LAB 4

Configure DHCP within a LAN and outside LAN.

OBSERVATION:

13/07/2023

LAB - 4

PROGRAM 4-1

AIM:
configure DHCP within a LAN and outside LAN.

Topology:

PROCEDURE:-

- connect 3 PC's and 1 server to a switch using copper straight through cable.
- click on server and go to services tab select DHCP and twin on the DHCP service.
- Set the IP address of the start IP address as 10.0.0.2 and click on save button.
- Before this. Set the IP address of server in config Tab under FastEthernet as 10.0.0.1
- Next click on PC0 and go to disktop tab. Here click on IP configuration. Select DHCP Here, it will request for an IP address and successfully. gets the DHCP request also sets the IP address.

- Repeat this steps for other 2 PC's.
- To send a packet across PC's go to PC's command prompt and type Ping destination IP address.

PING OUTPUT:

Packet tracer PC command line 1.0:

PC>Ping 10.0.0.3

Pinging 10.0.0.3 with 32 bytes of data.

Reply from 10.0.0.3 bytes=32 time=0ms TTL=128
Reply from 10.0.0.3 bytes=32 time=0ms TTL=128
Reply from 10.0.0.3 bytes=32 time=0ms TTL=128
Reply from 10.0.0.3 bytes=32 time=0ms TTL=128

Ping Statistics from 10.0.0.3:
Packets : Sent =4, Received =4, Cost = 0, (0% Loss)
approximate round trip times in milli-seconds)
minimum = 0ms, Maximum = 1ms, Average = 0ms.

OBSERVATION:-

- DHCP is used to dynamically assign an IP address to any device or node.
- It is a client-server protocol in which servers manage a pool of unique IP address and also about client configuration parameters.
- DHCP, enabled clients sends a request to DHCP server when they want to connect to a Network.

- The DHCP server responds to the client request by providing IP configuration information from address pools previously specified by network administrator.
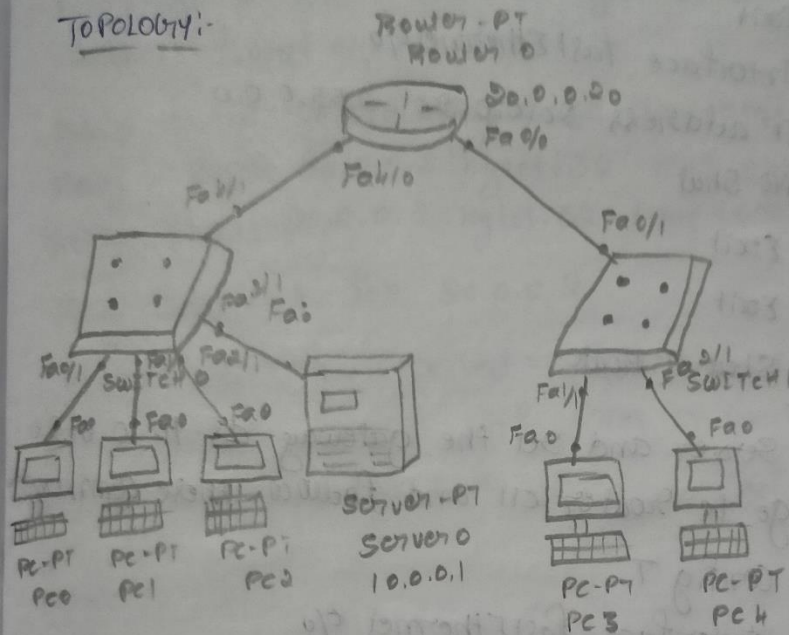
PROGRAM 4.2

AIM:

Configure DHCP within a LAN and outside LAN.

