LABORATORY PROGRAM – 4

Configure DHCP within a LAN and outside LAN

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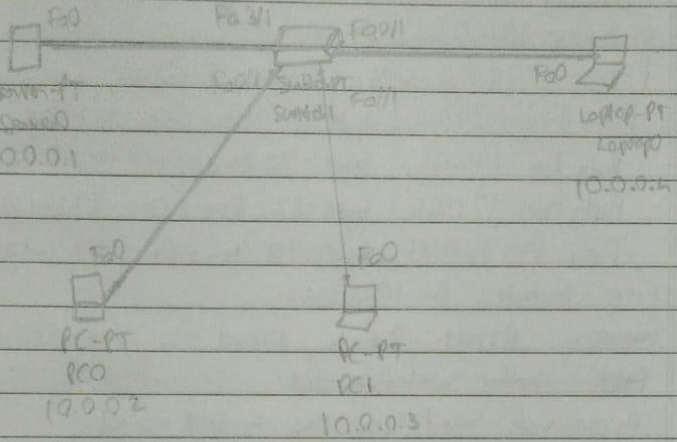
Lab-5

Experiment - 4

Aim - Configure DHCP within a LAN and outside LAN

1) DHCP within a LAN

Topology:



Procedure:

1. Add a generic switch, 2 PC, 1 laptop and One Server
2. Click on Server → Desktop → IP Configuration → It should be Static
3. Give IP address for Server 10.0.0.1 and default Gateway 10.0.0.0
4. Click Config → Services → Click DHCP → Service (ON) change pool name to Switchone (your choice).
5. Change maximum number =100, Start IP Address as 10.0.0.3 and give add
6. For each PC / Laptop → ~~Config~~ Desktop → IP Configuration → Give DHCP automatically generates IP address

Server ~~gives dynamically~~ allocates IP addresses to the devices. ~~those random connection~~

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Observation:

1. IP addresses were allocated dynamically
2. When we ping from one PC to another data was sent successfully.

,10.0.0.2

o/p PC > ping 10.0.0.4

Pinging 10.0.0.4 with 32 bytes of data:

Reply from 10.0.0.4: bytes=32 time=0ms TTL=128

Reply from 10.0.0.4: bytes=32 time=0ms TTL=128

Reply from 10.0.0.4: bytes=32 time=0ms TTL=128

Reply from 10.0.0.4: bytes=32 time=0ms TTL=128

Ping statistics for 10.0.0.4:

Packets: Sent = 4, Received = 4, Lost = 0 (0% Loss)

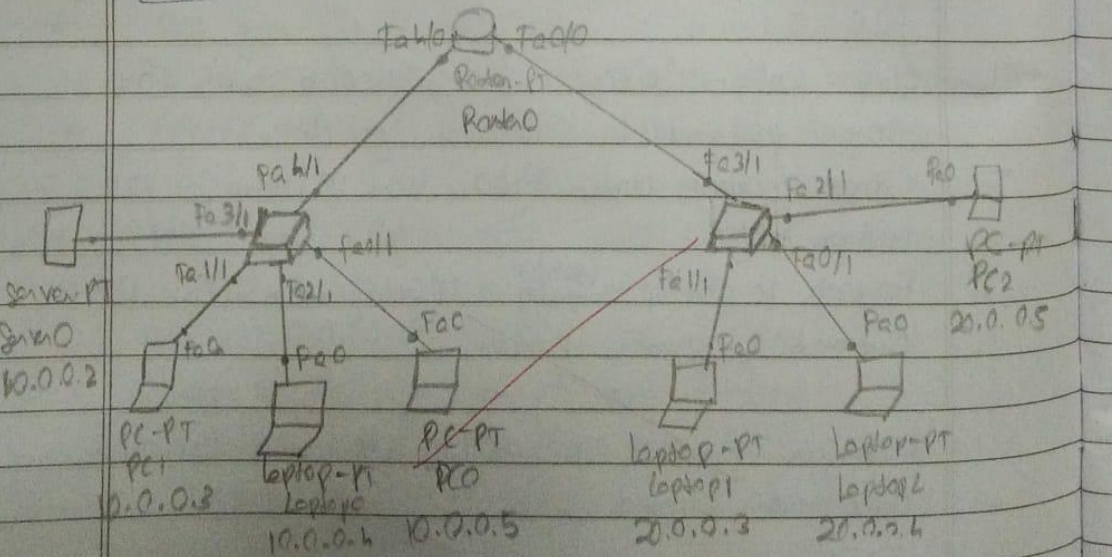
1. ~~Add another serial link that.~~

Approximate round trip times in milli-seconds:

Minimum = 0ms, Maximum = 0ms, Average = 0ms

2) DHCP outside LAN

Topology:



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Procedure:-

1. Add to the same network on another similar networks and a router which connects both the switches
2. Go to Server - IP Configuration → change IP address 10.0.0.2 default Gateway - 10.0.0.1
3. Goto Config → services - DHCP - select Switch 0 etc. change default gateway to 10.0.0.1
4. Do for Switch then → default Gateway as 20.0.0.1, start ip address as 20.0.0.3 and add it.

