20/11/24

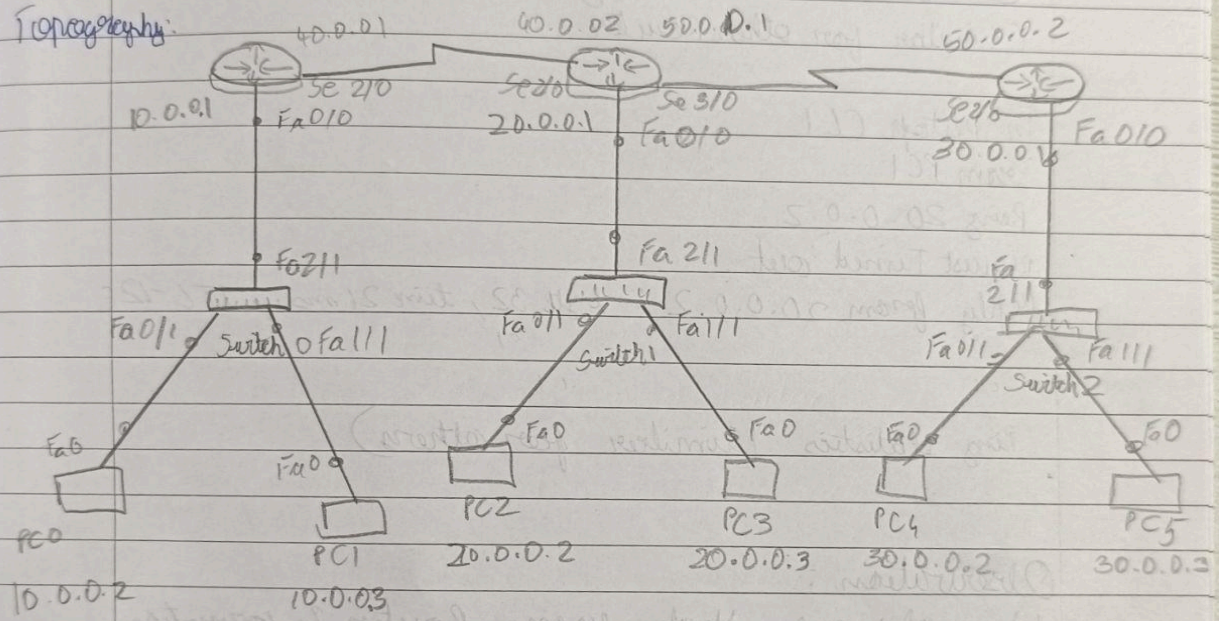
Lab 5

Pr. (RIP)

Configure routing information protocol in Routers

Aim: To show that RIP helps with inter-network communication using multiple routers interconnected to each other.

Topography:



Procedure:

1) Open Cisco packet tracer
2) Drag & drop all Routers, switch & end devices
3) Connect them to each other.
4) Set IP & gateways for the devices.
5) Set up router → Cli → Enable → config terminal → interface serial / Fast Ethernet → IP & subnet → no shut → exit.
6) Now in router Cli → config terminal → router Rip → Network IP/eg 20.0.0.0 → exit (for all routers.
7) Pings from PC0 to PC2 & PC4.

Result:

In Router CLI

-> Show IP Route

R 10.0.0.0/8 [120/1] via 40.0.0.[illegible], time, Se 2/0

C 20.0.0.0/8 is directly connected, Fa 0/0

R 30.0.0.0/8 [120/1] via 50.0.0.2, time, Se 3/0

C 40.0.0.0/8 is directly connected, Se 2/0

C 50.0.0.0/8 is directly connected, Se 3/0

(Similar for other Router

In Destop CLI

From PC1

Pinging 20.0.0.2

Request Timed out.

