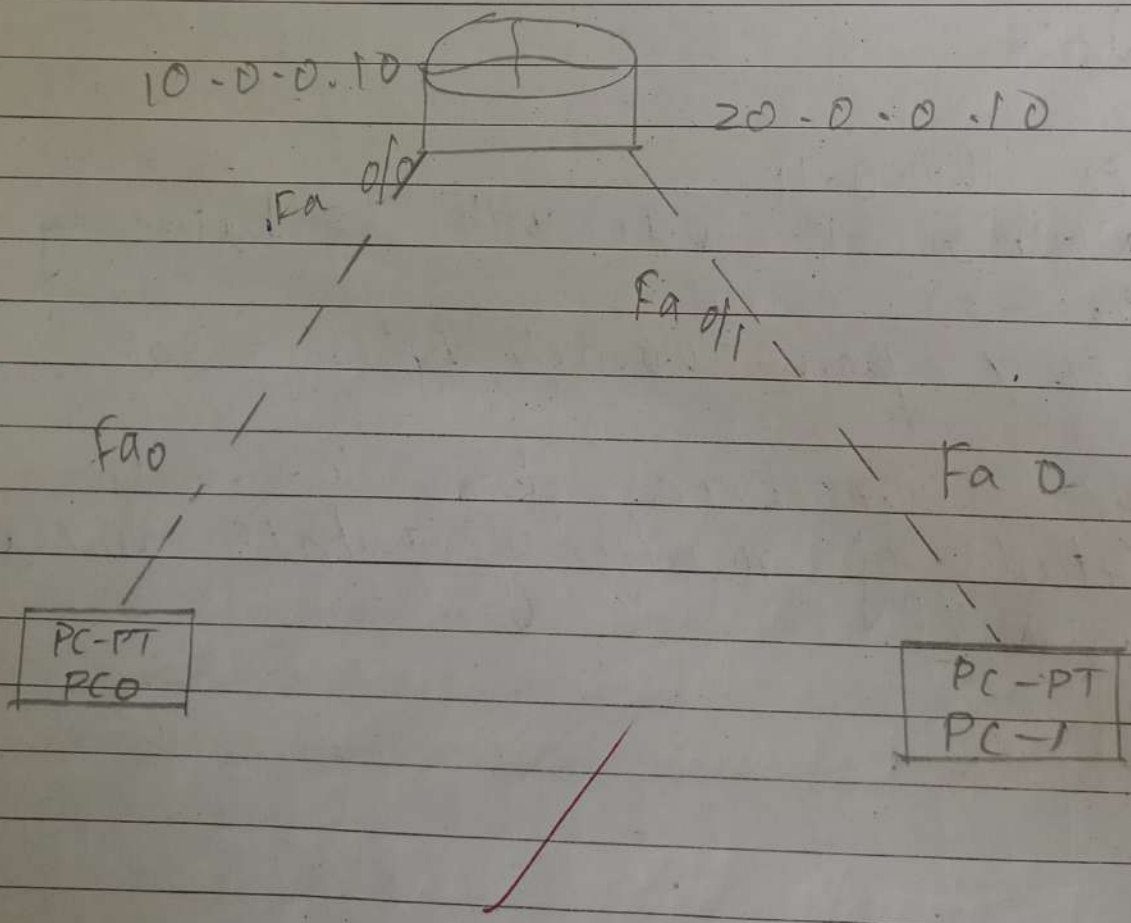
Lab Week-2

Experiment Using router and PCs

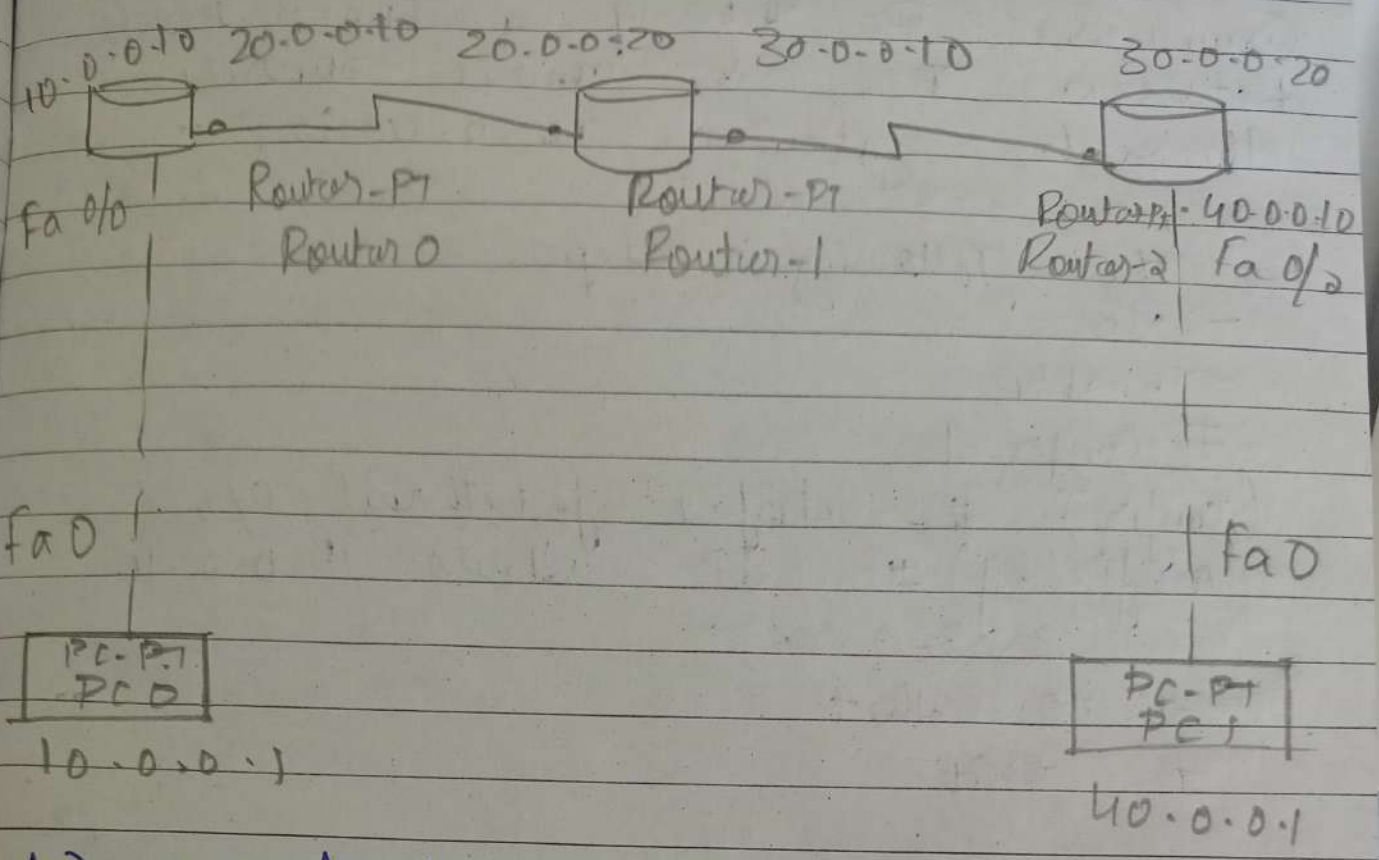
Aim :- Configuring IP address to router in packet tracer to explore the following messages : ping responses destination Unreachable, Request timeout, reply

Topology :-

Using single router, two PCs



Using three routers & 2 PCs



~~4~~ Procedure:-

Using single router, 2 PC's

(i) Place a generic router & 2 generic PC's in Workspace

(ii) Connect the router & PC's using Copper Cross over.

(iii) Configure IP address of each PC and in the Configuration under Settings Set gateways for PCs to router.

(iv) click on the generic router & go to CLI & enter the following

Commands to set up a connections between PCs & generic router through gateway 10.0.0.10.

Next,

Do the following steps

→ No

→ enable

Config t

(Config) # interface fastethernet 0/0

(Config-if) # IP address 10.0.0.10 255.0.0.0

no shut

exit

Now to setup Connection between PC2 & router through 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 time the amber light between the PC & router turns green indicating that the two lins are connected.

