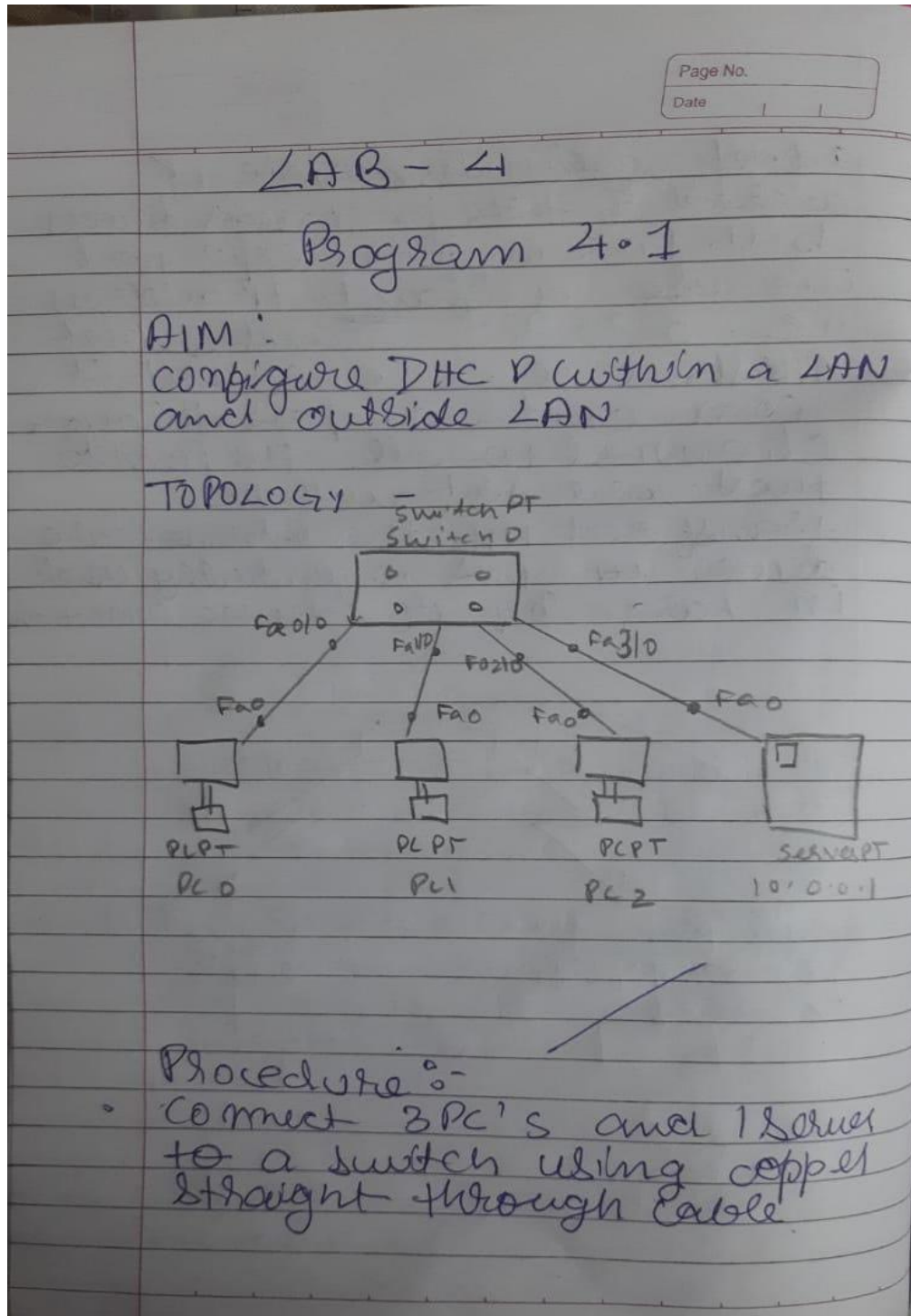


## LAB-4

Configure DHCP within a LAN and outside LAN.

OBSERVATION:



- Click on Server and go to Services tab. Select DHCP and then on the DHCP Service.
- Set the IP address as 10.0.0.2 and click on Save button.
- Before this set the IP address of Server in config Tab under Fast Ethernet as 10.0.0.1.
- Next click on PC 0 and go to desktop tab. click on IP config. select DHCP here it will request for an IP address and successfully get the DHCP request also set 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 + send PC Command Line 10  
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  
 Reply from 10.0.0.3: bytes=32 time=0ms  
 Reply from 10.0.0.3: bytes=32 time=0ms  
 Reply from 10.0.0.3: bytes=32 time=0ms

Ping statistics from 10.0.0.3  
 packets: sent=4, received=4,  
 lost=0, (0% loss)  
 Approximate round trip times in  
 milliseconds:  
 Minimum=0ms, Maximum=0ms  
 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 addresses & also about client config parameters.
- DHCP-enabled clients send a request to DHCP server when they want to connect to a network.