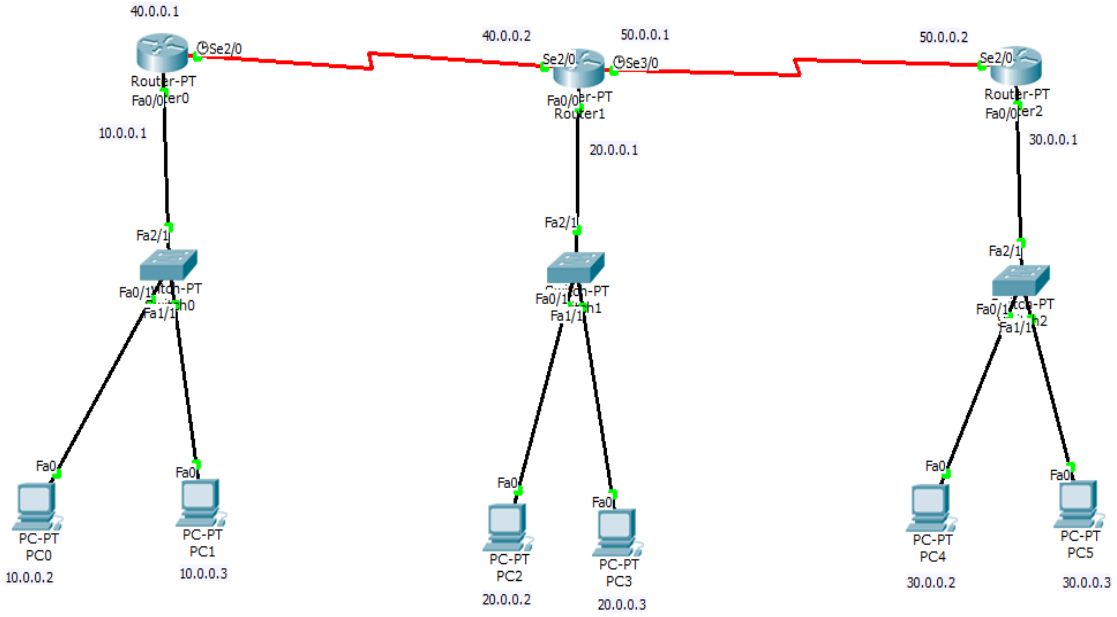
Reply from 20.0.0.2 : byte 32, time 21ms, TTL-12E

Ping statistics (Similar for others)

Observation:

We observe that using Router Information Protocol, we can connect multiple Networks which can enable communication between systems in different networks. Routers talk & share their Router tables with each other which enables the connection.

