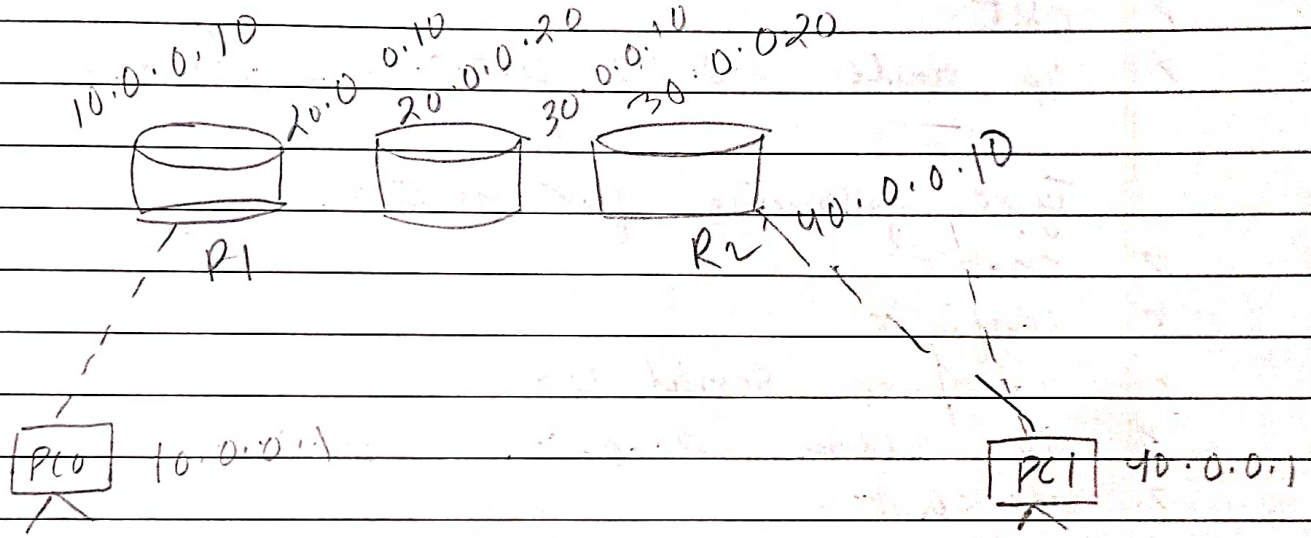
13-7-23

Experiment-3

Aim: Demonstrate data transfer in a network through router using default routing

Topology:



Procedure:

→ Place 2 end device and 3 routers on the logical interface
→ configure ip address with network id 10 for PC and network id 40 for PC1
→ configure ip address for different port of the routers

Type the following command to configure router

> enable
> config t
> interface fastethernet 0/0

> ip address 10.0.0.10
> no shut
> exit
> interface serial 2/0
> ip address 20.0.0.10 255.0.0.0
> no shut
> exist
> exit
> ip route 0.0.0.0 0.0.0.0 20.0.0.20

Type following for router1

> enable
> config t
> interface serial 2/0
> ip address 20.0.0.20 255.0.0.0
> no shut
> exit
> interface serial 3/0
> ip address 30.0.0.10 255.0.0.0
> no shut
> exit
> exit
> ip route 10.0.0.0 255.0.0.0 20.0.0.10
> ip route 40.0.0.0 255.0.0.0 30.0.0.20
> exist

Write the following command for router2

> enable
> config t
> interface fastethernet 0/0
> ip address 40.0.10 255.0.0.0

> exit
> interface serial 2/0
> ip address 30.0.0.20 255.0.0.0
> exit
> ip route 0.0.0.0 0.0.0.0 30.0.0.10
> exit

-> connect the devices using serial wire
-> configure gateways on end device
-> Ping message from PC0 to PC1