Router Configuration - CLI

no

Router > enable

Router # config terminal

Router (config) # interface fastethernet 4/0

Router (config-if) # ip address 10.0.0.1 255.0.0.0

Router (config-if) # ip helper-address 10.0.0.2 (to give the other network with ip-address to start with 20.0.0 only)

no shut

exit

For second network Switch

config terminal

interface fastethernet 0/0, ip address 20.0.0.1 255.0.0.0

Router (config-if) # ip helper-address 10.0.0.2 (Server)

no shut

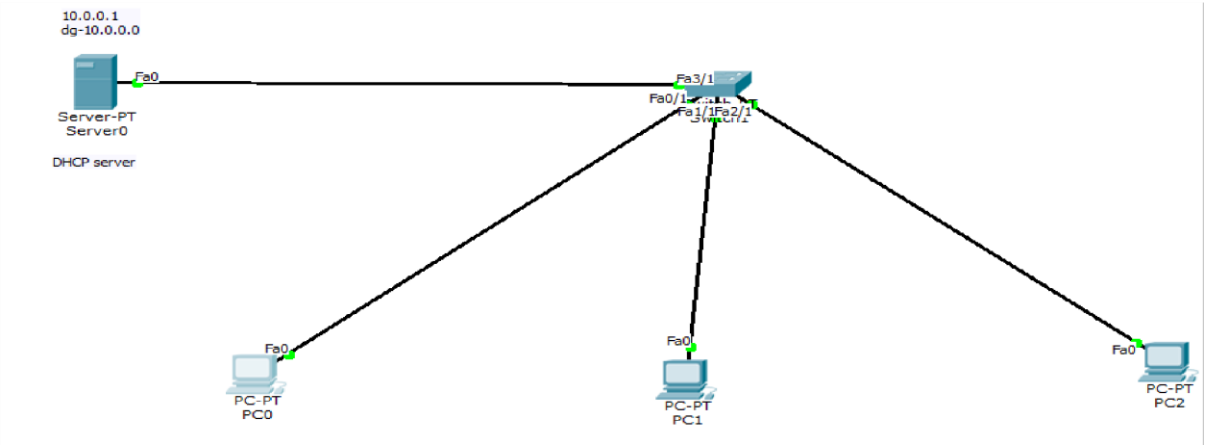
exit

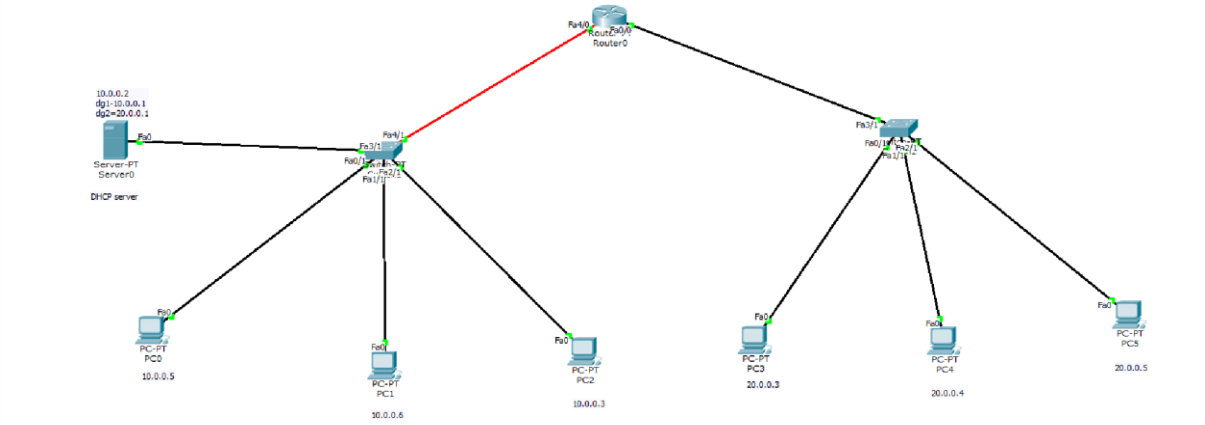
Now goto each PC change to Static and DHCP so the ip address will be allocated dynamically.

