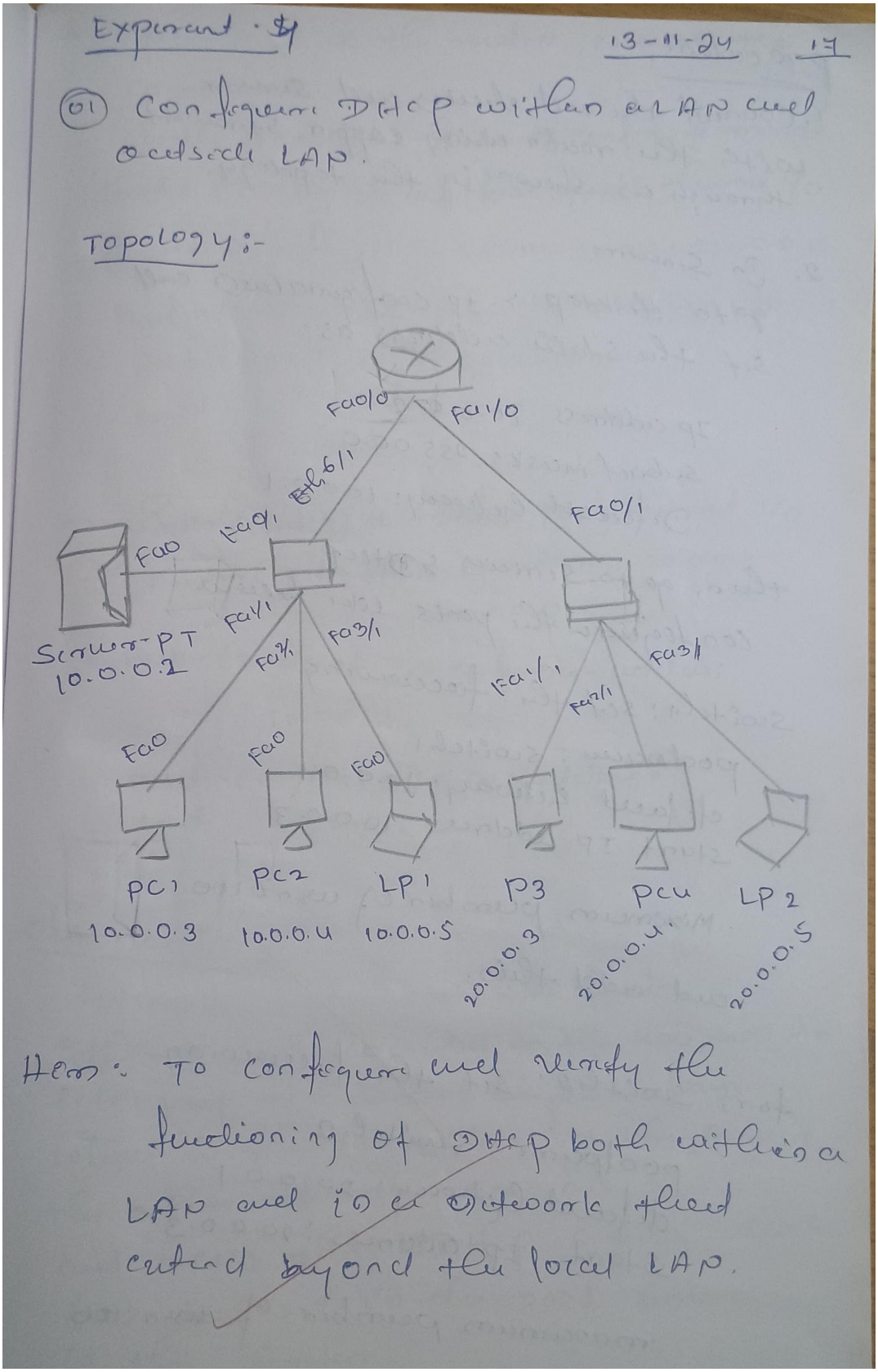
13|11|2024 Week-5(Experiment 4)

Observation Book:



procedure:

1. Connect the end devices and Server with the router using copper straight through as shown in the topology.

2. In Server.
   go to desktop > IP configuration and set the static address as:

   Ip address : 10.0.0.2
   subnet mask: 255.00.0
   Default Gateway: 10.0.0.1

then, go to Server > DHCP
configure the pools like below

Switch1: set the following

poolname : switch1
default gateway: 10.0.0.1
start IP address : 10.0.0.3

Maximum number of user: 100

and add this.

for, switch2: set the following

poolname : switch2
default Gateway: 20.0.0.1
start IP address : 20.0.0.3

maximum number of user: 100

3. Open CLI in the router, execute the commands

- Router #enable, Router# config terminal.
- Router (config) # interface fastEthernet 0/0
- Router(config) # ip address 10.0.0.1 255.0.0.0
- Router(config-if)# ip helper-address 10.0.0.2
- Router(config-if)# no shutdown
- exit

