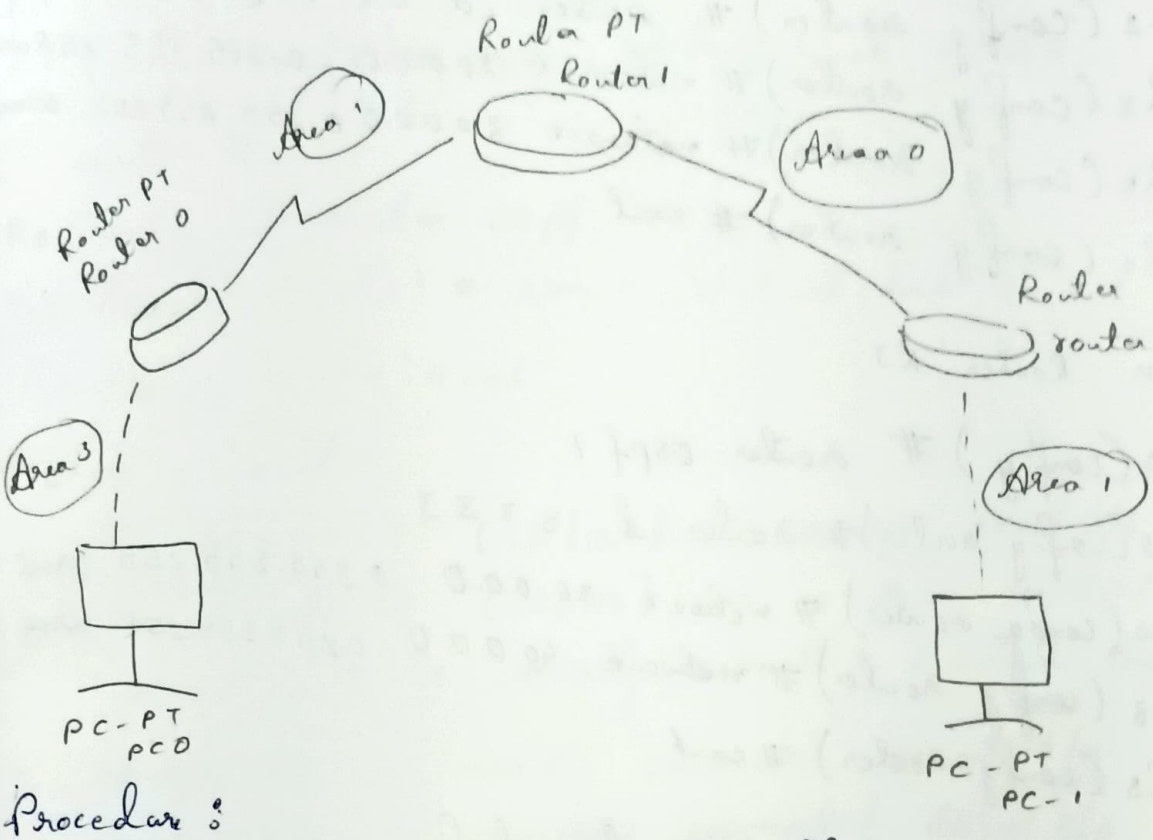
27/7/23 LAB - 6

OSPf



Procedure :

→ Configure the PC's with IP address & gateway according to the topology

→ Configure each of the routers according to the ip address given in topology.

→ Encapsulation PPP & clockrate need do be set as done in RIP protocol experiment

Step 3 - Now Enable ip routing by configuring ospf routing protocol in all routers

In Router R1

R1 (config) # router ospf 1

R1 (config-router) # router-id 1.1.1.1

R1 (config-router) # network 10.0.0.60.255.256.255

R1 (config-router) # network 20.0.0.0 0.255.255.255 area 1

R1 (config-router) # end

In Router R2.

R2(config)# router ospf 1
R2(config-router)# router-id 2.2.2.2
R2(config-router)# network 200.0.0.0 0.255.255.255
R2(config-router)# network 3000.0.0 0.255.255.255
R2(config-router)# exit

In Router R3

R3(config)# router ospf 1
R3(config-router)# router-id 3.3.3.3
R3(config-router)# network 30.0.0.0 0.255.255.255
R3(config-router)# network 40.0.0.0 0.255.255.255
R3(config-router)# exit

Step 4: Loopback in Serial interface.

In router R1

R1(config-if)# interface loopback 0
R1(config-if)# ip address 172.16.1.252 255.255.0
R1(config-if)# no shut

In router 2 in serial interface

R2(config-if)# interface loopback 0
R2(config-if)# ip address 172.16.1.253 255.255.0
R2(config-if)# no shut

In router 3

R3(config-if)# interface loopback 0
R3(config-if)# ip address 172.16.1.254 255.255
R3(config-if)# no shut

Step 5 - Virtual link.