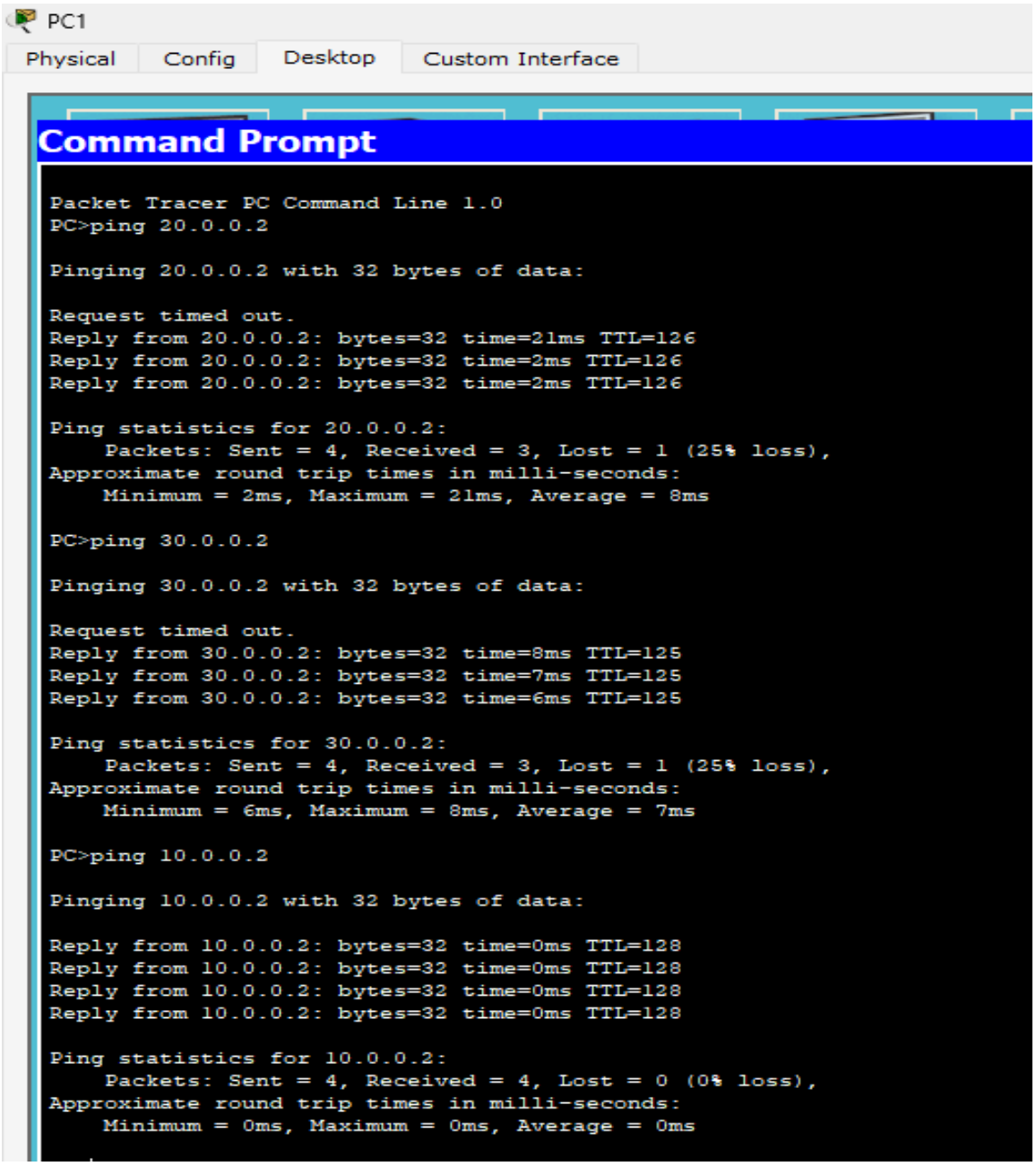
-Once RIP is activated in Router, every router shares its routing protocol with its immediate neighbour, Hence in iterations every router will know about all network that their neighbour are connected to.