-> Router (config) # interface fastEthernet 1/0
- Router(config-if) # ip address 20.0.0.1 255.0.0.0
- Router(config-if) # ip helper-address 10.0.0.2
- Router(config-if) # no shutdown
- exit

Observation:

Setup the router with the fast-Ethernet cable connected to the two switches setting up the ~~server~~ helper address which is the IP address of the server, the other network 20.0.0.0 can access the DHCP server which has been set in the pool service in the server.

output:

PC0: [command prompt]

PC> ping 20.0.0.7

pinging 20.0.0.7 with 32 byte of data

Request timed out

Reply from 20.0.0.7: bytes = 32

time: 0ms TTL: 127

Reply from 20.0.0.7 bytes = 32

time: 0ms TTL: 127

Reply from 20.0.0.7 byte = 32

time: 0ms TTL: 127

ping statistics for 20.0.0.7

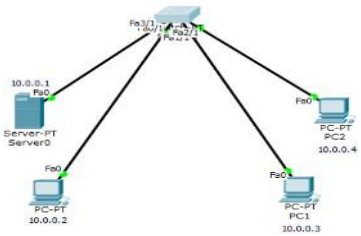
packet: sent: 4, Received: 3.

lost = 1 (25% loss)

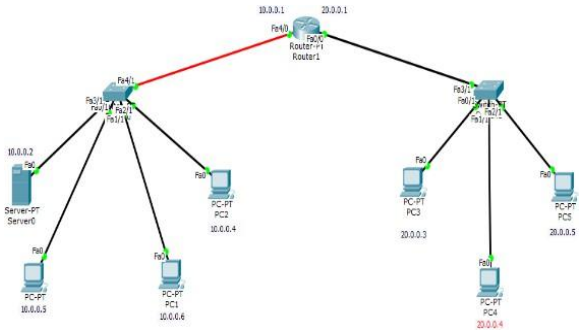
Minimum: 0ms, maximum = 2ms

Average: 0ms

Topology:



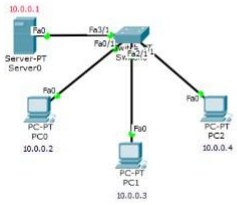
(within Lan)

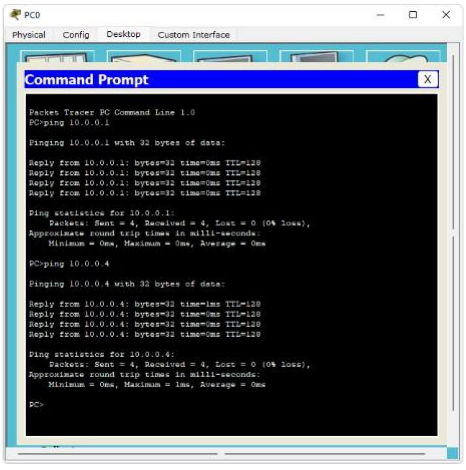


(outside Lan)

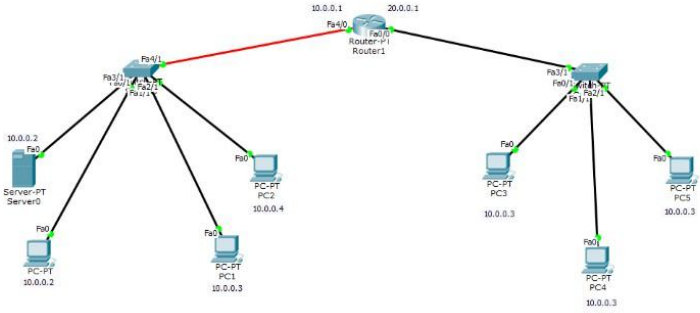
Output:

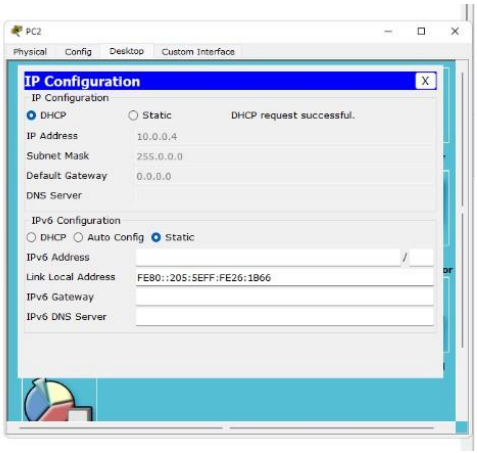
(within Lan)