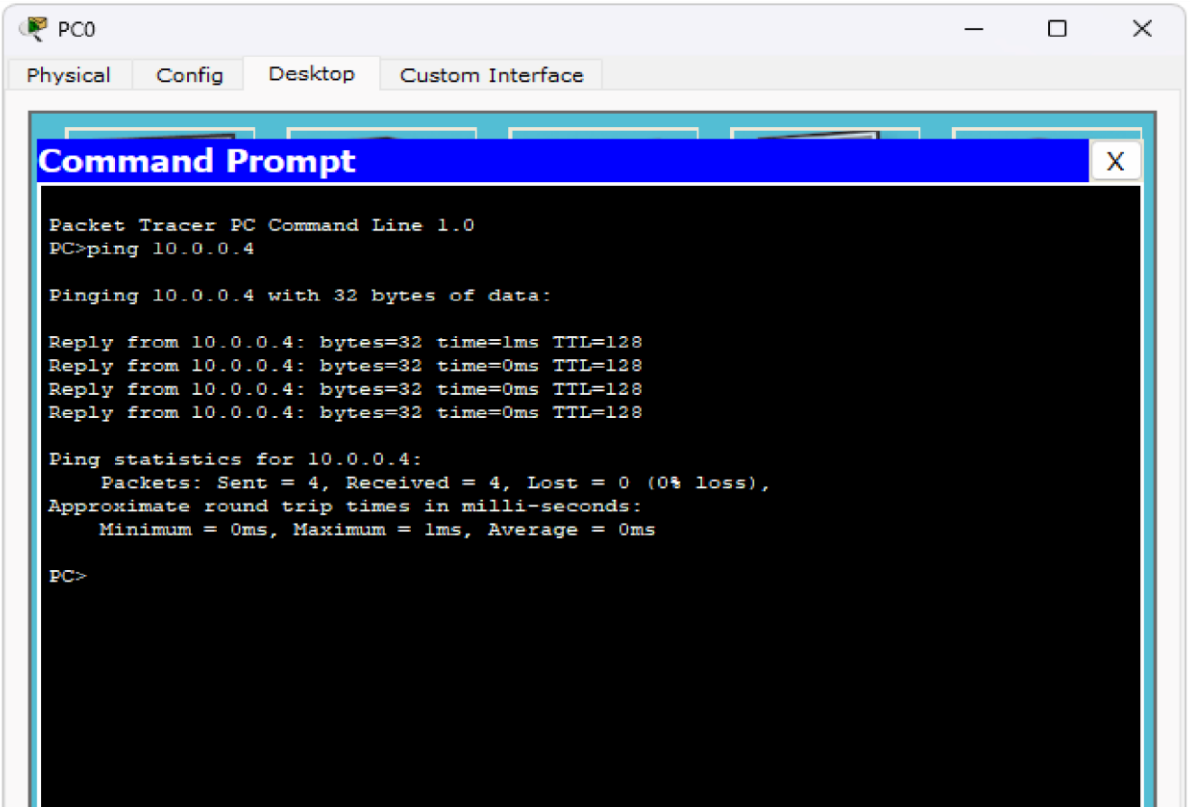
Observation:- 1. IP address are dynamically allocated dynamically

2. ~~Data can't be sent successfully among PC's when pinged.~~

13/11/24


10.0.0.1
dg-10.0.0.0
Fa0
Server-PT
Server0
DHCP server
Fa3/1
Fa0/1
Fa1/1
Fa2/1
Fa0
PC-PT
PC0
Fa0
PC-PT
PC1
Fa0
PC-PT
PC2


Router0
10.0.0.2
dg1-10.0.0.1
dg2-20.0.0.1
Server-PT
Server0
DHCP server
PC-PT
PC0
10.0.0.5
PC-PT
PC1
10.0.0.6
PC-PT
PC2
10.0.0.3
PC-PT
PC3
20.0.0.3
PC-PT
PC4
20.0.0.4
PC-PT
PC5
20.0.0.5


PC0
Physical
Config
Desktop
Custom Interface
Command Prompt
Packet Tracer PC Command Line 1.0
PC>ping 10.0.0.4
Pinging 10.0.0.4 with 32 bytes of data:
Reply from 10.0.0.4: bytes=32 time=1ms TTL=128
Reply from 10.0.0.4: bytes=32 time=0ms TTL=128
Reply from 10.0.0.4: bytes=32 time=0ms TTL=128
Reply from 10.0.0.4: bytes=32 time=0ms TTL=128
Ping statistics for 10.0.0.4:
Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
Minimum = 0ms, Maximum = 1ms, Average = 0ms
PC>