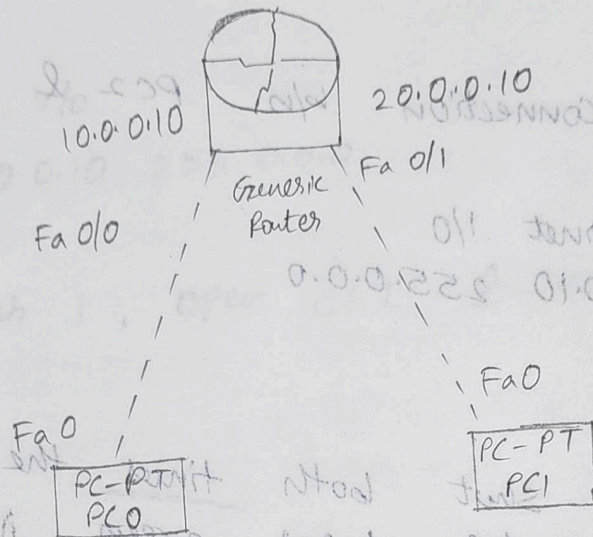


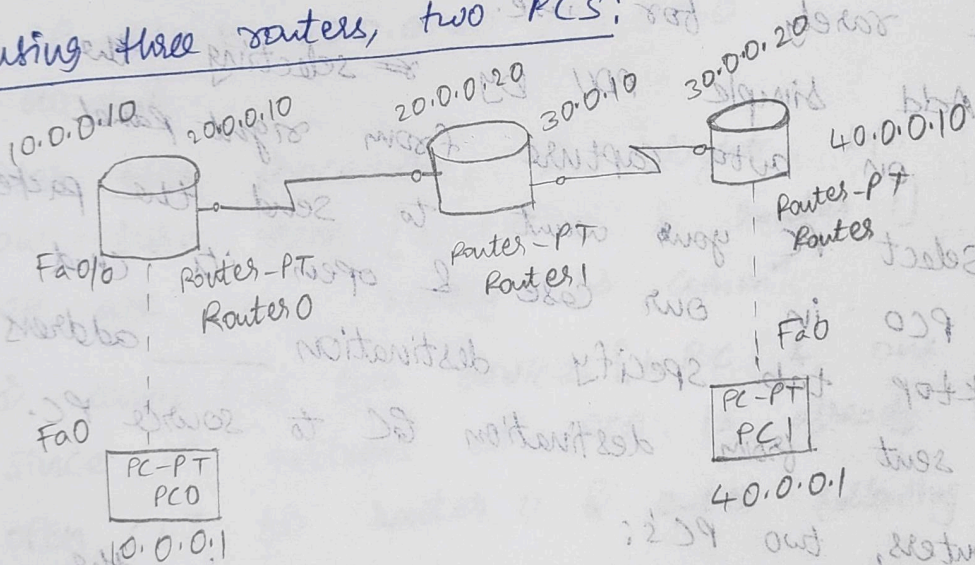
## Lab: week 2

Aim: Configuring IP addresses to router in packet tracer to expose following messages: Ping responses, destination unreachable, request timed out, reply.

Topology: using single router, 2 PC's



using three routers, two PC's:



## Procedures:

- using single router, two PC's
- place a generic router & add two generic PC's in your workspace
  - Connect router & PC's using Copper cross over wire
  - Configure IP address of each PC & in the configuration tab under settings set gateways for both PCs to router.
  - click on generic router and go to CLI tab. Enter the following commands to set up connection b/n PC (1) and generic router through gateway 10.0.0.10



→ No  
enable

# config t

(Config) # interface fast ethernet 0/0.

(Config-if) # ip address 10.0.0.10 255.0.0.0

# no shut

# exit

Now to set up connection b/n PC 2 & router through gateway 20.0.0.10

# interface fast ethernet 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 b/n the PC & router turns green indicating that two devices are ready for use.

