Lab Manual for Computer Communication and Networking

Lab No. 12

Open Shortest Path First(OSPF)

BAHRIA UNIVERSITY KARACHI CAMPUS
Department of Software Engineering

COMPUTER COMMUNICATION & NETWORKING

LAB EXPERIMENT # 12

Dynamic Routing OSPF

OBJECTIVE: -

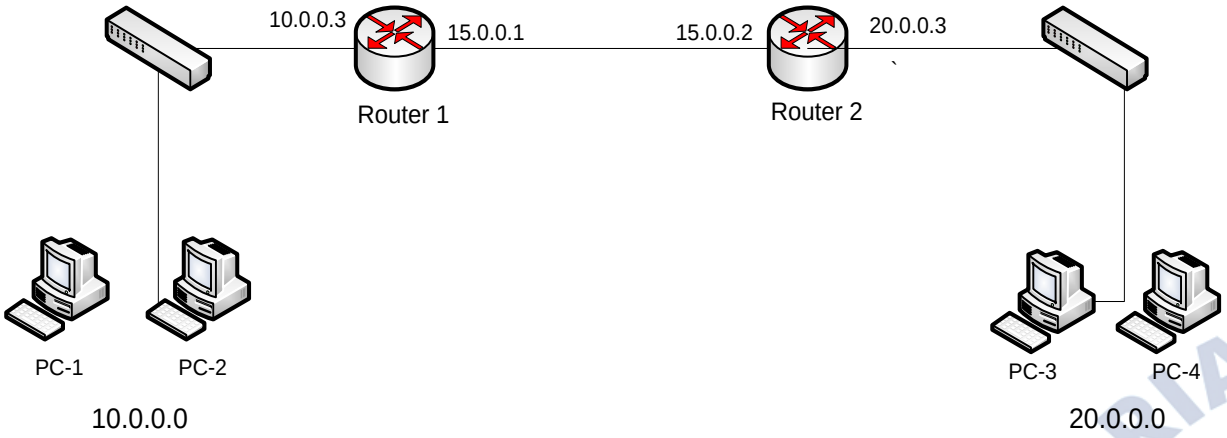
- This lab assignment helps in understanding how dynamic routing using Routing Information Protocol (OSPF) can be configured on routers.

THEORY: -

OSPF Properties

Open Standard
AD=110
Metric = Bandwidth
Makes 3-Table (Routing, Topology, Neighbor)
Hello packets = 10 sec
Dead Interval = 40 sec
Support Multicast
Algorithm = Dijkstra's

NETWORK TOPOLOGY: -



PROCEDURE AND OBSERVATION: -

Step01: Configuring OSPF routing on router 1

```
Router1(config)#interface serial 0/0/0  (Configuring serial 0 port)
Router1(config-if)#ip address 15.0.0.1 255.0.0.0
Router1(config-if)#Clock rate 64000
Router1(config-if)#no shut
Router1(config-if)#exit

Router1(config)#interface fa 0/0        (Configuring fastethernet 0
port)
Router1(config-if)#ip address 10.0.0.3 255.0.0.0
Router1(config-if)#no shut
Router1(config-if)#exit

Router1(config)#router OSPF 1           (Configuring OSPF on router
1)
Router1(config)#network 10.0.0.0 0.255.255.255 area 0
Router1(config)#network 15.0.0.0 0.255.255.255 area 0


Router1# show ip route
```

Step 02: Configuring static routing on router 2

```
Router2(config)#interface serial 0/0/0  (Configuring serial 0 port)
```

```
Router2(config-if)#ip address 15.0.0.5 255.0.0.0
Router2(config-if)#Clock rate 64000
Router2(config-if)#no shut
Router2(config-if)#exit

Router2(config)#interface fa 0/0        (Configuring fastethernet 0
port)
Router2(config-if)#ip address 20.0.0.3 255.0.0.0
Router2(config-if)#no shut
Router2(config-if)#exit

Router2(config)#router OSPF 1           (Configuring OSPF on router
2)
Router2(config)#network 20.0.0.0 0.255.255.255 area 0
Router2(config)#network 15.0.0.0 0.255.255.255 area 0


Router2# show ip route
```

