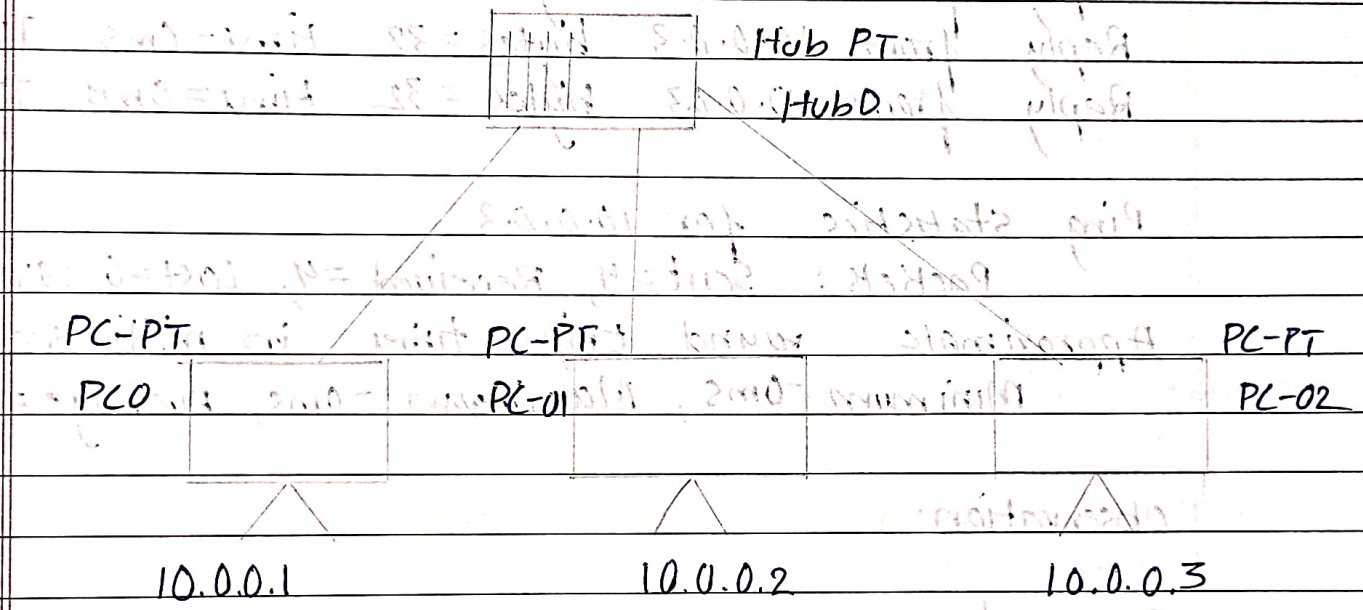
Experiment - 1

Aim: Create a topology and simulate sending a simple PDU from source to destination using hub and switch as connecting devices and demonstrate ping message.

Topology:



Procedure:

→ Select three PC-PT generic devices from the end device Box
→ Give IP address to all the devices as 10.0.01, 10.0.02 and 10.0.0.3 to the PC-0, PC-01 and PC-02 respectively
→ connect all the three to the hub using straight copper wire.
→ Start the simulation by selecting the sender PC to the receiver PC.

Result:

Packet Tracer - PC command Line 1.0
PC> ping 10.0.0.3

Pinging 10.0.0.3 with 32 bytes of data:

