-TO-POINT**

R1#**show ip ospf interface Gi0/0/0**

GigabitEthernet0/0/0 is up, line protocol is up
Internet address is 192.168.1.1/30, Area 0
Process ID 1, Router ID 192.168.255.1, **Network Type POINT-TO-POINT**, Cost: 1
Transmit Delay is 1 sec, **State POINT-TO-POINT**

R2#**show ip ospf interface Gi0/0/0**

GigabitEthernet0/0/0 is up, line protocol is up
Internet address is 192.168.2.1/30, Area 0
Process ID 1, Router ID 192.168.255.2, **Network Type POINT-TO-POINT**, Cost: 1
Transmit Delay is 1 sec, **State POINT-TO-POINT**

R3#**show ip ospf interface Gi0/0/0**

GigabitEthernet0/0/0 is up, line protocol is up
Internet address is 192.168.3.2/30, Area 0
Process ID 1, Router ID 192.168.255.3, **Network Type POINT-TO-POINT**, Cost: 1
Transmit Delay is 1 sec, **State POINT-TO-POINT**

Lab Notes

Most Ethernet interfaces enabled for OSPF are point-to-point topology with a direct neighbor connection. There is no need for OSPF DR/BDR election required unless multiple routers are connected via the same broadcast domain (VLAN). It is recommended to configure Ethernet interfaces as point-to-point network type when neighbors are directly connected. This eliminated any DR/BDR election for faster convergence. The OSPF database is reduced and less CPU/memory usage.