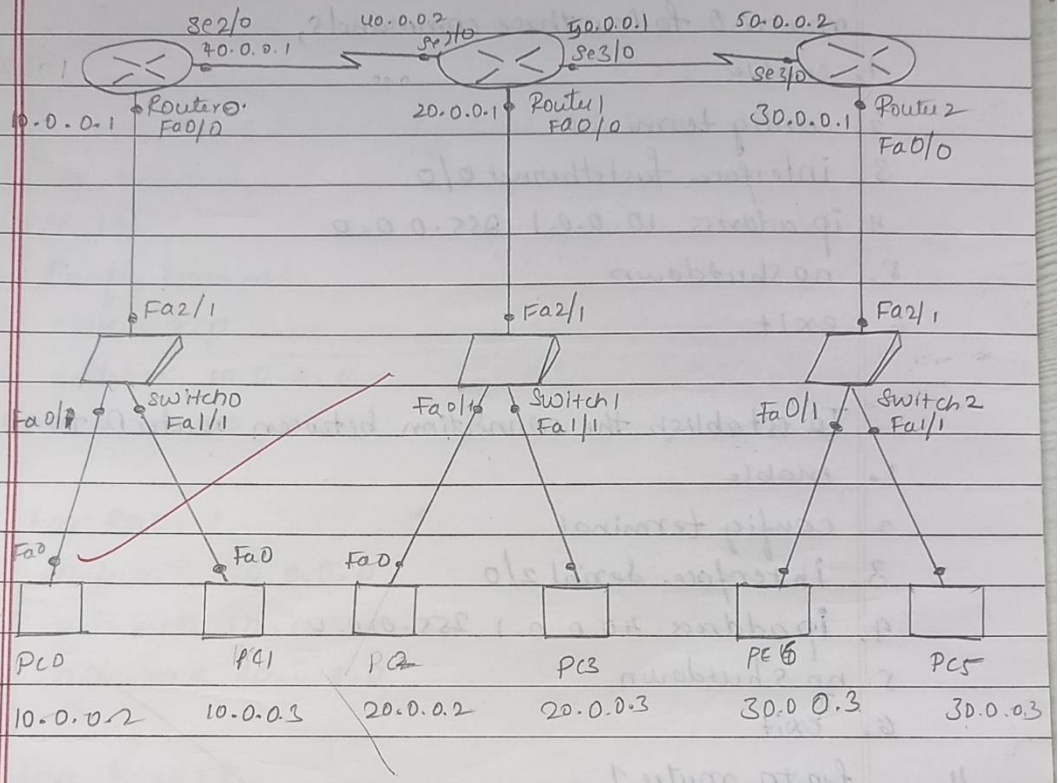
Experiment 5-Configure RIP routing Protocol in Router

19. lab-06

Aim → configure routing information protocol in Router.

Topology →



procedure →

1. connect 2 pcs to the Switch and Switch to router like that totally we have two use 6 pcs each 2 pcs connected to 1 Switch and that Switch connected to the router. each Router connected to Other Router.

2. Assign Ipaddresses for each pcs.

   PC0 - 10.0.0.2

   PC1 - 10.0.0.3

   PC2 - 20.0.0.2

PC3 - 20.0.0.3
PC4 - 30.0.0.2
PC5 - 30.0.0.3

3. Go to router0,
To establish the connection between switch 0 and router 0 follow these commands,

1. enable
2. config terminal
3. interface fastethernet 0/0
4. ip address 10.0.0.1 255.0.0.0
5. no shutdown
6. exit

To establish the connection between router0 to router 1,

1. enable
2. config terminal
3. interface Serial 2/0
4. ipaddress 40.0.0.1 255.0.0.0
5. no shutdown
6. exit.