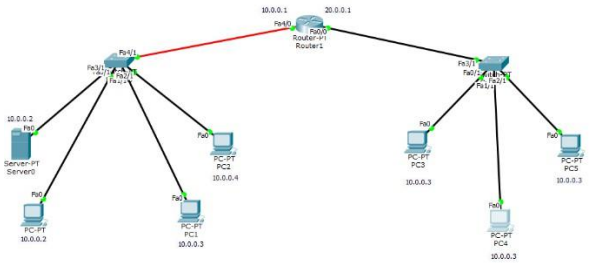


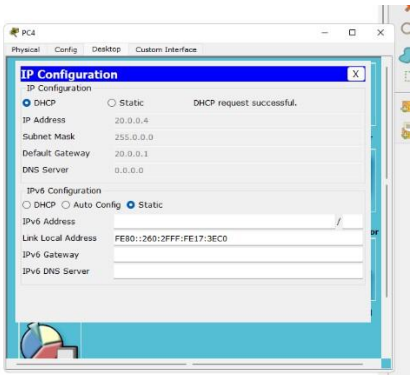


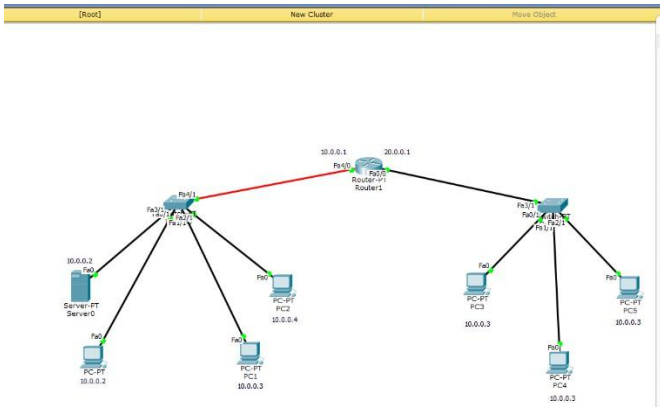
(outside Lan)

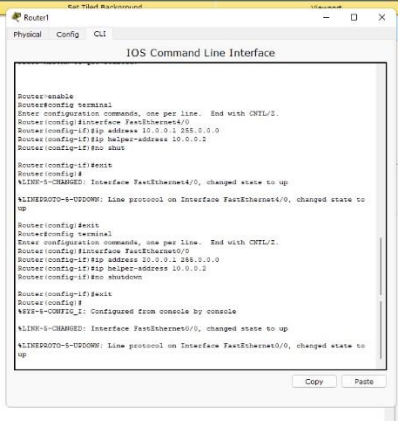

10.0.0.1
20.0.0.1
Router1
Server-PT
Server0
PC-PT
PC1
PC-PT
PC2
10.0.0.4
PC-PT
PC3
PC-PT
PC4
PC-PT
PC5


PC2
Physical
Config
Desktop
Custom Interface
IP Configuration
IP Configuration
DHCP
Static
DHCP request successful.
IP Address
10.0.0.4
Subnet Mask
255.0.0.0
Default Gateway
0.0.0.0
DNS Server
IPv6 Configuration
DHCP
Auto Config
Static
IPv6 Address
Link Local Address
FE80::205:5EFF:FE26:1866
IPv6 Gateway
IPv6 DNS Server


10.0.0.1
20.0.0.1
Router1
Server-PT
Server0
10.0.0.2
PC2
10.0.0.4
PC1
10.0.0.3
PC3
10.0.0.3
PC4
10.0.0.3
PC5
10.0.0.3


PC4
Physical
Config
Desktop
Custom Interface
IP Configuration
DHCP
Static
DHCP request successful.
IP Address
20.0.0.4
Subnet Mask
255.0.0.0
Default Gateway
20.0.0.1
DNS Server
0.0.0.0
IPv6 Configuration
DHCP
Auto Config
Static
IPv6 Address
Link Local Address
FE80::260:2FFF:FE17:3EC0
IPv6 Gateway
IPv6 DNS Server


[Root]
New Cluster
Move Object
10.0.0.1
20.0.0.1
Router1
Server-PT
Server0
10.0.0.2
PC2
10.0.0.4
PC1
10.0.0.3
PC3
10.0.0.3
PC4
10.0.0.3
PC5
10.0.0.3


Router1
Physical
Config
CLI
IOS Command Line Interface
Router>enable
Router#config terminal
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#interface FastEthernet4/0
Router(config-if)#ip address 10.0.0.1 255.0.0.0
Router(config-if)#ip helper-address 10.0.0.2
Router(config-if)#no shut
Router(config-if)#exit
Router(config)#
%LINK-5-CHANGED: Interface FastEthernet4/0, changed state to up
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet4/0, changed state to up
Router(config)#exit
Router#config terminal
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#interface FastEthernet0/0
Router(config-if)#ip address 20.0.0.1 255.0.0.0
Router(config-if)#ip helper-address 10.0.0.2
Router(config-if)#no shutdown
Router(config-if)#exit
Router(config)#
%SYS-5-CONFIG_I: Configured from console by console
%LINK-5-CHANGED: Interface FastEthernet0/0, changed state to up
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/0, changed state to up
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