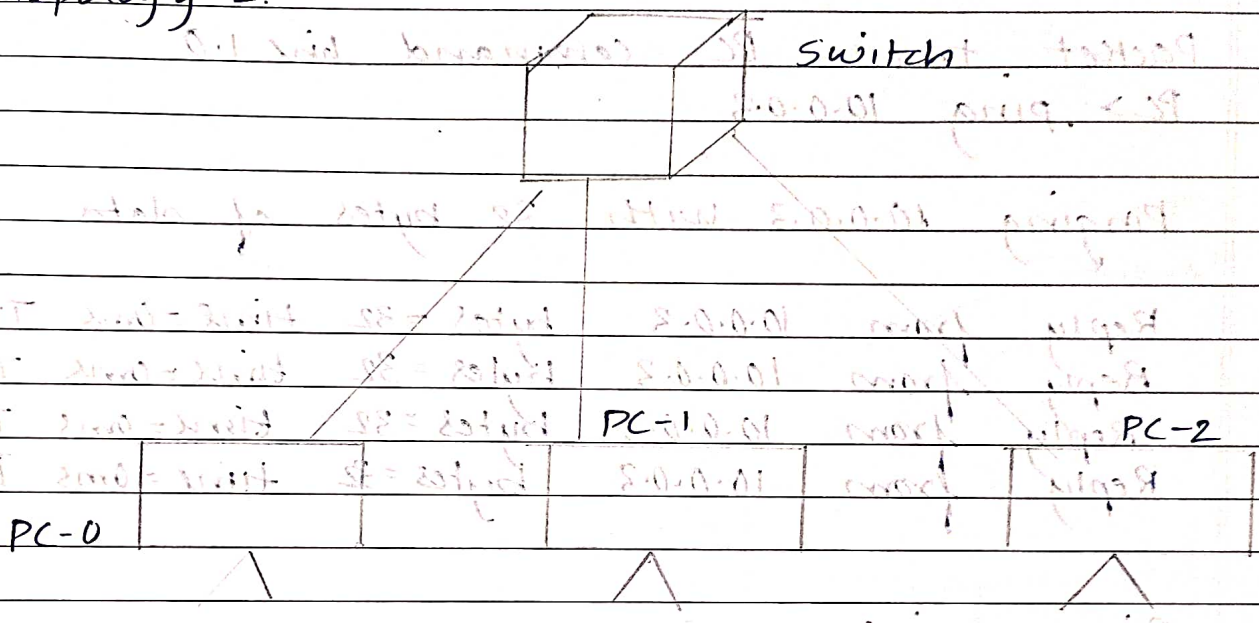
Reply from 10.0.0.3 bytes=32 time=0ms TTL=128
Reply from 10.0.0.3 bytes=32 time=0ms TTL=128
Reply from 10.0.0.3 bytes=32 time=0ms TTL=128
Reply from 10.0.0.3 bytes=32 time=0ms TTL=128

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

Observation:

Packet travelled from PC to hub and acknowlegment received by both PC's. Packet travelled from receiver to sender PC via hub.

Topology 2:



Procedure:

- Select the three PC-PT generic devices from the end device Box
- Give IP address to all the three PC's as 10.0.0.1, 10.0.0.2 and 10.0.0.3 respectively.
- Connect all three PC's using the copper straight wire to the switch for the communication
- Start the simulation by selecting the sender PC to receiver PC. (PDU packets)

Result:

