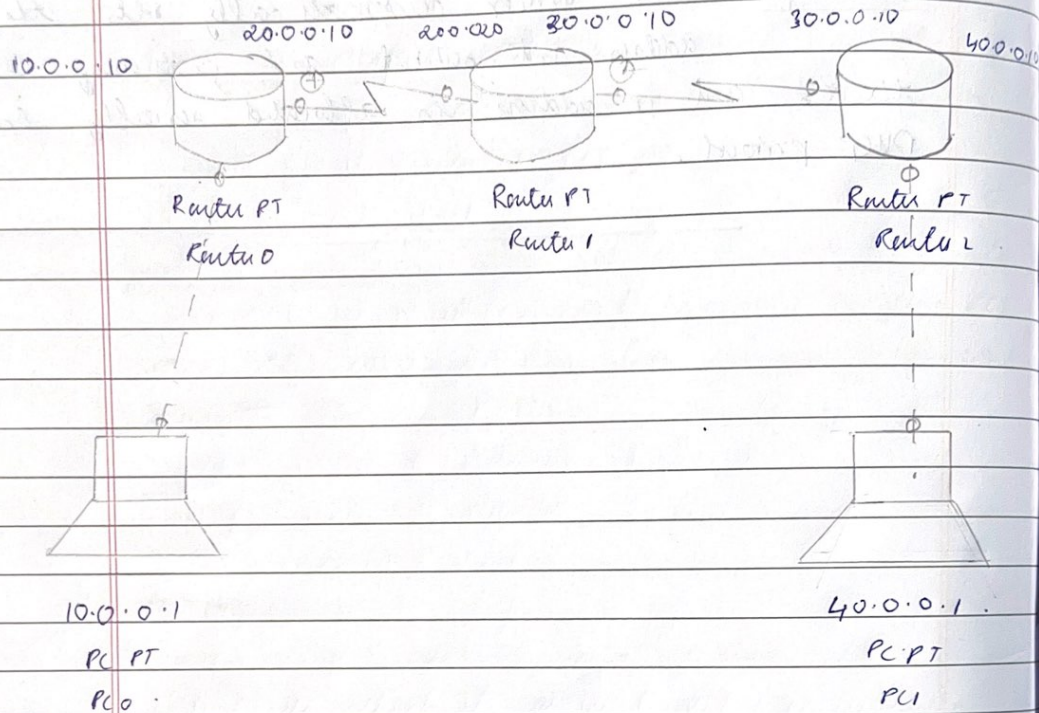


5/12/22

Experiment - 5
Title: Routing information protocol

Aim: Configuring RIP routing protocol.

Topology:



procedure: * place 3 generic routers and 2 generic PCs

- * Connect the router and PC using copper crossover.
- * Connect the routers using serial DCE with clock symbol.
- * Place notes near the PCs and routers.
- * Set the IP address of PC0 and PC1 as well as their subnet mask and default gateway.
- * Go to the CLI of router 0 and enter the following commands:
 - enable
 - config

- interface fastEthernet 0/0
- ip address 10.0.0.10 255.0.0.0
- no shut.

- * The connection should turn green.
- * Repeat for PC1 and router 2.

* Open CLI of router 0.

- enable
- config t
- interface serial 2/0
- ip address 20.0.0.10 255.0.0.0
- encapsulation ppp
- clock rate 64000
- no shut.

* Open CLI of router 1.

- enable
- config t
- interface serial 2/0
- ip address 20.0.0.20 255.0.0.0
- encapsulation ppp
- no shut.

- * The connection will turn green.

- * → exit
- show ip route

* Open CLI of router 1.

- enable
- config t
- interface serial 2/0
- ip address 30.0.0.10 255.0.0.0
- encapsulation ppp

→ clock rate 64000

→ no shut

→ exit

* open CLI of Router 2

→ enable

→ config t

→ interface serial 2/0

→ ip address 30.0.0.10 255.0.0.0

→ encapsulation ppp

→ no shut

* open CLI of router 0

→ enable

config # router 0

config-router # network 10.0.0.0

config-router # network 20.0.0.0

config-router # exit

→ show ip route

* Similarly repeat for router 1 and router 2
with networks 20,30 & 30,40.

Simulation mode: Add a simple PDU by selecting
the PC and click on auto-
capture from right panel.

Real time mode: select PC P0 go to its command
prompt and select the destination
address. [Ping 10.0.0.10]

after this select 20.0.0.10, 30.0.0.10, 40.0.0.10
as destination address.

Finally ping PC 2 by using its IP address as

the destination address. [ping 40.0.0.1].

Result: \Rightarrow PC > Ping 10.0.0.10.

pinging 10.0.0.10 with 32 bytes of data:

Reply from 10.0.0.10: bytes = 32 time = 0ms TTL = 255

Reply from 10.0.0.10: bytes = 32 time = 0ms TTL = 255

Reply from 10.0.0.10: bytes = 32 time = 0ms TTL = 255

Reply from 10.0.0.10: bytes = 32 time = 0ms TTL = 255

\Rightarrow PC > Ping 20.0.0.10

pinging 20.0.0.10 with 32 bytes of data:

Reply from 20.0.0.10: bytes = 32 time = 0ms TTL = 255

Reply from 20.0.0.10: bytes = 32 time = 0ms TTL = 255

Reply from 20.0.0.10: bytes = 32 time = 0ms TTL = 255

Reply from 20.0.0.10: bytes = 32 time = 0ms TTL = 255

\Rightarrow PC > Ping 30.0.0.10

pinging 30.0.0.10 with 32 bytes of data:

Reply from 30.0.0.10: bytes = 32 time = 0ms TTL = 255

Reply from 30.0.0.10: bytes = 32 time = 0ms TTL = 255

Reply from 30.0.0.10: bytes = 32 time = 0ms TTL = 255

Reply from 30.0.0.10: bytes = 32 time = 0ms TTL = 255

\Rightarrow PC > Ping > 40.0.0.10

pinging 40.0.0.10 with 32 bytes of data:

Reply from 40.0.0.10: bytes = 32 time = 0ms TTL = 255

Reply from 40.0.0.10: bytes = 32 time = 0ms TTL = 255

Reply from 40.0.0.10: bytes = 32 time = 0ms TTL = 255

Reply from 40.0.0.10: bytes = 32 time = 0ms TTL = 255

⇒ PC > Ping 40.0.0.1

Pinging 40.0.0.1 with 32 bytes of data:

Request timed out:

Reply from 40.0.0.1: bytes = 32 time = 16ms TTL = 125

Reply from 40.0.0.1: bytes = 32 time = 17ms TTL = 125

Reply from 40.0.0.1: bytes = 32 time = 13ms TTL = 125

Statistics: sent = 4, received = 3, lost = 1 (25% loss)

⇒ PC > Ping 40.0.0.1

Pinging 40.0.0.1 with 32 bytes of data:

Reply from 40.0.0.1: bytes = 32 time = 2ms TTL = 125

Reply from 40.0.0.1: bytes = 32 time = 2ms TTL = 125

Reply from 40.0.0.1: bytes = 32 time = 1ms TTL = 125

Reply from 40.0.0.1: bytes = 32 time = 1ms TTL = 125

Learnings: Routing information protocol is a protocol that routers can use to exchange network topology information. It is used in small to medium sized networks. A router running RIPv2 sends the contents of its routing table to each of its adjacent routers every 30 seconds.