Simulation mode: Add simple PDU by selecting the PC's and click on auto capture from sight panel.

Real time mode: Select PC you want to send the packet from which is PC0 in our case & open its cmd prompt from desktop tab. Specify destination address. A response is sent from destination GC to source PC.

→ using three routers, two PC's:

- i) Place 3 generic routers and 2 generic PCs in the workspace.
- ii) Place note for each device [PC & router] and specify IP address.
- iii) Connect routers & PC using Copper cross over
- iv) ~~connect~~ router using serial
- v) click on each PC, go to the configure tab. Set the IP address & subnet mask in fast ethernet.
- vi) Next click on settings in Config tab. set gateways on IP address of the next router [eg 10.0.0.10]



3) PC > ping 20.0.0.10 with 32 bytes of data :  
Reply from 20.0.0.10: bytes=32 time=1ms TTL=255  
[3 more times]

ping statistics for 20.0.0.10:

Packets: sent=4, received=4, lost=0 (0% loss)

4) 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=1ms  
[3 more times]

ping statistics for 30.0.0.10:

Packets: sent=4, received=4, lost=0 (0% loss)

5) 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=10ms TTL=125

" " " : " =32, " =13ms TTL=125

" " " : " =32, " =8ms TTL=125

ping statistics for 40.0.0.1:

Packets: Sent=4, received=3, lost=1 (25% loss)

6) 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=24ms TTL=125

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

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

ping statistics for 40.0.0.1:

Packets: Sent=4, received=4, lost=0 (0% loss)

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

Result: using 1 router, two PCs.

C:\> 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

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

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

Reply from 20.0.0.1: bytes=32

Ping statistics for 20.0.0.1

Pinging 20.0.0.1 with 32 bytes of data

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

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

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

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

Ping statistics for 20.0.0.1:

Packets: sent = 4, received = 4, lost = 0 (0% loss)

— using 3 routers, 2 PCs:

1) PC > Ping 40.0.0.1

Pinging 40.0.0.1 with 32 bytes of data

Reply from 10.0.0.10: destination host unreachable

[3 more times]

Ping statistics for 40.0.0.1

Packets: sent = 4, received = 0, lost = 4 (100% loss)

2) PC > Ping 10.0.0.10 with 32 bytes of data.

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

[3 more times]

Ping statistics for 10.0.0.10

Packets: sent = 4, Received = 4, lost = 0 (0% loss)



Teaching router 0 of network 30:

- no
- enable
- config t
- 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 t
- 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 routers 1 & 2.

Simulation mode: Add simple PDU by ~~select~~ selecting PC 2 & click on auto capture from right panel.

Realtime mode: Select PC 0 & go to its end prompt &

Ping router 0. Once message has been sent successfully

Repeat this with routers 1 & 2 as well. Finally,

Ping PC1.

Observation:

Learning outcomes

1 Router: when PC0 pings PC1 for first time, we get packet as request timed out.

Now, if we ping PC1 again from PC0 we get all 4 packets without any loss. Now reverse pinging of PC0 from PC1 will also not lead to any loss, all packets are acknowledged.



Vii) IP address of PC and its gateway address should belong to the same network.

For connecting two routers:  
click on Router 0. Go to CLI and enter following commands

- no
- enable
- Config t
- interface serial 2/0
- IP address 20.0.0.10 255.0.0.0
- no shut

click on router 1, open CLI & enter following commands.

- no
- enable
- Config t
- interface serial 2/0
- IP address 20.0.0.20 255.0.0.0
- no shut

After this procedure, red lights b/n 2 router will now turn green [router 0 & router 1] indicating that they are now ready for comm.

For connecting two devices [1 PC & one router]

- Since IP address of PC is already configured, go to router.
- open CLI for router 0 & enter following commands.

- no
- enable
- Config t
- interface fastethernet 0/0
- IP address 10.0.0.10 255.0.0.0
- no shut

Red light turn green, which means ready for comm.