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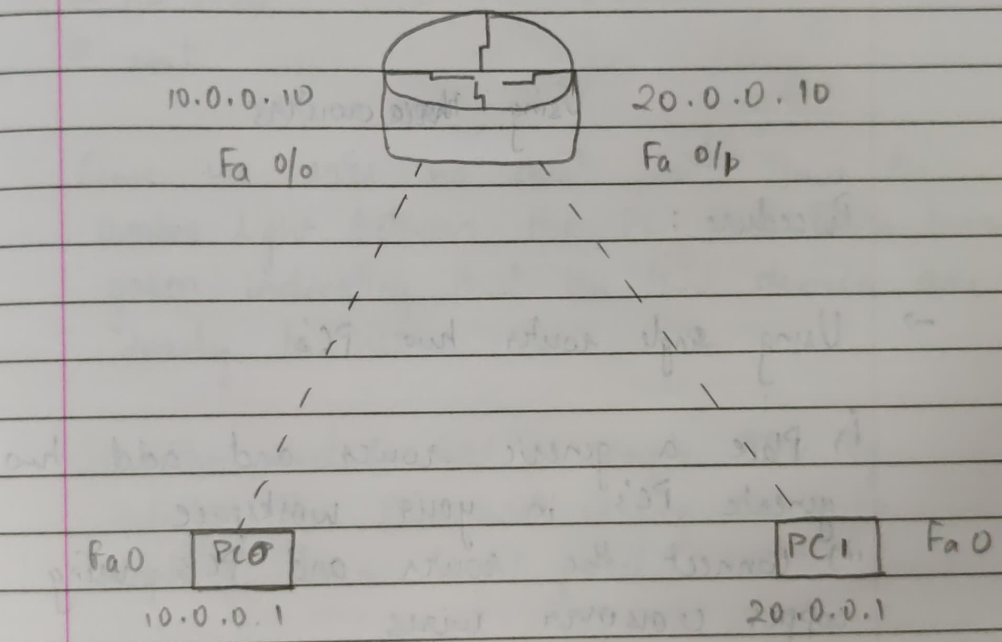
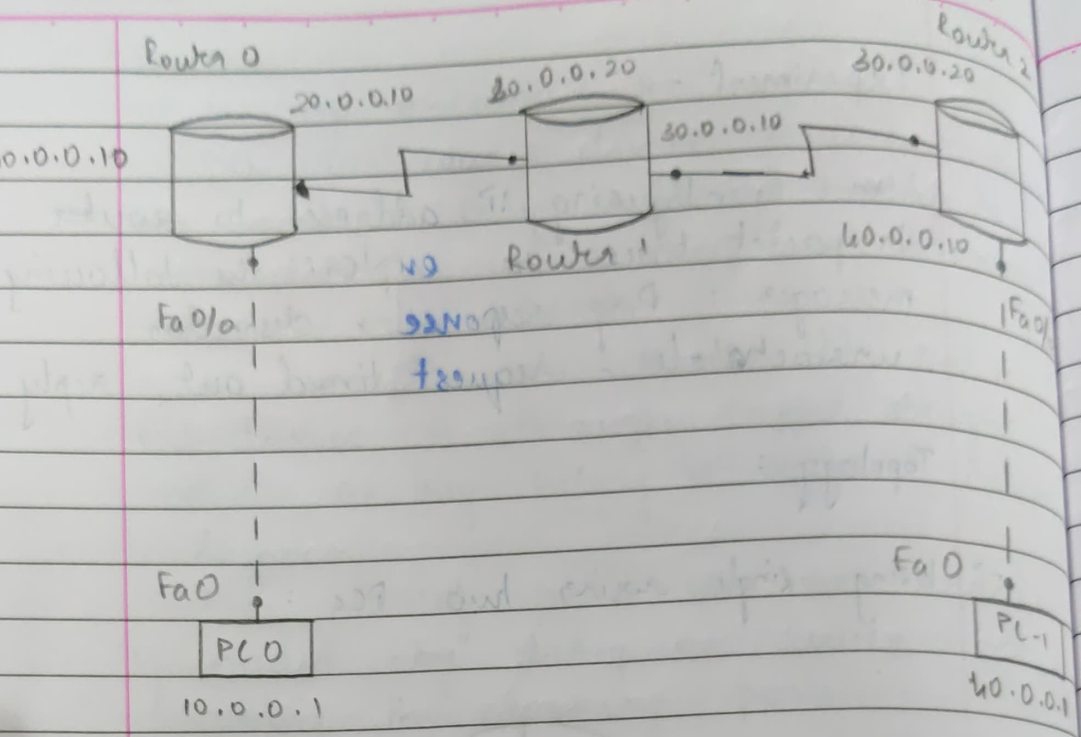
Experiment - 2