Packet tracer PC command line 1.0
PC> ping 10.0.0.3

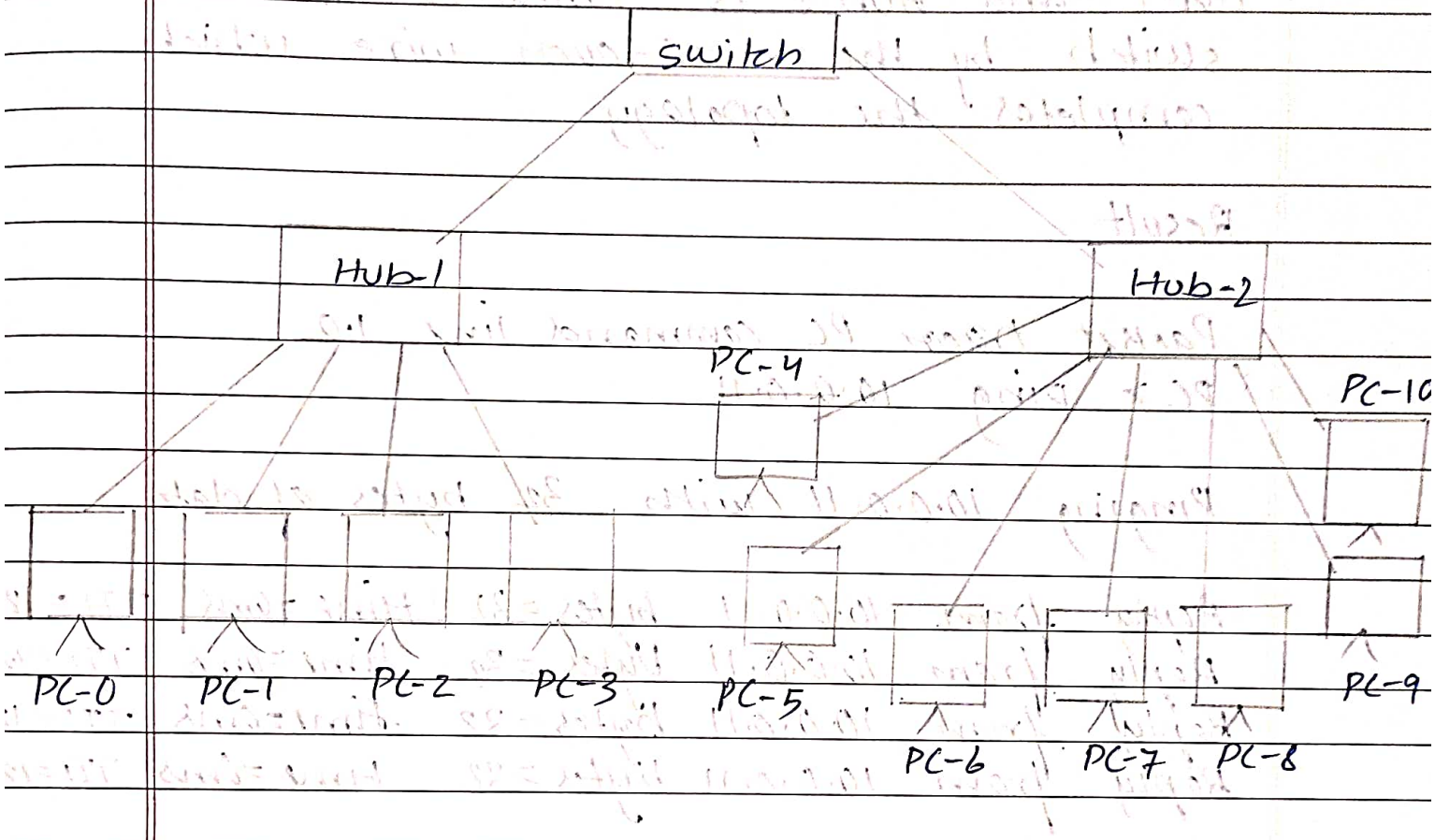
Pinging 10.0.0.3 with 32 bytes of data

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 for 10.0.0.3
Packets: sent = 4, received = 4, loss = 0 (0% loss)
Approximate round trip time in milli-seconds
Minimum = 0ms, Maximum = 0ms, Average = 0ms

Observations:

Packet travelled from source to destination without being broadcast to all the end devices.



Procedure

- Connect the PC's (PC-0, PC-1, PC-2, PC-3) to the Hub having the respective ports 1, 2 3 and 4
- All the devices are connected through a straight copper wire to Hub-01.
- Connect the PC's (PC-4, PC-5, PC-6, PC-7, PC-8, PC-9, PC-10) to the Hub-2 using a copper straight wire with the respective ports.

∴ Hub 1 and Hub 2 is connected to the switch by the cross-over wire which completes the topology.