4. Go to router 1,
For Router 1 to Router 0,
interface Serial 2/0
ipaddress 40.0.0.2 255.0.0.0

For Router 1 to Router 2,
interface Serial 3/0
ipaddress 50.0.0.1 255.0.0.0

For Router 1 to Switch 1
interface fastethernet 0/0
ipaddress 20.0.0.1 255.0.0.0

Bafna Gold
Date: Page:

5. Go to Router 2, for Router 2 to Router 1
   interface Serial 3/0
   ipaddress 50.0.0.2 255.0.0.0.

   For Router 2 to Switch 2
   interface Fastethyr 0/0
   ipaddress 30.0.0.1 255.0.0.0.

To Send packet successfully over network,
For Router 0,

1. enable
2. Config terminal
3. router rip
4. network 10.0.0.0
5. network 40.0.0.0

For Router 1,
network 40.0.0.0
network 50.0.0.0
network 20.0.0.0

For Router 2,
network 50.0.0.0
network 30.0.0.0

To see the connection in CLI, type show ip route.

Observation ⟹ connection established successfully over a network and packets are sent from one pc to another pc over a network successfully.

Aim → Demonstrate TTL/life of a packet

Steps →

1. Select a packet.
2. Transfer it from one pc to another over a network i.e PC0 to PC6
3. While transferring packets pause the packets (click on Auto capture play)
4. Then click on packet then you can able to view inbound and outbound PDU.

PDU information at device : Switch 5

OSI model
At device : Switch 5
Source : PC0
Destination : PC6

In layers
layer 7
layer 6
Layer 5
layer 4
Layer 3
Layer 2 : Ethernet II Header
0000, FFBE.C1CB >> 00E0.A3AE.09E6
layer 1 : Port FastEthernet 0/1

Out layer
layer 7
layer 6
layer 5
layer 4
layer 3
layer 2: Ethernet II Header
00D0.FFBE.C1CB >> 00E0.A3AE.09E6
layer 1: Port(s): FastEthernet 2/1

Inbound PDU details

Ethernet II

0	4	8	14	19
Preamble		Dest mac	SRC MAC:	
101010...1011		00E0.A3E.09E6	00D0.FFBE.C1CB	
Type:	Data (variable length)			FCS:
0x800				0x0

IP

0	4	8	16	19	31
4	IHL	DSCP: 0x0		TL: 28	
ID: 0x27		0x0		0x0	
TTL: 255		PRO: 0x1		CHKSUM	

SRC IP: 10.0.0.2
DST IP: 30.0.0.2
OPT: 0x0 0x0
DATA (variable length)

O/P →

In PC0

Pc >> ping 30.0.0.2

Pinging 30.0.0.2 with 32 bytes of data:

Reply from 30.0.0.2 bytes = 32 time = 6ms TTL = 125

Reply from 30.0.0.2 bytes = 32 time = 6ms TTL = 125

Reply from 30.0.0.2 bytes = 32 time = 6ms TTL = 125

Reply from 30.0.0.2 bytes = 32 time = 6ms TTL = 125

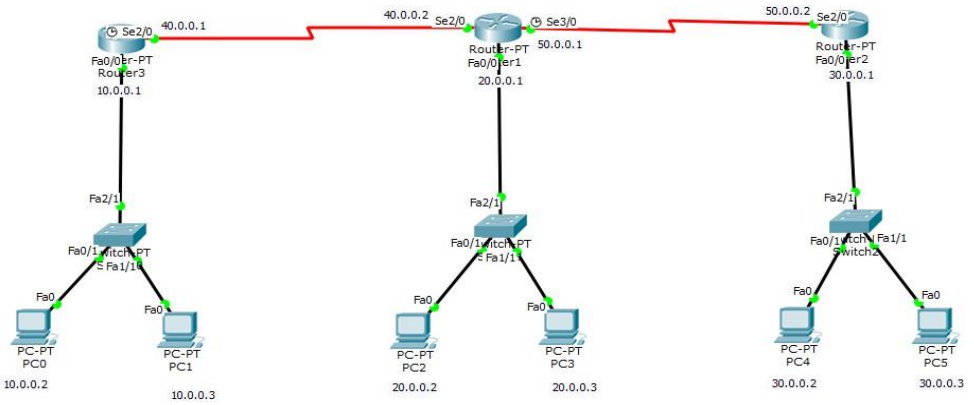
ping statistics for 30.0.0.2

Packets : Sent = 4 Recieved = 4 lost = 0 (0% loss)