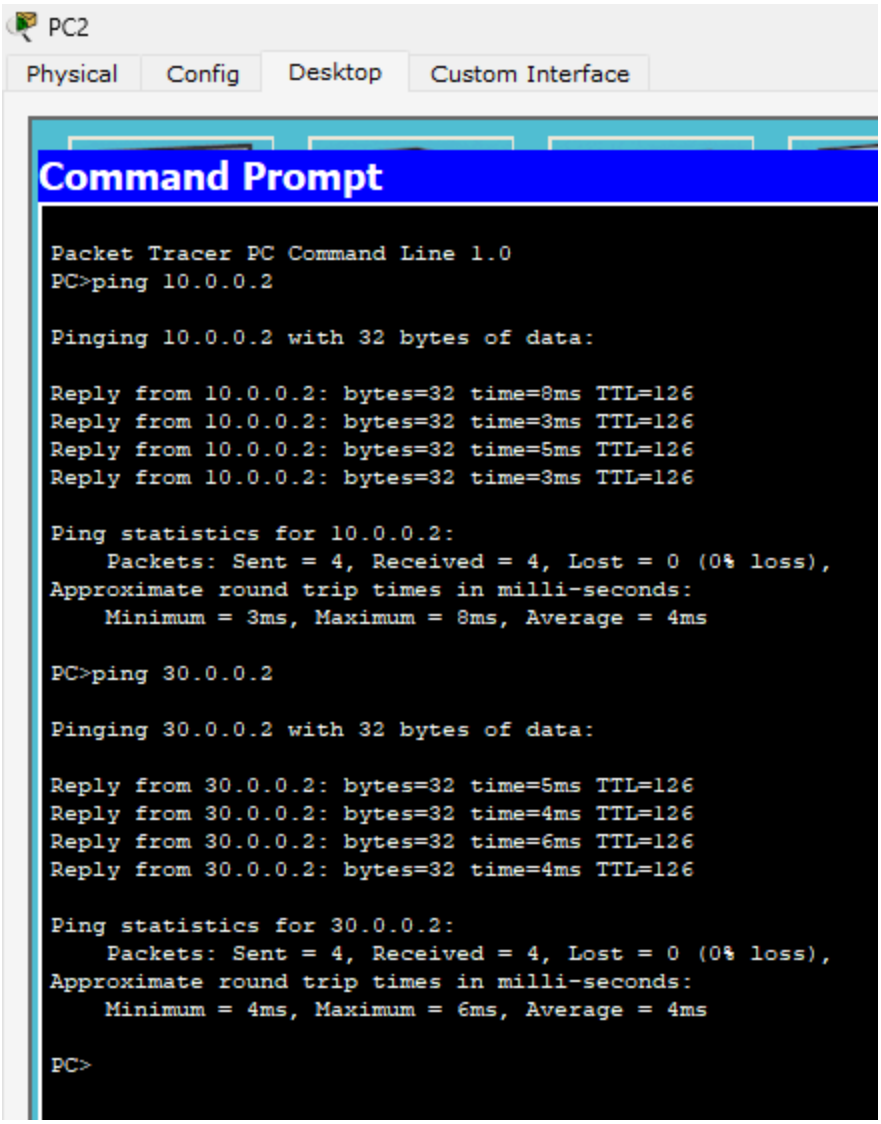


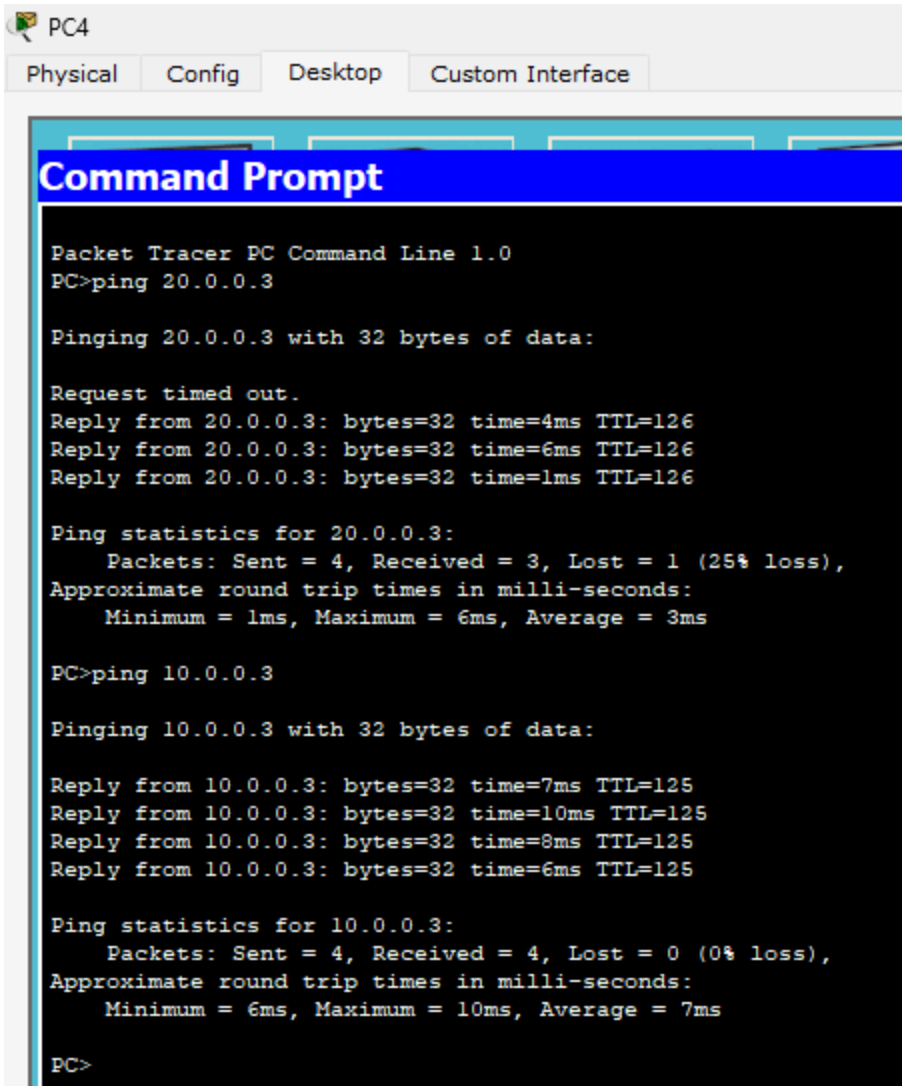

```
Router>enable
Router#config terminal
Enter configuration commands, one per line.  End with CNTL/Z.
Router(config)#router rip
Router(config-router)#network 40.0.0.0
Router(config-router)#network 50.0.0.0
Router(config-router)#network 20.0.0.0
Router(config-router)#exit
Router(config)#exit
Router#
%SYS-5-CONFIG_I: Configured from console by console

Router#show ip route
Codes: C - connected, S - static, I - IGRP, R - RIP, M - mobile, B - BGP
       D - EIGRP, EX - EIGRP external, O - OSPF, IA - OSPF inter area
       N1 - OSPF NSSA external type 1, N2 - OSPF NSSA external type 2
       E1 - OSPF external type 1, E2 - OSPF external type 2, E - EGP
       i - IS-IS, L1 - IS-IS level-1, L2 - IS-IS level-2, ia - IS-IS inter area
       * - candidate default, U - per-user static route, o - ODR
       P - periodic downloaded static route

Gateway of last resort is not set

R    10.0.0.0/8 [120/1] via 40.0.0.1, 00:00:21, Serial2/0
C    20.0.0.0/8 is directly connected, FastEthernet0/0
R    30.0.0.0/8 [120/1] via 50.0.0.2, 00:00:09, Serial3/0
C    40.0.0.0/8 is directly connected, Serial2/0
C    50.0.0.0/8 is directly connected, Serial3/0
Router#
```

```
Router#show ip route
Codes: C - connected, S - static, I - IGRP, R - RIP, M - mobile, B - BGP
       D - EIGRP, EX - EIGRP external, O - OSPF, IA - OSPF inter area