728

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DHCP server responds to the client request by providing IP config information from address pools, previously specified by network administrator.

See

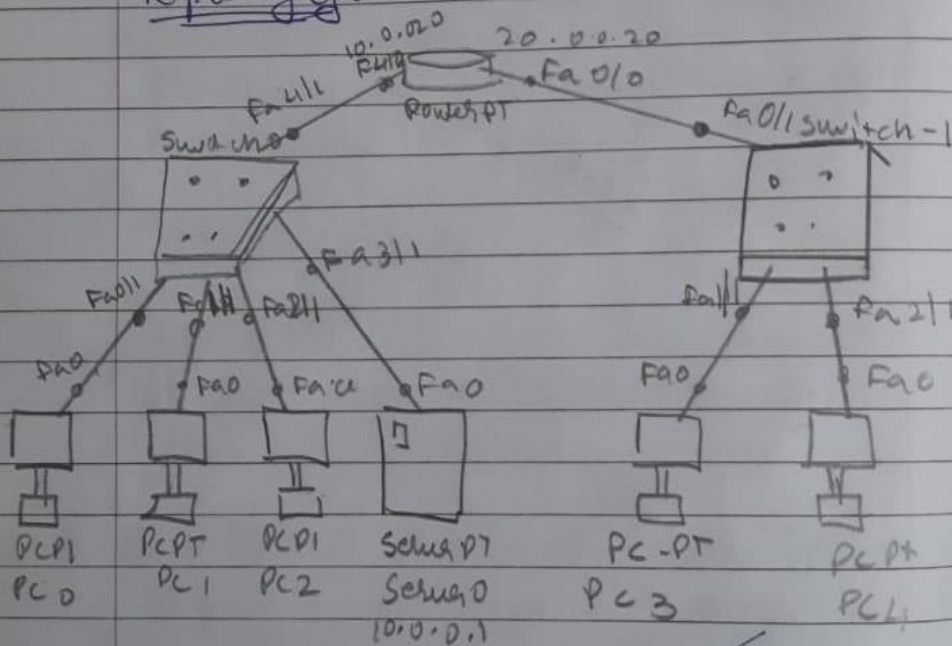


## Program 4.2

Aim:-

configure DHCP within LAN and outside lan.

Topology:-



Procedure:-

- Add a Router a switch and 2 PCs to 4.1 program Network & 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.

Step 1: NO

Step 2: enable

Step 3: Config T

Step 4: Interface fastethernet 4/0

Step 5: IP address 10.0.0.20

Step 6: NO shut 255.0.0.0

Step 7: Exit

Step 8: Interface fast ethernet 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 c# and follow these commands.

Step 14: Config T

Step 15: Interface fast ethernet 0/0

Step 16: IP helper-address 10.0.0.1  
Step 17: No shut  
Step 18: Exit.

- Now, go to Services and add one more poolname as ServicePool1. Start IP address as 20.0.0.2 and default gateway as 20.0.0.2 then click add & save.
- Now set the other two PC's IP address by going to this Desktop → IP config and selecting DHCP which will automatically generate its IP address.
- Now the network is complete and can send packets from any PC to other by typing ping destination IP address in their respective command prompts.

### PING OUTPUT

packet tracer PC command line:  
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:

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  
milliseconds:

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

Observation:-

- DHCP is used to assign IP address 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.

