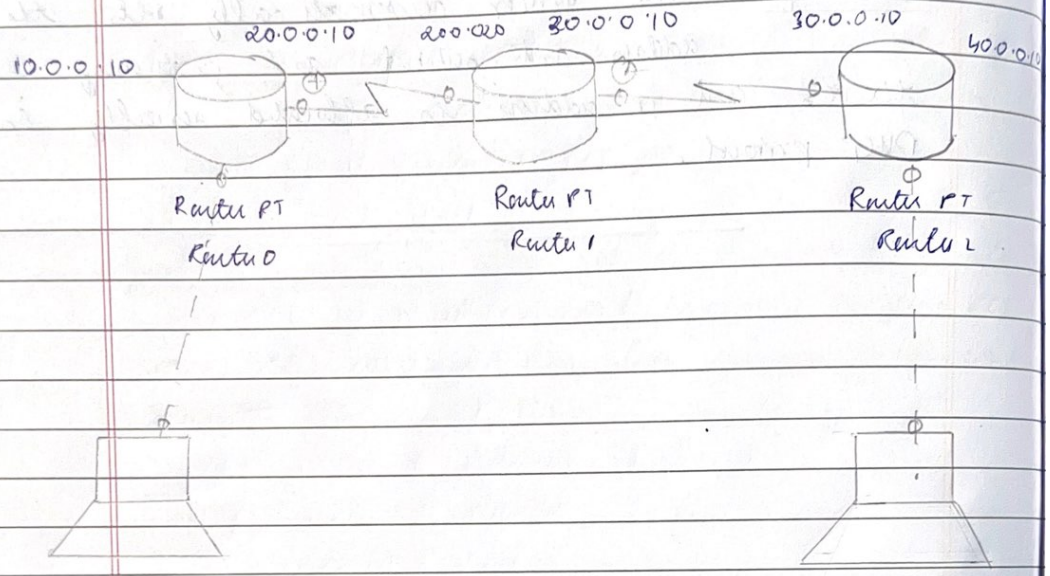
Experiment - 5

5/12/22

Title: Routing information protocol

Aim: Configuring RIP routing protocol.

Topology:



Procedure:
* Place 3 generic routers and 2 generic PC's
* Connect the router and PC using copper cross over.
* Connect the routers using serial DCE with clock symbol.
* Place note near the PC's and routers
* Set the IP address of PC 0 and PC 1 as well as their subnet mask and default gateway.
* Go the to CLI of router 0 and enter the following commands.
  → enable
  → config t

→ 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 3/0
→ 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 30.0.0.20 255.0.0.0
→ encapsulation PPP
→ no shut.

* open CLI of router 0.
→ enti
config # router rip
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 PCs and click on auto-capture from right panel.

Real time mode: select PC Pc0 go to its command prompt and select the destination addres - [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 do.

the destination address. [Ping 40.0.0.1].

Result: => 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

=> 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

=> 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

=> 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:

P.

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

Packets : sent = 4, recieved = 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 RIP sends the contents of its routing table to each of its adjacent routers every 30 seconds.