       N1 - OSPF NSSA external type 1, N2 - OSPF NSSA external type 2
       E1 - OSPF external type 1, E2 - OSPF external type 2, E - EGP
       i - IS-IS, L1 - IS-IS level-1, L2 - IS-IS level-2, ia - IS-IS inter area
       * - candidate default, U - per-user static route, o - ODR
       P - periodic downloaded static route

Gateway of last resort is not set

C    10.0.0.0/8 is directly connected, FastEthernet0/0
R    20.0.0.0/8 [120/1] via 40.0.0.2, 00:00:12, Serial2/0
R    30.0.0.0/8 [120/2] via 40.0.0.2, 00:00:12, Serial2/0
C    40.0.0.0/8 is directly connected, Serial2/0
R    50.0.0.0/8 [120/1] via 40.0.0.2, 00:00:12, Serial2/0
Router#
```

```
Router#show ip route
Codes: C - connected, S - static, I - IGRP, R - RIP, M - mobile, B - BGP
       D - EIGRP, EX - EIGRP external, O - OSPF, IA - OSPF inter area
       N1 - OSPF NSSA external type 1, N2 - OSPF NSSA external type 2
       E1 - OSPF external type 1, E2 - OSPF external type 2, E - EGP
       i - IS-IS, L1 - IS-IS level-1, L2 - IS-IS level-2, ia - IS-IS inter area
       * - candidate default, U - per-user static route, o - ODR
       P - periodic downloaded static route

Gateway of last resort is not set

R    10.0.0.0/8 [120/2] via 50.0.0.1, 00:00:11, Serial2/0
R    20.0.0.0/8 [120/1] via 50.0.0.1, 00:00:11, Serial2/0
C    30.0.0.0/8 is directly connected, FastEthernet0/0
R    40.0.0.0/8 [120/1] via 50.0.0.1, 00:00:11, Serial2/0
C    50.0.0.0/8 is directly connected, Serial2/0
Router#
```