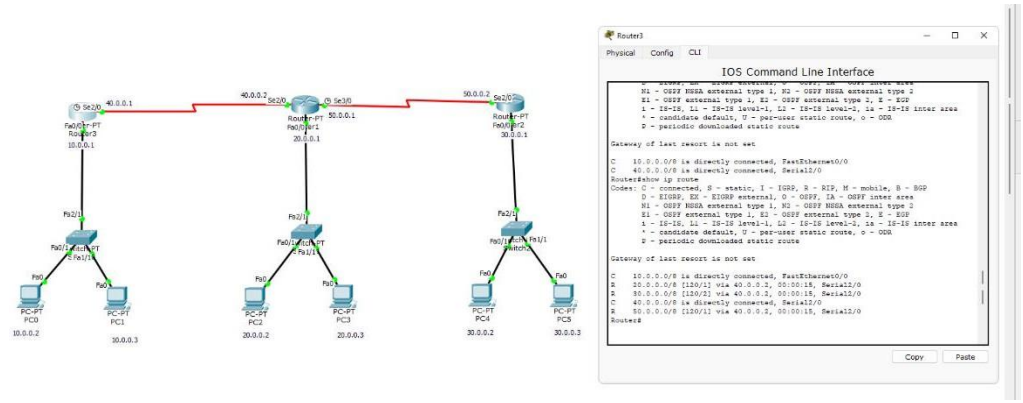
Approximate round trip times in milliseconds:

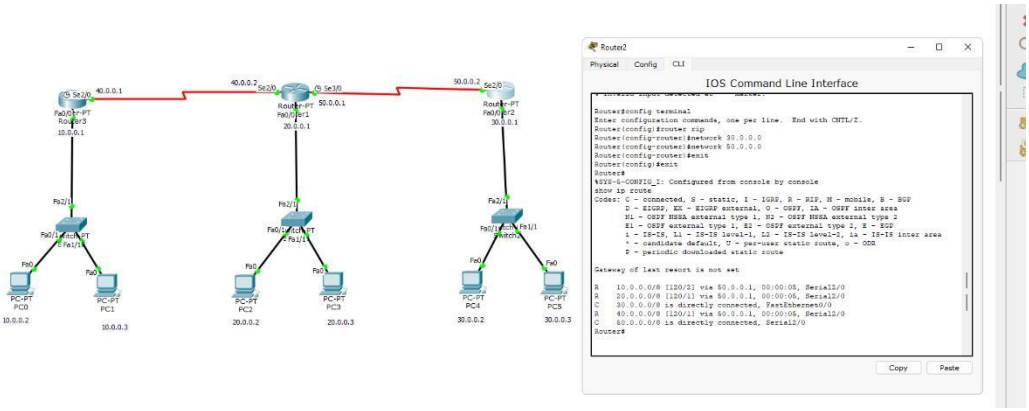
minimum = 2ms, maximum = 9ms, Average = 5ms

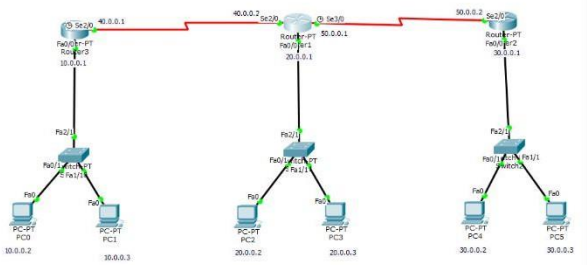
Topology:

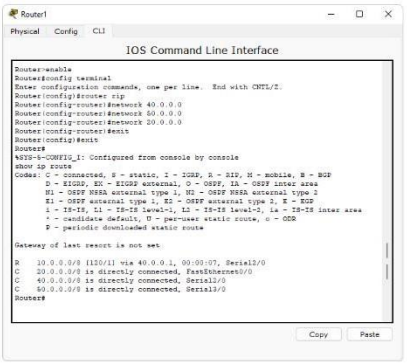


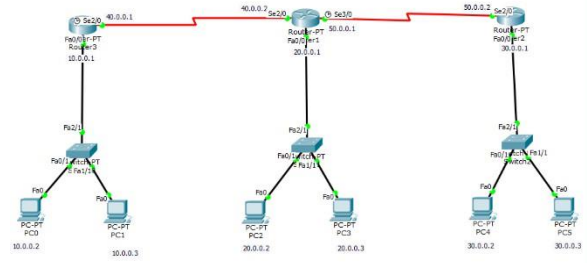
Output:

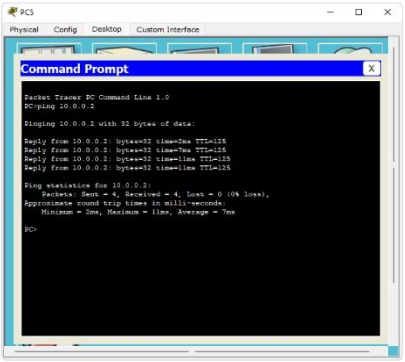





Se2/0
40.0.0.1
40.0.0.2
Se2/0
Se3/0
50.0.0.1
50.0.0.2
Se2/0
Router-PT
Router3
10.0.0.1
Router-PT
Router1
20.0.0.1
Router-PT
Router2
30.0.0.1
Fa2/1
Fa0/1
Fa1/1
Switch0
Switch1
Switch2
Fa0
PC-PT
PC0
PC1
PC2
PC3
PC4
PC5
10.0.0.2
10.0.0.3
20.0.0.2
20.0.0.3
30.0.0.2
30.0.0.3


Router1
Physical
Config
CLI
IOS Command Line Interface
Router>enable
Router#config terminal
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#router rip
Router(config-router)#network 40.0.0.0
Router(config-router)#network 50.0.0.0
Router(config-router)#network 20.0.0.0
Router(config-router)#exit
Router(config)#exit
Router#
%SYS-5-CONFIG_I: Configured from console by console
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 result is not set
R 10.0.0.0/8 [120/1] via 40.0.0.1, 00:00:07, Serial2/0
C 20.0.0.0/8 is directly connected, FastEthernet0/0
C 40.0.0.0/8 is directly connected, Serial2/0
C 50.0.0.0/8 is directly connected, Serial3/0
Router#
Copy
Paste


Se2/0
40.0.0.1
40.0.0.2
Se2/0
Se3/0
50.0.0.1
50.0.0.2
Se2/0
Router-PT
Router3
10.0.0.1
Router-PT
Router1
20.0.0.1
Router-PT
Router2
30.0.0.1
Fa2/1
Fa0/1
Fa1/1
Switch0
Switch1
Switch2
Fa0
PC-PT
PC0
PC1
PC2
PC3
PC4
PC5
10.0.0.2
10.0.0.3
20.0.0.2
20.0.0.3
30.0.0.2
30.0.0.3


PC5
Physical
Config
Desktop
Custom Interface
Command Prompt
X
Packet Tracer PC Command Line 1.0
PC>ping 10.0.0.2
Pinging 10.0.0.2 with 32 bytes of data:
Reply from 10.0.0.2: bytes=32 time=2ms TTL=125
Reply from 10.0.0.2: bytes=32 time=7ms TTL=125
Reply from 10.0.0.2: bytes=32 time=11ms TTL=125
Reply from 10.0.0.2: bytes=32 time=11ms TTL=125
Ping statistics for 10.0.0.2:
Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
Minimum = 2ms, Maximum = 11ms, Average = 7ms
PC>