08/12/2022

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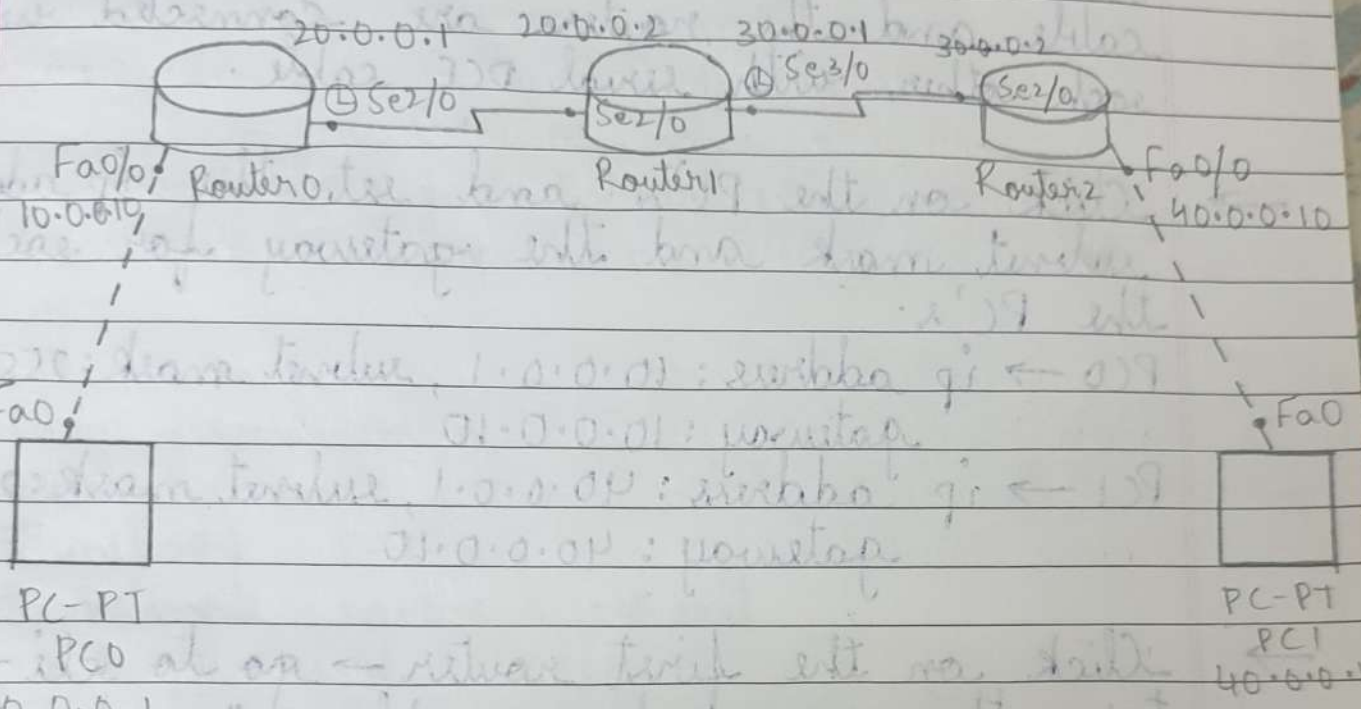
Aim: Configuring RIP routing protocol in Routers.

Topology:



Serial DCE: Serial connections, often used for WAN links, must be connected between serial ports. We must enable clocking on the DCE side to bring up the line protocol. We can tell which end of the connection is the DCE side by the small "clock" icon next to the port.

Introduction: Routing Information protocol (RIP) is a protocol that routers can use to exchange network topology information. RIP uses a distance vector algorithm to decide which path to put a packet on to get to its destination.

Procedure:

→ Place two PC's and three routers and connect the PC and router with copper cross over cable and the routers are connected with each other with serial DCE cable.

→ Click on the PC's and set the ip address, subnet mask and the gateway for each of the PC's.
PC0 → ip address: 10.0.0.1, subnet mask: 255.0.0.0
gateway: 10.0.0.10
PC1 → ip address: 40.0.0.1, subnet mask: 255.0.0.0
gateway: 40.0.0.10

→ Click on the first router → go to cli → type the commands > enable; # config t; #interface fastethernet 0/0; #ip address 10.0.0.10 255.0.0.0; # no shut; #exit; #interface serial 2/0; # ip address 20.0.0.1 255.0.0.0; # encapsulation ppp; # clock rate 64000; # no shut

→ Click on the second router → go to cli → type the commands > enable; # config t; #interface serial 2/0; # ip address 20.0.0.2 255.0.0.0; # encapsulation ppp; # no shut; # exit #interface serial 3/0; # ip address 30.0.0.1 255.0.0.0; # encapsulation ppp; # clock rate 64000; # no shut

→ Click on the third router → go to cli → type the commands > enable ; #config t ; #interface serial2/0 ; # ip address 30.0.0.2 255.0.0.0 ; # encapsulation ppp ; # no shut ; # exit # interface fastethernet 0/0 ; # ip address 40.0.0.10 255.0.0.0 ; # no shut

→ Now all the basic configuration are set for all the PC's and routers. All the lights are turned green

→ Now again click on first router and go to cli and type the following commands → # router rip # network 10.0.0.0 # network 20.0.0.0 ; # exit

→ Click on second router → go to cli and execute # router rip # network 20.0.0.0 # network 30.0.0.0 ; # exit

→ Click on third router → go to cli and execute # router rip # network 30.0.0.0 # network 40.0.0.0

→ Ping the PC 40.0.0.1 from 10.0.0.1

Observations:

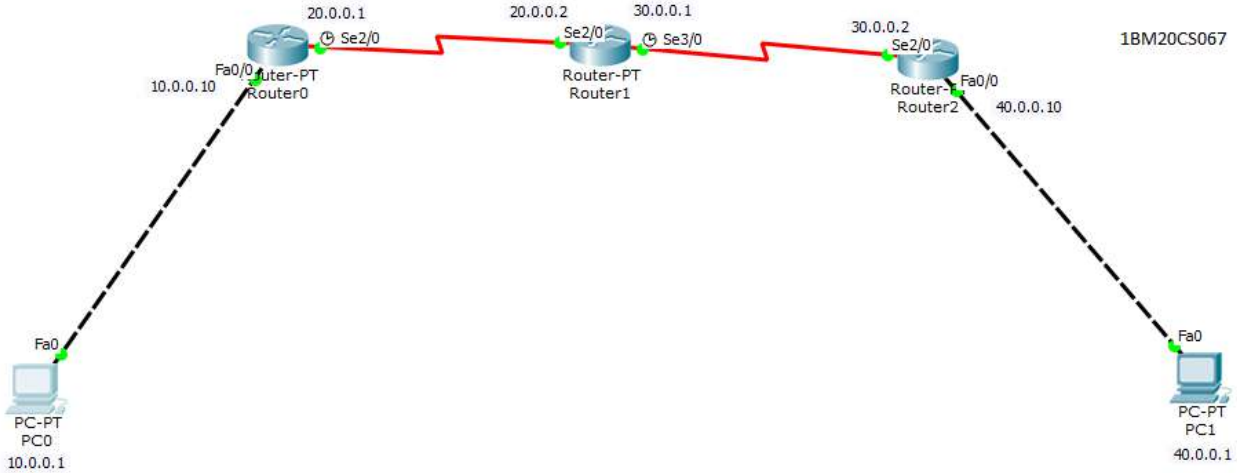
learning outcome:
When RIP protocol is used we donot have to do static routing for all the routers. i.e we donot have to teach all the routers by providing with the next hop.
In dynamic routing (RIP protocol) we just have to specify the networks known by the router.

Result:

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 = 4ms TTL = 125
Reply from 40.0.0.1 : bytes = 32 time = 2ms TTL = 125
Reply from 40.0.0.1 : bytes = 32 time = 9ms TTL = 125


20.0.0.1
Se2/0
20.0.0.2
Se2/0
30.0.0.1
Se3/0
30.0.0.2
Se2/0
1BM20CS067
Fa0/0
10.0.0.10
Router-PT
Router0
Router-PT
Router1
Router-PT
Router2
Fa0/0
40.0.0.10
Fa0
PC-PT
PC0
10.0.0.1
Fa0
PC-PT
PC1
40.0.0.1

```
Continue with configuration dialog? [yes/no]: no


Press RETURN to get started!



Router>enable
Router#config t
Enter configuration commands, one per line.  End with CNTL/Z.
Router(config)#interface serial2/0
Router(config-if)#ip address 30.0.0.2 255.0.0.0
Router(config-if)#encapsulation ppp
Router(config-if)#no shut

Router(config-if)#
%LINK-5-CHANGED: Interface Serial2/0, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface Serial2/0, changed state to up

Router(config-if)#exit
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)#router rip
Router(config-router)#network 30.0.0.0
Router(config-router)#network 40.0.0.0
Router(config-router)#exit
Router(config)#
```

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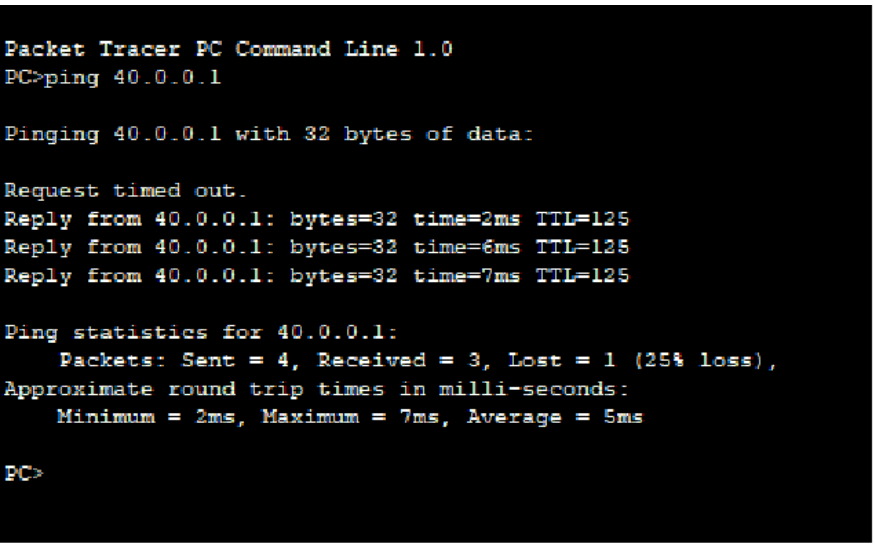
Packet Tracer PC Command Line 1.0
PC>ping 40.0.0.1
Pinging 40.0.0.1 with 32 bytes of data:
Request timed out.
Reply from 40.0.0.1: bytes=32 time=2ms TTL=125
Reply from 40.0.0.1: bytes=32 time=6ms TTL=125
Reply from 40.0.0.1: bytes=32 time=7ms TTL=125
Ping statistics for 40.0.0.1:
Packets: Sent = 4, Received = 3, Lost = 1 (25% loss),
Approximate round trip times in milli-seconds:
Minimum = 2ms, Maximum = 7ms, Average = 5ms
PC>

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