PC1
Physical
Config
Desktop
Custom Interface
Command Prompt
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=21ms TTL=126
Reply from 20.0.0.2: bytes=32 time=2ms TTL=126
Reply from 20.0.0.2: bytes=32 time=2ms TTL=126
Ping statistics for 20.0.0.2:
Packets: Sent = 4, Received = 3, Lost = 1 (25% loss),
Approximate round trip times in milli-seconds:
Minimum = 2ms, Maximum = 21ms, Average = 8ms
PC>ping 30.0.0.2
Pinging 30.0.0.2 with 32 bytes of data:
Request timed out.
Reply from 30.0.0.2: bytes=32 time=8ms TTL=125
Reply from 30.0.0.2: bytes=32 time=7ms TTL=125
Reply from 30.0.0.2: bytes=32 time=6ms TTL=125
Ping statistics for 30.0.0.2:
Packets: Sent = 4, Received = 3, Lost = 1 (25% loss),
Approximate round trip times in milli-seconds:
Minimum = 6ms, Maximum = 8ms, Average = 7ms
PC>ping 10.0.0.2
Pinging 10.0.0.2 with 32 bytes of data:
Reply from 10.0.0.2: bytes=32 time=0ms TTL=128
Reply from 10.0.0.2: bytes=32 time=0ms TTL=128
Reply from 10.0.0.2: bytes=32 time=0ms TTL=128
Reply from 10.0.0.2: bytes=32 time=0ms TTL=128
Ping statistics for 10.0.0.2:
Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
Minimum = 0ms, Maximum = 0ms, Average = 0ms


PC2
Physical
Config
Desktop
Custom Interface
Command Prompt
Packet Tracer PC Command Line 1.0
PC>ping 10.0.0.2
Pinging 10.0.0.2 with 32 bytes of data:
Reply from 10.0.0.2: bytes=32 time=8ms TTL=126
Reply from 10.0.0.2: bytes=32 time=3ms TTL=126
Reply from 10.0.0.2: bytes=32 time=5ms TTL=126
Reply from 10.0.0.2: bytes=32 time=3ms TTL=126
Ping statistics for 10.0.0.2:
Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
Minimum = 3ms, Maximum = 8ms, Average = 4ms
PC>ping 30.0.0.2
Pinging 30.0.0.2 with 32 bytes of data:
Reply from 30.0.0.2: bytes=32 time=5ms TTL=126
Reply from 30.0.0.2: bytes=32 time=4ms TTL=126
Reply from 30.0.0.2: bytes=32 time=6ms TTL=126
Reply from 30.0.0.2: bytes=32 time=4ms TTL=126
Ping statistics for 30.0.0.2:
Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
Minimum = 4ms, Maximum = 6ms, Average = 4ms
PC>


PC4
Physical
Config
Desktop
Custom Interface
Command Prompt
Packet Tracer PC Command Line 1.0
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=4ms TTL=126
Reply from 20.0.0.3: bytes=32 time=6ms TTL=126
Reply from 20.0.0.3: bytes=32 time=1ms TTL=126
Ping statistics for 20.0.0.3:
Packets: Sent = 4, Received = 3, Lost = 1 (25% loss),
Approximate round trip times in milli-seconds:
Minimum = 1ms, Maximum = 6ms, Average = 3ms
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=7ms TTL=125
Reply from 10.0.0.3: bytes=32 time=10ms TTL=125
Reply from 10.0.0.3: bytes=32 time=8ms TTL=125
Reply from 10.0.0.3: bytes=32 time=6ms TTL=125
Ping statistics for 10.0.0.3:
Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
Minimum = 6ms, Maximum = 10ms, Average = 7ms
PC>