Aim: Configuring IP address to routers in packet tracer to explore the following messages: Ping response, destination unreachable, request timed out, reply.

Topology:

-> Using single router two PCs:





Using three routers

Procedure :

→ Using single router two PC's

i) Place a generic router and add two generic PC's in your workspace

ii) Connect the router and PC's using copper crossover wires

iii) Configure the IP address of each PC and in the configuration tab, under settings set gateway for both PCs to the router

iv) Click on the generic router and go to the CLI tab and enter the following command to set up connection between PCs and generic routers through gateway 10.0.0.10

→ enable
config t
(config) # interface fast ethernet 0/0
(config-if) # ip address 10.0.0.10 255.0.0.0
no shut
exit

No to set up connection between PC# and the router gateway 20.0.0.10

interface fastethernet 1/0
ip address 20.0.0.10 255.0.0.0
no shut
exit

Once we enter no shut both times the amber light between the PC and router turns green indicating that the two devices are ready to use.

Simulation mode: Add a simple PDU by selecting the PC's and clicking on auto capture from right panel

Real time mode: Select the PC you want to send the packet from which is PC0 and open the command prompt from desktop ~~tap~~ tab. Specify destination address A response is sent from destination PC to source PC

→ Using three routers and two PC's

i) Place 3 generic router and two gene PCs in workspace

ii) connect all routers using serial DC

iii) connect route and PC using copper crossover wire.

iv) Click on each PC and configure the IP address and gateway of PCs.

For connecting two routers

Click on Router 0 go to CLI and enter the following command

-> no
-> enable
-> config t
-> interface serial 2/0
-> ip address 20.0.0.10 255.0.0.0
-> no shut
-> exit

Click on Router 1 and go to CLI and enter the following command

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

After this the red light between routers turn green.

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For connecting two devices (router and PC)

i) Since IP address is configured,
ii) open CLI of Router 0 and other the following commands

-> enable
-> config t
-> interface fastethernet 0/0
-> ip address 10.0.0.10 255.0.0.0
-> no shut

The red light turns green meaning that the router is ready for communication

Teaching Router 0 of network 30/40

-> enable
-> config t
-> interface serial 2/0 40.0.0.10
-> ip route 30.0.0.10/x 255.0.0.0 20.0.0.2
-> end
-> show ip rout

Similarly do this for both the routers

Simulation mode: Add a simple PDU by selecting two PCs and clicking on add capture / play.

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Realtime :- Select the PC PC0 and go to command prompt ~~once~~ and ping the router 0 and repeat it for router 1 and router 2 finally ping PC1

Observation

-> 1 Router :

When PC0 pings PC1 for the first time we get request timed out.

Now if we ping PC1 we get all 4 packets without any packet loss.

-> 3 Routers :

Before training the network we get the result as destination host unreachable

After ~~the~~ training the router we get clear statistics as the result.

Results :

Using single router :

Ping 20.0.0.1

Pinging 20.0.0.1 with 32 bytes of data

Request timed out

Reply from 20.0.0.1 bytes = 32 time<1ms

Reply from 20.0.0.1 byte = 32 time <1ms

Reply from 20.0.0.1 byte = 32 time <1ms

Reply from 20.0.0.1 byte = 32 time <1ms

ping statistics for 20.0.0.1

packets = 4 recieved = 4 lost = 0

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Using three router two PCs

1> Ping 40.0.0.1
pinging 40.0.0.1 with 32 bytes of data

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

Ping statistic for 40.0.0.1
Packet sent = 4 recived = 4 lost = 0

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