TOPOLOGY:-

Router-PT
Router 0
20.0.0.20
Fa 0/0

Fa0/10

Fa0/1

Fa0/1 Fa0

Fa0/1 SWITCH 0 Fa0/1

Fa0 Fa0 Fa0

PC-PT PC-PT PC-PT
PC0 PC1 PC2

Server-PT
Server 0
10.0.0.1

Fa0/1 Fa0/1 SWITCH 1

Fa0 Fa0

PC-PT PC-PT
PC 3 PC 4

PROCEDURE:-

* Add a Router, a Switch and 2 PC's to 4.1 Program Network and connect the Router to both Switches.

* Set the Server IP address of server and with the help of Server Set the first 3 PC's IP address through DHCP.

* Now Set the Router IP address with the following Commands Statically.

Step 1 : No

Step 2 : Enable

Step 3 : Config t

Step 4 : Interface fastEthernet 4/0
Step 5 : IP address. 10.0.0.20   255.0.0.0
Step 6 : No Shut
Step 7 : Exit
Step 8 : Interface fastEthernet 0/0.
Step 9 : IP address 20.0.0.20   255.0.0.0
Step 10 : No Shut
Step 11 : Exit
Step 12 : Exit
Step 13 : Show IP Route.

- Go to Server and set the gateway as 10.0.0.20
- Again go to router cli and follow these commands
  Step 14 : config T
  Step 15 : Interface fastEthernet 0/0
  Step 16 : IP helper address 10.0.0.1
  Step 17 : No Shut
  Step 18 : Exit

- Now, go to server services and add one more Pool as Server Pool, Start IP address as 20.0.0.2 and default gateway as 20.0.0.20, Then click add & Save.

- Now set the other two PC's IP address by going to there Desktop → IP configuration and selecting DHCP which will automatically generate its IP address.

- Now the network is complete and can send packet from any PC to other by typing ping destination IP address in their respective command prompts.

PING OUTPUT:

Packet tracer PC command line 1.0

PC> ping 20.0.0.2

pinging 20.0.0.2 with 32 bytes of data:

Request timed out.

Reply from 20.0.0.2 ibytes i32 time=0ms TTL=127
Reply from 20.0.0.2 ibytes i32 time=0ms TTL=127
Reply from 20.0.0.2 ibytes i32 time=0ms TTL=127