In router R1

R1 (config) # router ospf 1

R1 (config-router) # area 1 virtual link 2.2.2.2

R1 (config-router) # exit

In router R2

R2 (config) # router ospf 1

R2 (config-router) # area 1 virtual-link 1.1.1.1

R2 (config-router) # exit

→ show ip route

O IA 10.0.0.0/8 [110/129] via 30.0.0.1 serial 3/0

O IA 20.0.0.0/8 [110/128] via 30.0.0.1 serial 3/0

30.0.0.0/8 is variably subnetted, 2 subnets, 2 masks

C 30.0.0.0/8 is directly connected, serial 3/0

C 30.0.0.1/32 is directly connected, serial 3/0

C 40.0.0.0/8 is directly connected fastethernet 0/0

C 172.16.0.0/16 is directly connected, loopback

Ping output

pinging 40.0.0.10 with 32 bytes of data

Request timed out

Reply from 40.0.0.10 bytes=32 time=2ms TTL=125

Reply from 40.0.0.10 bytes=32 time=9ms TTL=125

Reply from 40.0.0.10 bytes=32 time=10ms TTL=125

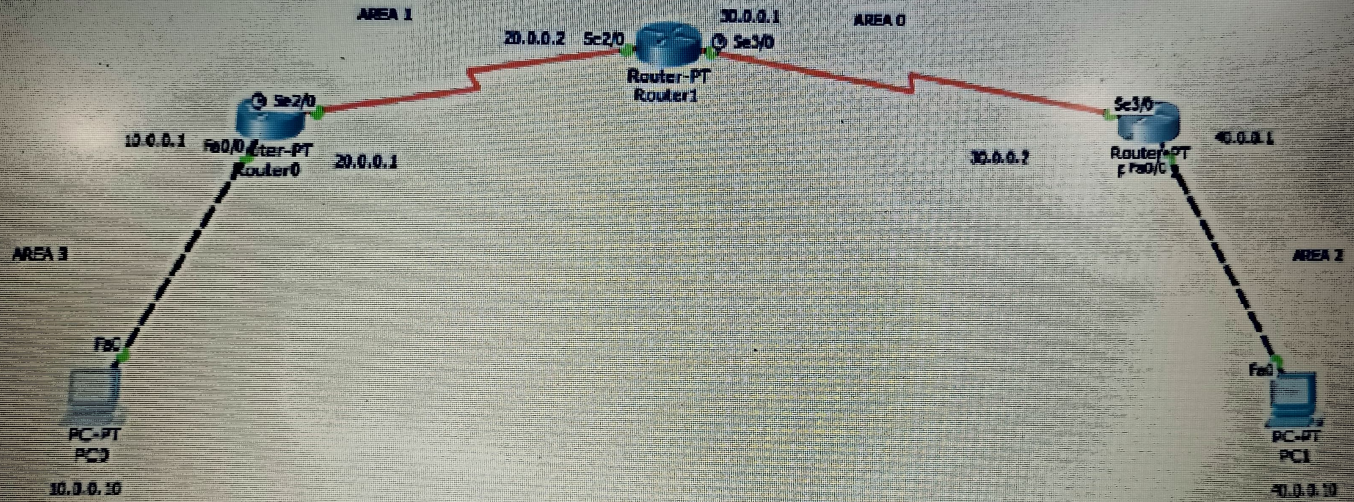
pinging statistics for 40.0.0.10

packets: sent=4, received=3, lost=1

Approximate round trip in ms:

min=2ms, max=10ms, Average=7ms

TOPOLOGY:


AREA 1
20.0.0.2
Se2/0
30.0.0.1
AREA 0
Se3/0
Router-PT
Router1
Se2/0
10.0.0.1
Fa0/0
Router-PT
Router0
20.0.0.1
30.0.0.2
Se3/0
40.0.0.1
Router-PT
Fa0/0
AREA 3
AREA 2
Fa0
Fa0
PC-PT
PC0
10.0.0.10
PC-PT
PC1
40.0.0.10

Command Prompt

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Packet Tracer PC Command Line 1.0
PC ping 40.0.0.10

Pinging 40.0.0.10 with 32 bytes of data:

Reply from 10.0.0.1: Destination host unreachable.
Reply from 10.0.0.1: Destination host unreachable.
Reply from 10.0.0.1: Destination host unreachable.
Reply from 10.0.0.1: Destination host unreachable.

Ping statistics for 40.0.0.10:
    Packets: Sent = 4, Received = 0, Lost = 4 (100% loss),

PC>ping 40.0.0.10

Pinging 40.0.0.10 with 32 bytes of data:

Request timed out.
Reply from 40.0.0.10: bytes=32 time=4ms TTL=125
Reply from 40.0.0.10: bytes=32 time=6ms TTL=125
Reply from 40.0.0.10: bytes=32 time=12ms TTL=125

Ping statistics for 40.0.0.10:
    Packets: Sent = 4, Received = 3, Lost = 1 (25% loss),
Approximate round trip times in milli-seconds:
    Minimum = 4ms, Maximum = 12ms, Average = 7ms

PC>
```