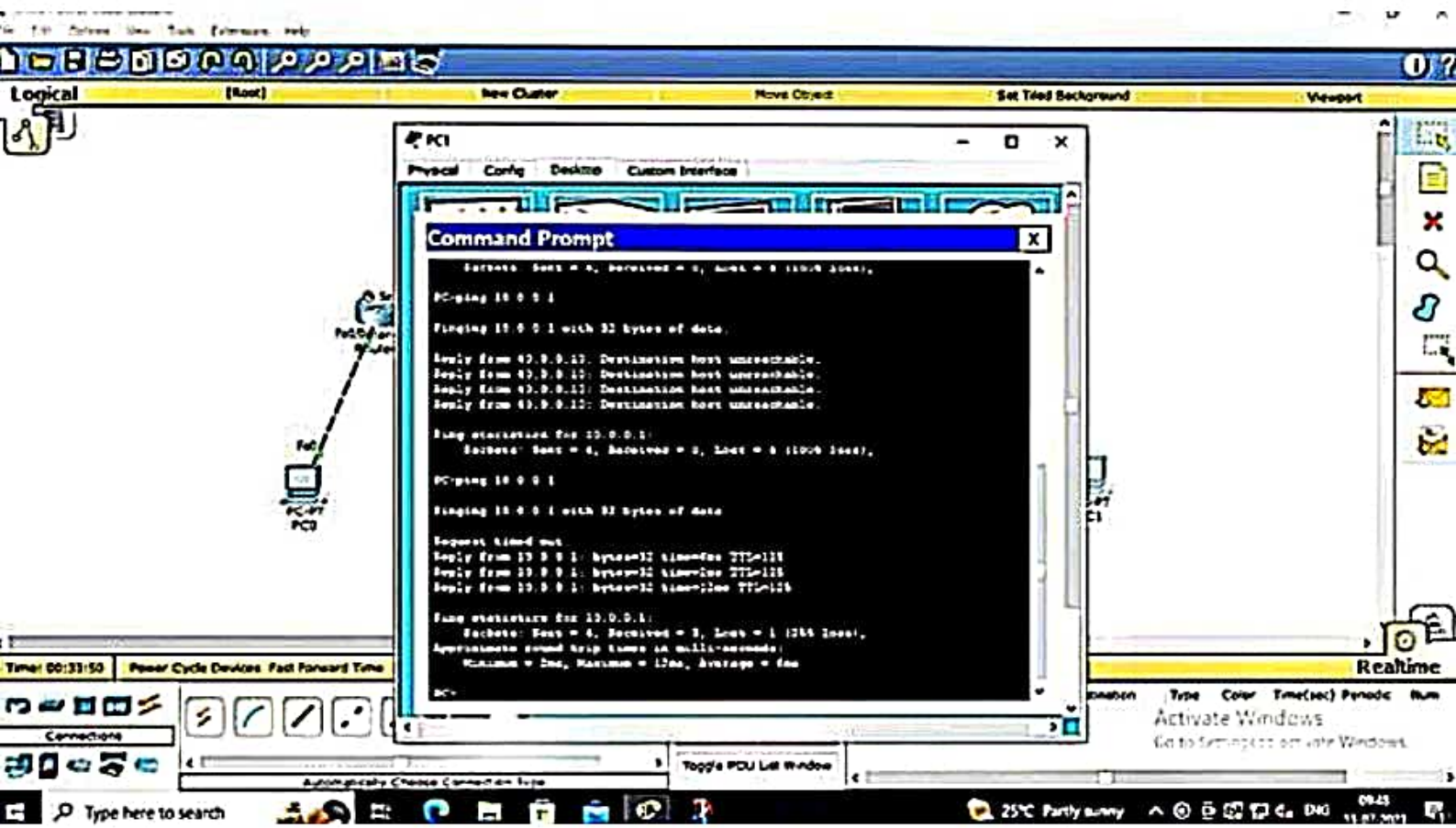
Output:

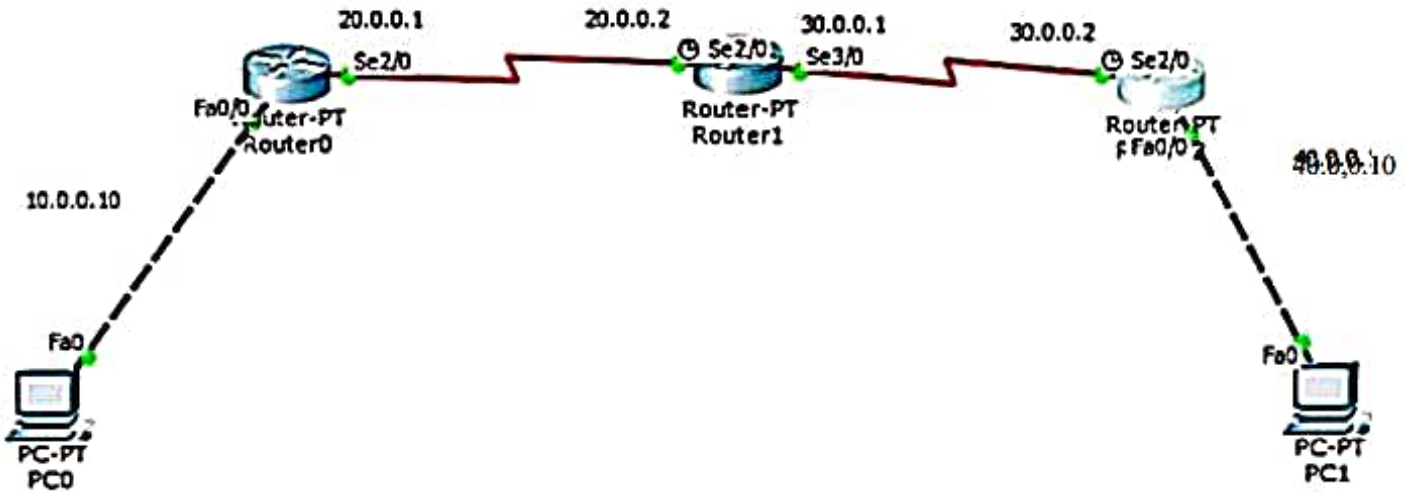
ping 40.0.0.1

pinging 40.0.0.1 with 32 byte of data
Request timed out
Reply from 40.0.0.1 bytes=32 time=20ms TTL=125
Reply from 40.0.0.1 bytes=32 time=9ms TTL=125
Reply from 40.0.0.1 bytes=32 time=21ms TTL=125