Ping statistics for 20.0.0.2

Packets sent=4, Received =3, lost=1 (25% loss).
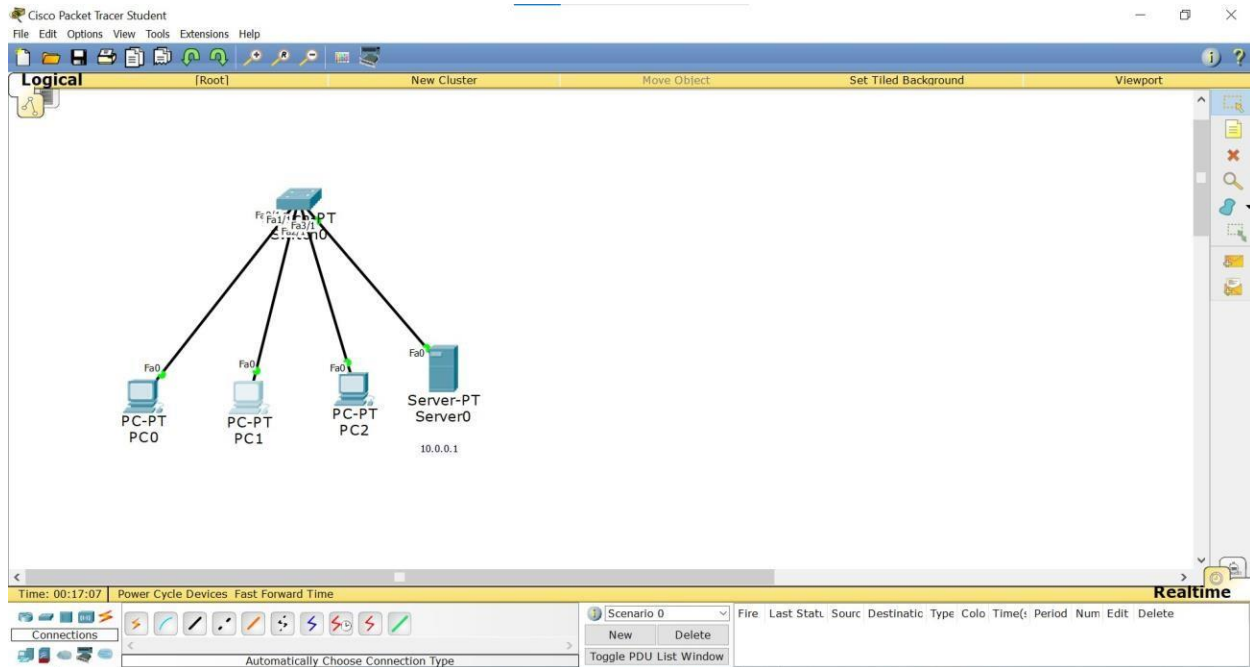
approximate round trip times in milli seconds
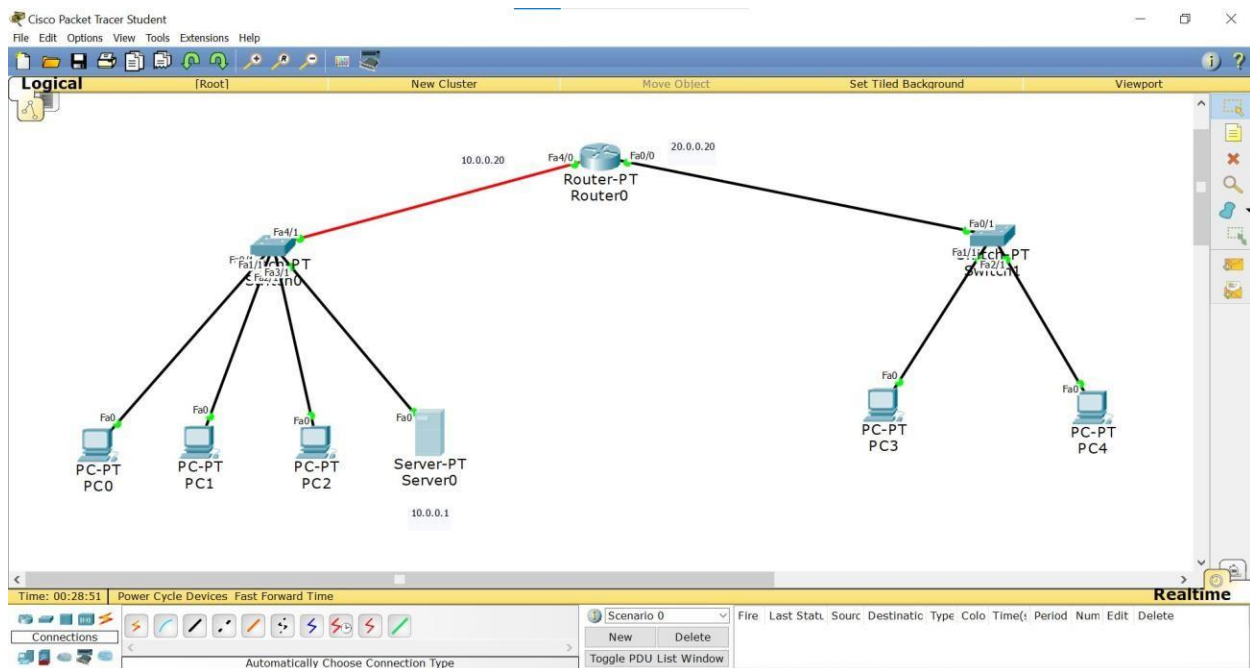
minimum =0ms, Maximum=0ms, Average =0ms.