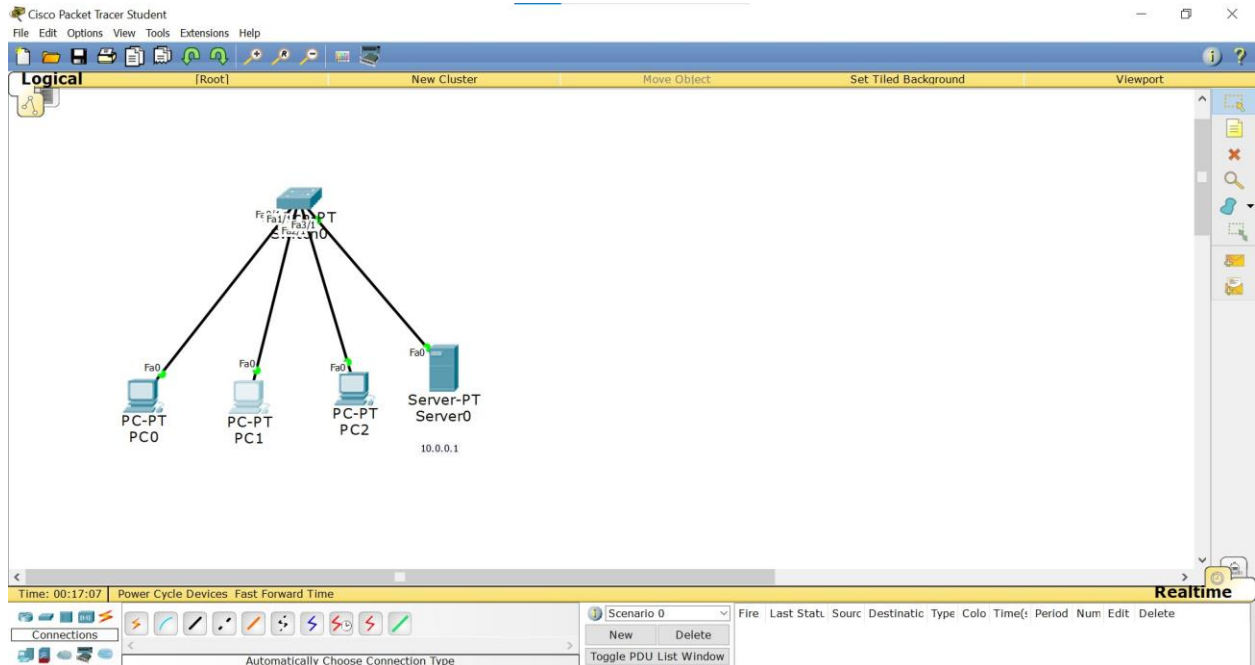
For PC's under different switches,  
we create a different server pool again and start.

This takes care of delivering the packets to correct destination IP address & also sends back the ACKs to the initial device.

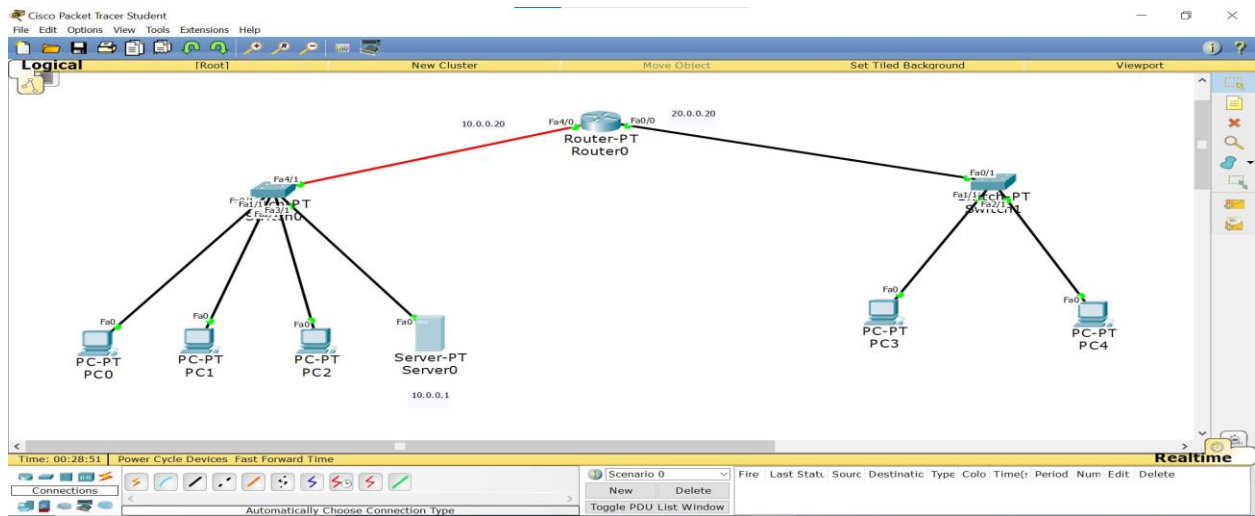


TOPOLOGY:

PROGRAM 4.1:

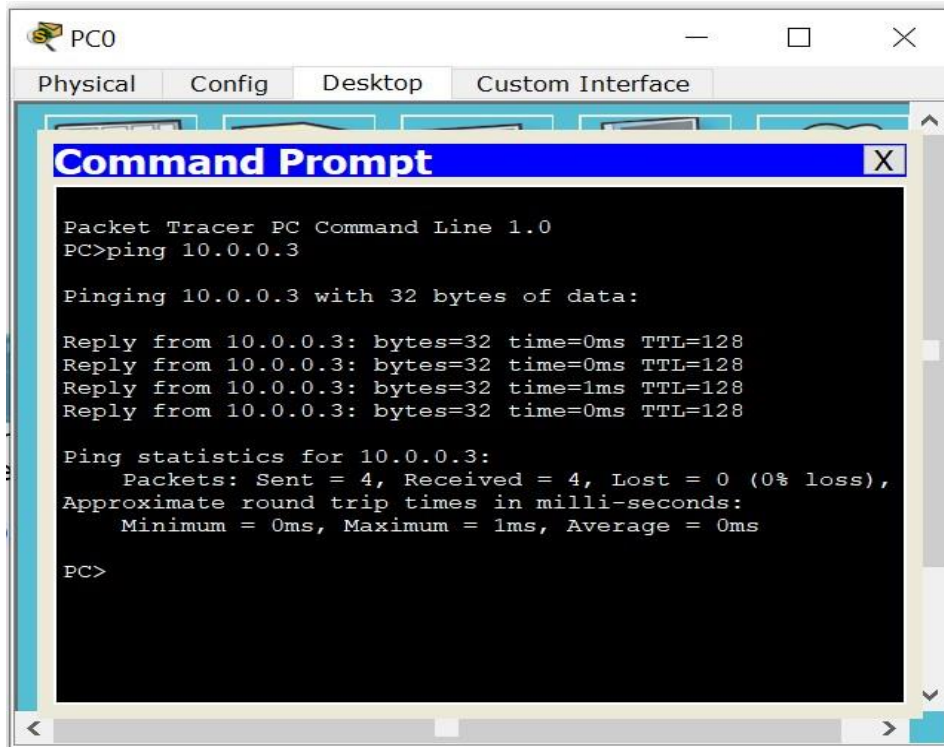


PROGRAM 4.2:



OUTPUT:

PROGRAM 4.1:



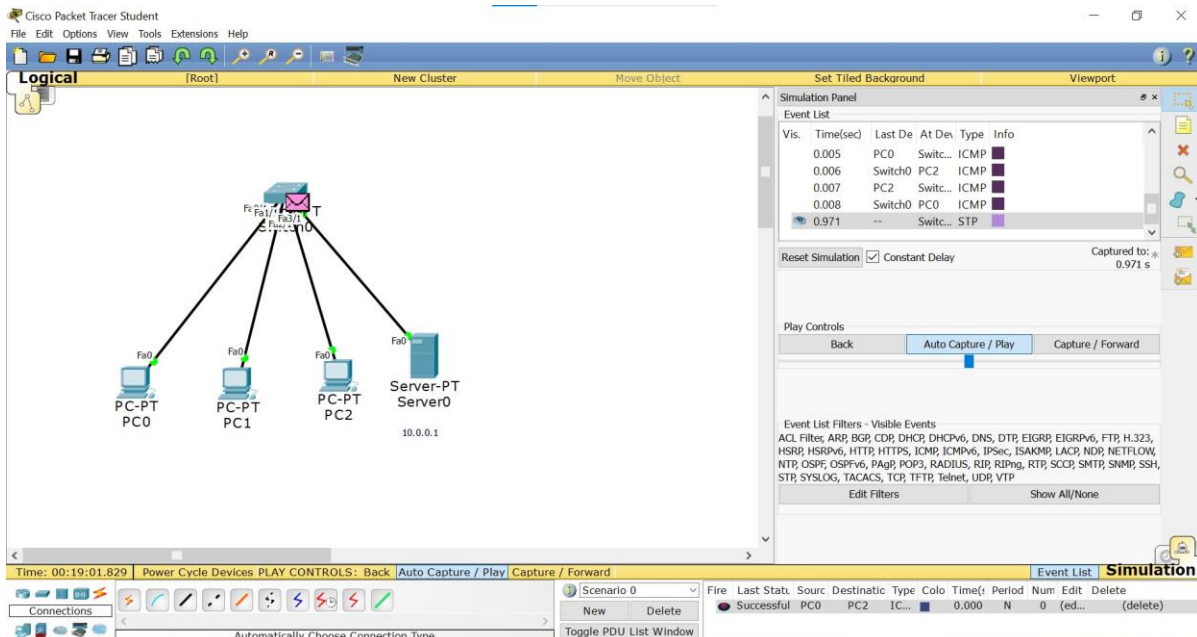
```
PC0
Physical Config Desktop Custom Interface
Command Prompt
Packet Tracer PC Command Line 1.0
PC>ping 10.0.0.3

Pinging 10.0.0.3 with 32 bytes of data:

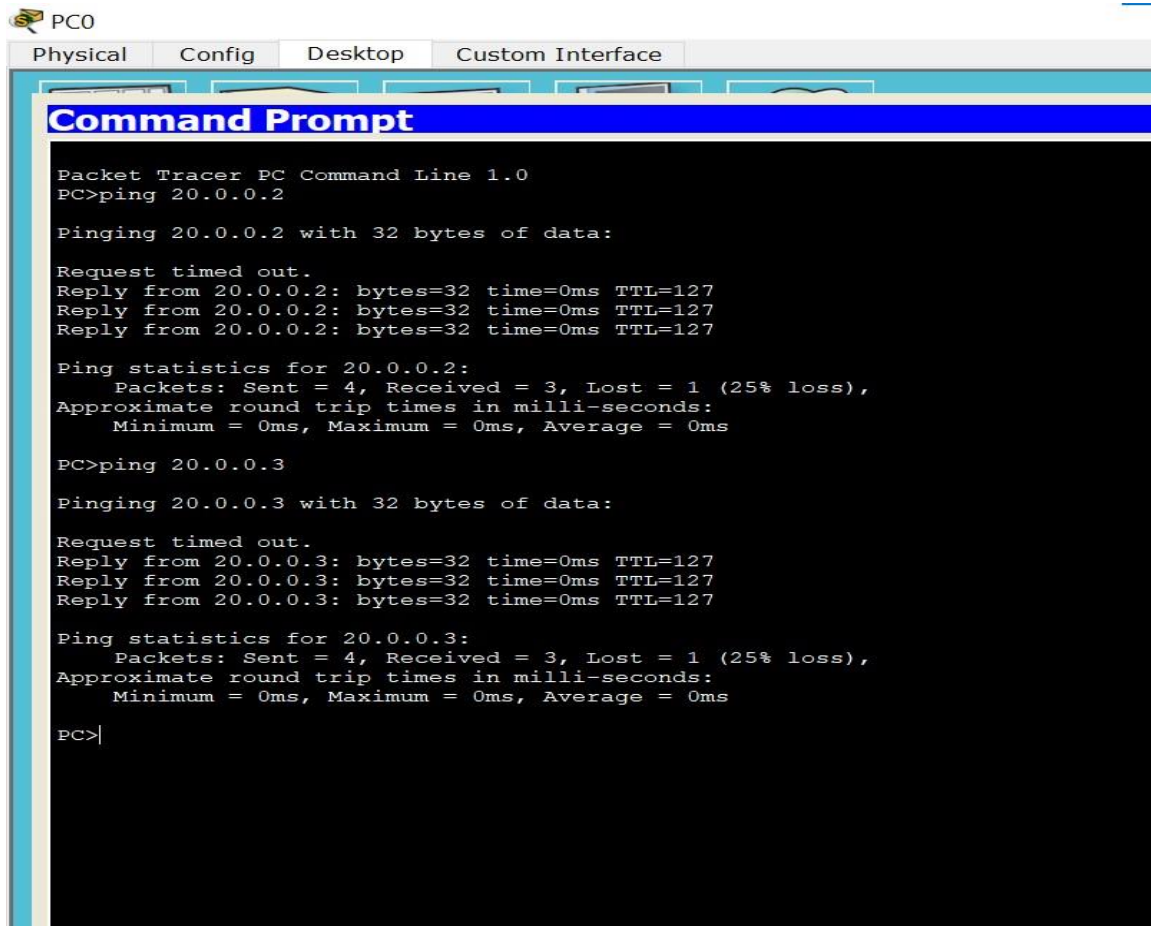
Reply from 10.0.0.3: bytes=32 time=0ms TTL=128
Reply from 10.0.0.3: bytes=32 time=0ms TTL=128
Reply from 10.0.0.3: bytes=32 time=1ms TTL=128
Reply from 10.0.0.3: bytes=32 time=0ms TTL=128

Ping statistics for 10.0.0.3:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 1ms, Average = 0ms

PC>
```



## PROGRAM 4.2:



The screenshot shows the Packet Tracer PC Command Line interface for PC0. The interface has tabs for Physical, Config, Desktop, and Custom Interface. The Command Prompt window is open, displaying the results of two ping commands. The first command is 'ping 20.0.0.2', which shows a 25% loss rate. The second command is 'ping 20.0.0.3', which also shows a 25% loss rate. The output for both commands is as follows:

```
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>|
```