Ping statistics for 40.0.0.1
Packets sent = 4, Received 3, lost=1 (25% Loss)
Approximate round trip times in milliseconds
Min = 9ms, Max = 21ms, Avg = 16ms

Observation
-> If router has only one pathway to go it can be default routing to send packets if any destination to its adjacent neighbour, This was the case with router 0 and router 1 whereas in other 2 router, we do usual static routing.


Logical
PC1
Physical
Config
Desktop
Custom Interface
Command Prompt
Request timed out.
Realtime
Toggle PDU List Window
Type here to search


20.0.0.1
20.0.0.2
30.0.0.1
30.0.0.2
Se2/0
Se2/0
Se3/0
Se2/0
Fa0/0
Router-PT
Router0
Router-PT
Router1
Router-PT
Fa0/0
10.0.0.10
Fa0
PC-PT
PC0
Fa0
PC-PT
PC1

```
Router>enable
Router#config t
Inter configuration commands, one per line.  End with CNTL/Z.
Router(config)#interface fastethernet0/0
Router(config-if)#ip address 10.0.0.10 255.0.0.0
Router(config-if)#no shut

Router(config-if)#
%LINK-5-CHANGED: Interface FastEthernet0/0, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/0, changed state to up

Router(config-if)#exit
Router(config)#interface serial 2/0
Router(config-if)#ip address 20.0.0.1 255.0.0.0
Router(config-if)#no shut

%LINK-5-CHANGED: Interface Serial2/0, changed state to down
Router(config-if)#exit
Router(config)#exit
Router#
%SYS-5-CONFIG_I: Configured from console by console

Router#config t
Inter configuration commands, one per line.  End with CNTL/Z.
Router(config)#ip route 0.0.0.0 0.0.0.0 20.0.0.2
Router(config)#exit
Router#
%SYS-5-CONFIG_I: Configured from console by console
```

```
Codes: C - connected, S - static, I - IGRP, R - RIP, M - mobile, B - BGP
       D - EIGRP, EX - EIGRP external, O - OSPF, IA - OSPF inter area
       N1 - OSPF NSSA external type 1, N2 - OSPF NSSA external type 2
       E1 - OSPF external type 1, E2 - OSPF external type 2, E - EGP
       i - IS-IS, L1 - IS-IS level-1, L2 - IS-IS level-2, ia - IS-IS inter area
       * - candidate default, U - per-user static route, o - ODR
       P - periodic downloaded static route

Gateway of last resort is not set

C    10.0.0.0/8 is directly connected, FastEthernet0/0
```

Router2

Physical | Config | CLI

IOS Command Line Interface

```
Router(config-if)#exit
Router(config)#
%LINEPROTO-5-UPDOWN: Line protocol on Interface Serial2/0, changed state to up

Router(config)#interface fastethernet0/0
Router(config-if)#ip address 40.0.0.10 255.0.0.0
Router(config-if)#no shut

Router(config-if)#
%LINK-5-CHANGED: Interface FastEthernet0/0, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/0, changed state to up

Router(config-if)#exit
Router(config)#exit
Router#
%SYS-5-CONFIG_I: Configured from console by console

Router#config t
Enter configuration commands, one per line.  End with CNTL/Z.
Router(config)#ip route 0.0.0.0 0.0.0.0 30.0.0.1
Router(config)#exit
Router#
%SYS-5-CONFIG_I: Configured from console by console

Router#show ip route
Codes: C - connected, S - static, I - IGRP, R - RIP, M - mobile, B - BGP
       D - EIGRP, EX - EIGRP external, O - OSPF, IA - OSPF inter area
       N1 - OSPF NSSA external type 1, N2 - OSPF NSSA external type 2
       E1 - OSPF external type 1, E2 - OSPF external type 2, E - EGP
       i - IS-IS, L1 - IS-IS level-1, L2 - IS-IS level-2, ia - IS-IS inter area
       * - candidate default, U - per-user static route, o - ODR
       P - periodic downloaded static route

Gateway of last resort is 30.0.0.1 to network 0.0.0.0

C    30.0.0.0/8 is directly connected, Serial2/0
C    40.0.0.0/8 is directly connected, FastEthernet0/0
S*   0.0.0.0/0 [1/0] via 30.0.0.1
Router#
```