OBSERVATION:-

• DHCP is used to assign IP addresses dynamically to different devices.

• To assign continuous IP address we create a Server Pool where we assign the Starting IP address and a default gateway number. For PC's under different switches we create a different Server pool again & stor

This takes cares of delivering the Packets to correct destination IP address and also sends back the Ack to the initial device.
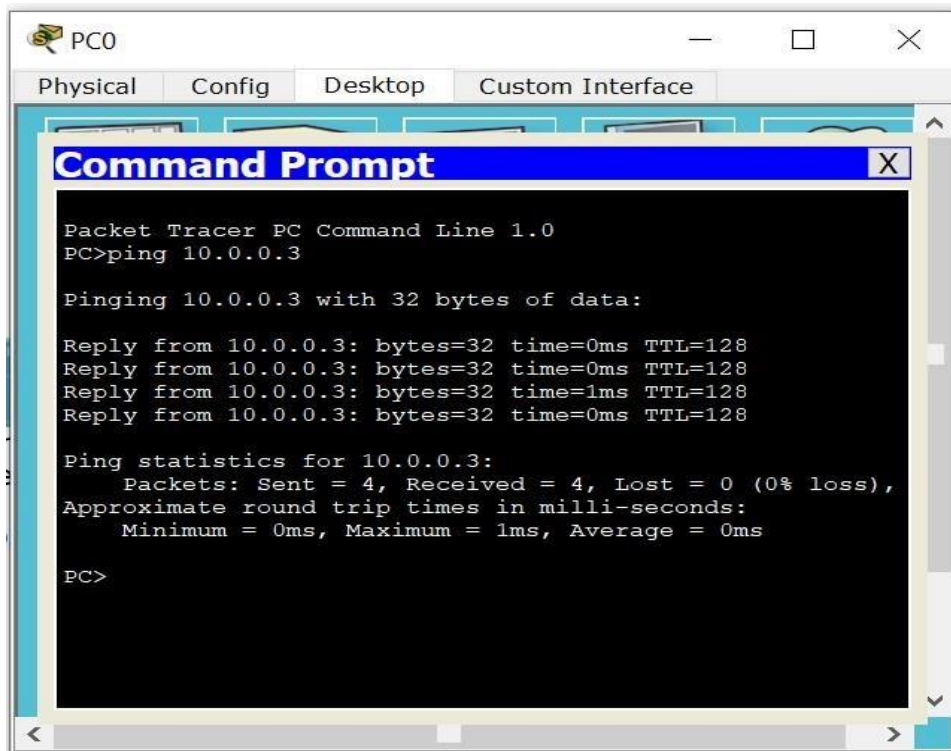
TOPOLOGY:

PROGRAM 4.1:

PROGRAM 4.2:

OUTPUT:

PROGRAM 4.1:

PROGRAM 4.2:

PC0

Physical | Config | Desktop | Custom Interface

Command Prompt

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Packet Tracer PC Command Line 1.0
PC>ping 20.0.0.2

Pinging 20.0.0.2 with 32 bytes of data:

Request timed out.
Reply from 20.0.0.2: bytes=32 time=0ms TTL=127
Reply from 20.0.0.2: bytes=32 time=0ms TTL=127
Reply from 20.0.0.2: bytes=32 time=0ms TTL=127

Ping statistics for 20.0.0.2:
    Packets: Sent = 4, Received = 3, Lost = 1 (25% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 0ms, Average = 0ms

PC>ping 20.0.0.3

Pinging 20.0.0.3 with 32 bytes of data:

Request timed out.
Reply from 20.0.0.3: bytes=32 time=0ms TTL=127
Reply from 20.0.0.3: bytes=32 time=0ms TTL=127
Reply from 20.0.0.3: bytes=32 time=0ms TTL=127

Ping statistics for 20.0.0.3:
    Packets: Sent = 4, Received = 3, Lost = 1 (25% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 0ms, Average = 0ms

PC>
```