Simulation mode :- Add simple PDU by selecting the PCs and click on auto Capture from right panel.

Real time mode :- Select the PC you want to send the packet from PC0 and open its Command prompt from desktop tab. Specify the destination bar address. A response is sent from destination PC to Source PC.

Using three routers, 2 PCs.

→ place 3 generic router & 2 generic PCs

→ place a node for each device & specify the IP address.

→ Connect the router using serial DCI

→ Click on PC & then Configure tab. and Configure IP address of PCs.

→ Next click on settings in Config tab. Set gateway as IP address of next router.

→ IP address of PC & its gateway address should belong to same network.

For Connecting routers

click on Router 0.
Go to CLI & enter the Commands

→ no
→ enable
→ interface Serial 2/0
→ IP address 20.0.0.10 255.0.0.0
→ no shut.

Repeat same Commands for Router 1

After this the red signal ~~con~~ changes to green indicating they are ready for Communication.

For Connecting two devices [PC & router]

→ Go to router.
→ Open CLI for router 0 & enter the following Commands

→ no
→ enable
→ Config
→ interface fastethernet 0/0
→ ip address 10.0.0.10 255.0.0.0
→ no shut

The red light changes to green to indicate that they are ready for communication.

- Teaching Router 0 of network 30:

→ no
→ enable
→ Config
→ interface Serial 2/0
→ IP route 30.0.0.0 255.0.0.0 20.0.0.20
→ exit
→ show ip route.

Teaching Router 0 of network 40

→ no
→ enable
→ Config
→ interface Serial 2/0
→ ip route 40.0.0.0 255.0.0.0 20.0.0.20
→ exit
→ show ip route.

Similarly repeat for router 1 & router 2

Simulation mode:- Add a simple PDU By selecting the PC) & click on auto Capture from right panel.

Real time mode:- Select the PC 0 & go to its command prompt & ping the router 0 once the message has been sent successfully Repeat this with router 1 & 2 as well. Finally ping PC 1.

Observation:-

1 Router:-
When PC 0 pings PC 1 for the first time, we get the first packet as request time out.
Now, if we ping PC 1 again we get all 4 packets. Next reverse the pinging of PC 0 from PC 1.

3 routers:
Before training the routers we get the result as destination not reachable. After training the routers, we get clear statistics.

Result

1) Using 1 router, 2 PCs

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 TTL=127.

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ping statistics for 20.0.0.1

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Reply from 20.0.0.1 : bytes=32 time<1ms TTL=127.

ping statistics for 20.0.0.1

packets: sent =4, recieved =4, lost =0

2) Using three routers two PCs

→ Ping 40.0.0.1
pinging 40.0.0.1 with 32 bytes of data

Reply from 10.0.0.10: destination host Unreachable
Reply from 10.0.0.10: destination host Unreachable
Reply from 10.0.0.10: destination host Unreachable
Reply from 10.0.0.10: destination host Unreachable
ping statistics for 40.0.0.1
packets: Sent 4, recieved = 0, lost = 4

3) ping 20.0.0.10 with 32 bytes of data.

Reply from 20.0.0.10: bytes = 32 time = 1ms TTL:
Reply from 20.0.0.10: bytes = 32 time = 0ms TTL = 255

ping statistics for 20.0.0.10:
packets: Sent = 4, recieved = 4, lost = 0

4) ping 30.0.0.10
pinging 30.0.0.10 with 32 bytes of data

Reply from 30.0.0.10: bytes = 32 time = 1ms TTL:

Reply from 30.0.0.10: bytes = 32 time = 8ms TTL = 25

ping statistics 30.0.0.10:
packets: sent = 4, recieved = 4, lost = 0

5) 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 = 10ms TTL = 128
:
Reply from 40.0.0.1: bytes = 32, time = 8ms, TTL = 125.

ping statistics for 40.0.0.1:
packets: sent = 4, recieved = 3, lost = 1

6) 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 = 9ms
TTL = 125

ping statistics for 40.0.0.1:
packet: sent = 4, recieved = 4, lost = 0

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