Step03: Verify the route by pinging from Router 1 to Router 2

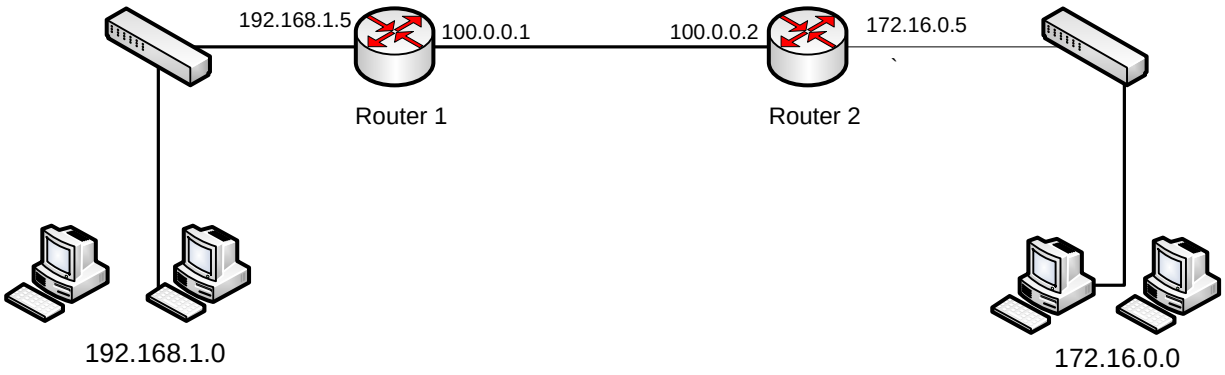
```
Router2# ping 20.0.0.2                      or
Router1# ping 10.0.0.2
```

Step04: Verify the route by pinging from PC 1 to PC3

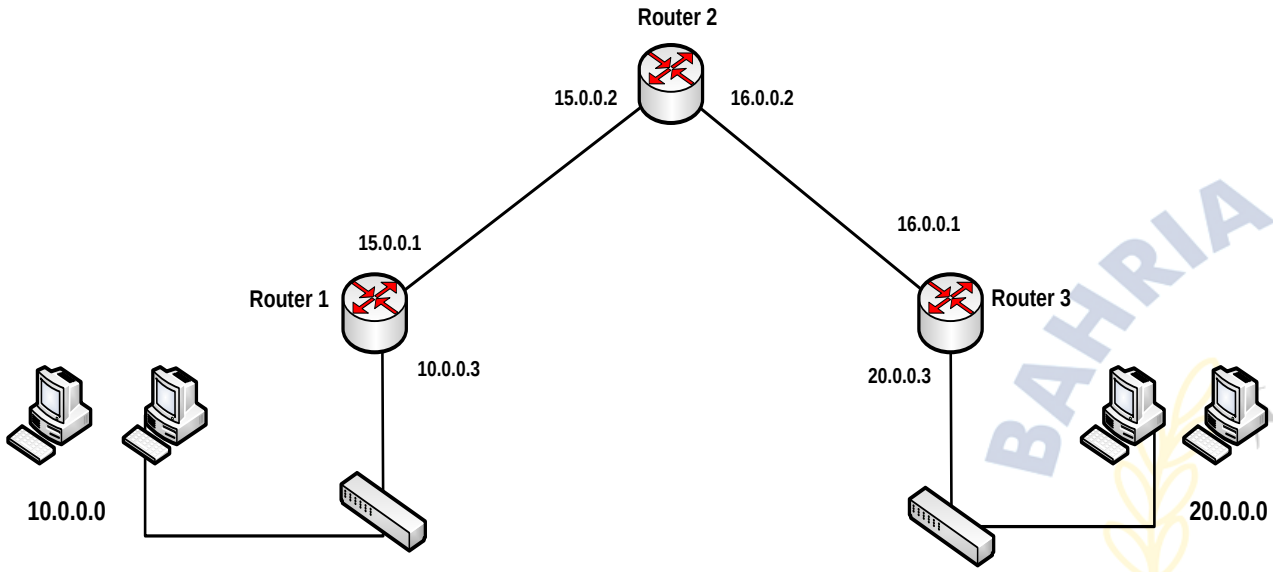
```
C:\> ping 10.0.0.1    (from PC 1)           or
C:\> ping 20.0.0.2    (from PC 3)
```

QUESTIONS: -

1. **Configure OSPF on the following network and show all necessary configuration steps for each router.**



2. **Configure OSPF on the following network and show all necessary configuration steps for each router.**



TIME BOXING:

Activity Name	Activity Time	Total Time
Instruments Allocation + Setting up Lab	10 mints	10 mints
Walk through Theory & Tasks (Lecture)	60 mints	60 mints
Implementation & Practice time	90 mints	80 mints
Evaluation Time	20 mints	20 mints
	Total Duration	180 mints

Teacher Signature: _____

Student Registration No: _____