Result

Packet tracer PC command line 1.0
PC > ping 10.0.0.11

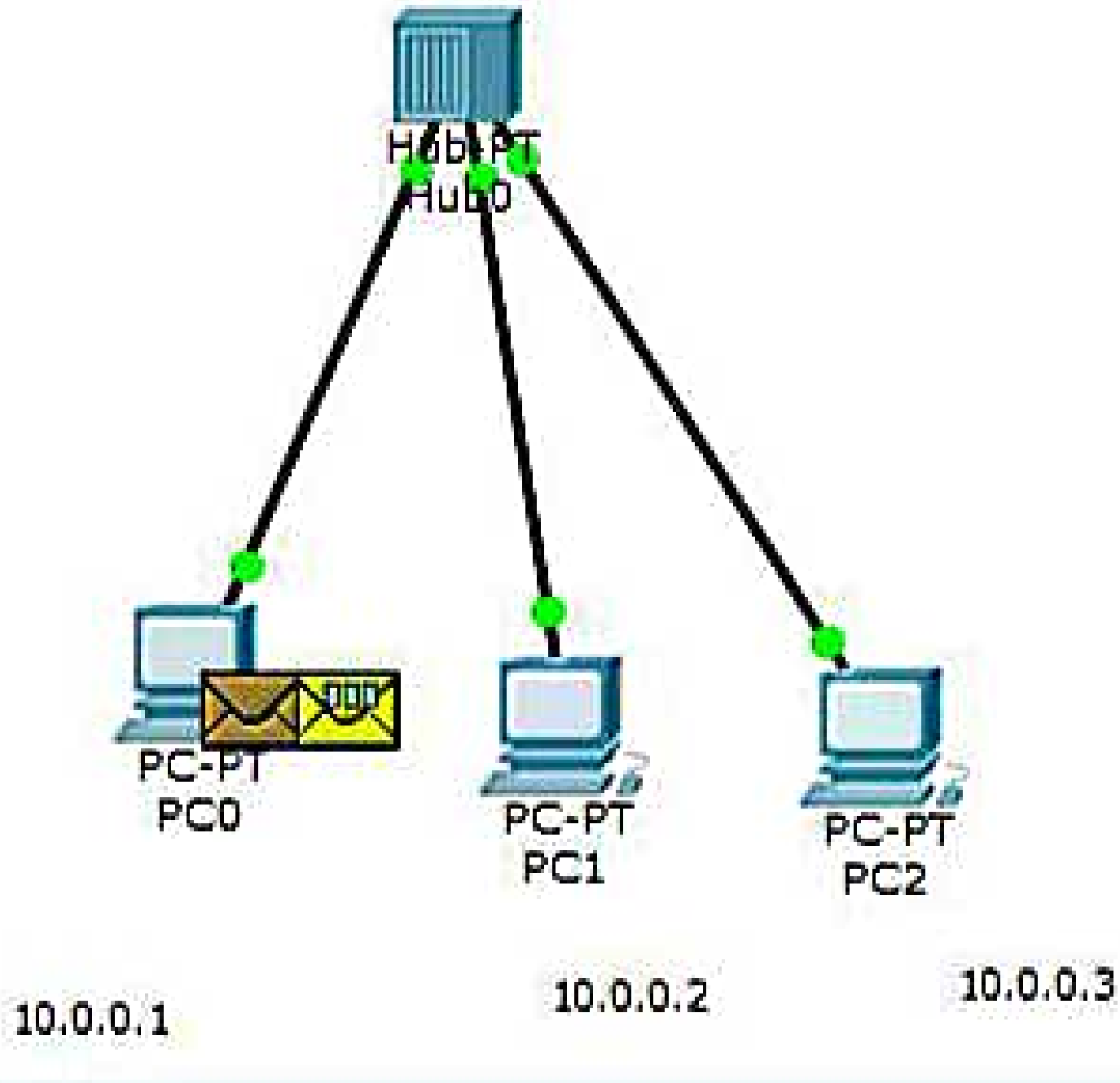
Pinging 10.0.0.11 with 32 bytes of data

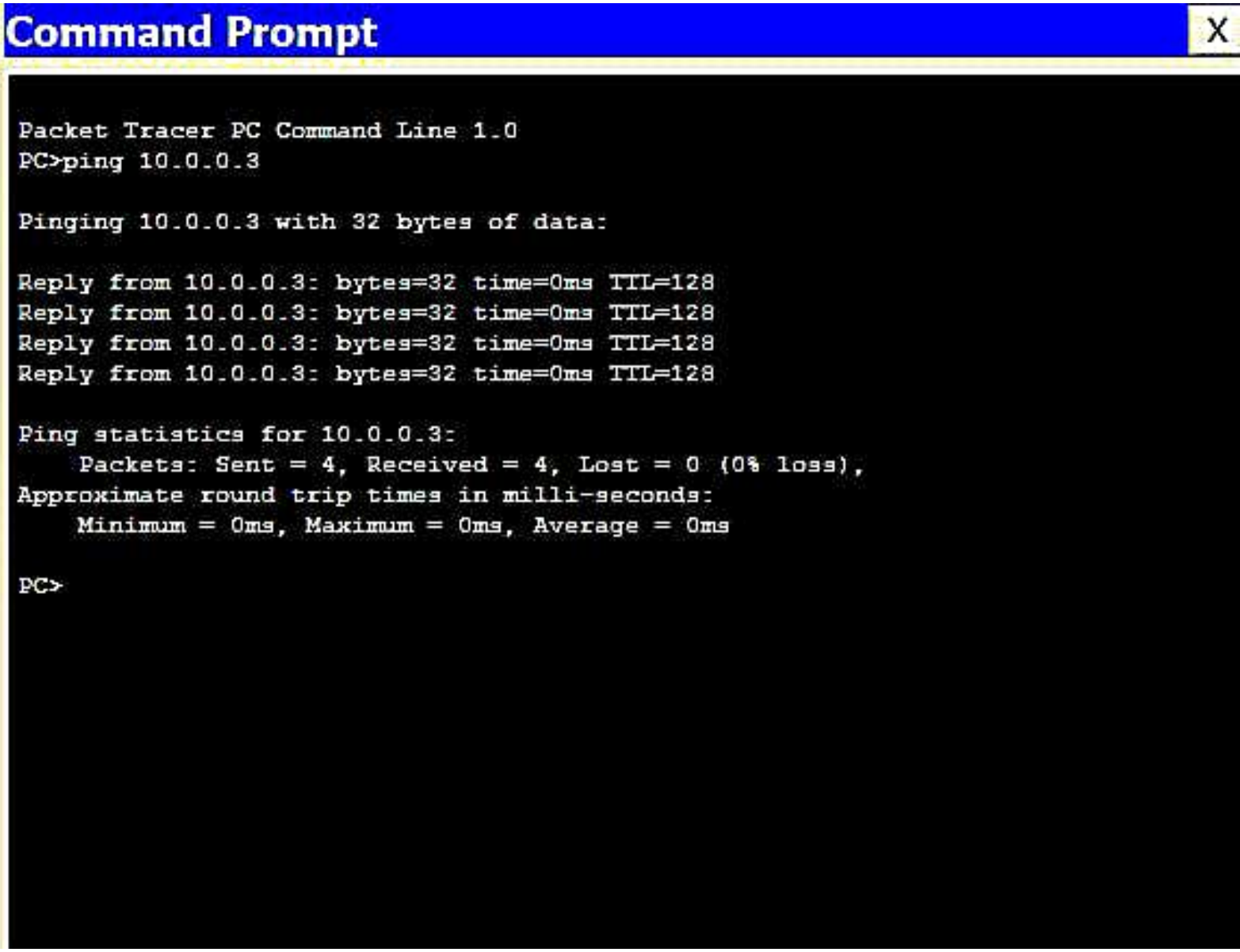
Reply from 10.0.0.11 bytes=32 time=0ms TTL=128
Reply from 10.0.0.11 bytes=32 time=0ms TTL=128
Reply from 10.0.0.11 bytes=32 time=0ms TTL=128
Reply from 10.0.0.11 bytes=32 time=0ms TTL=128

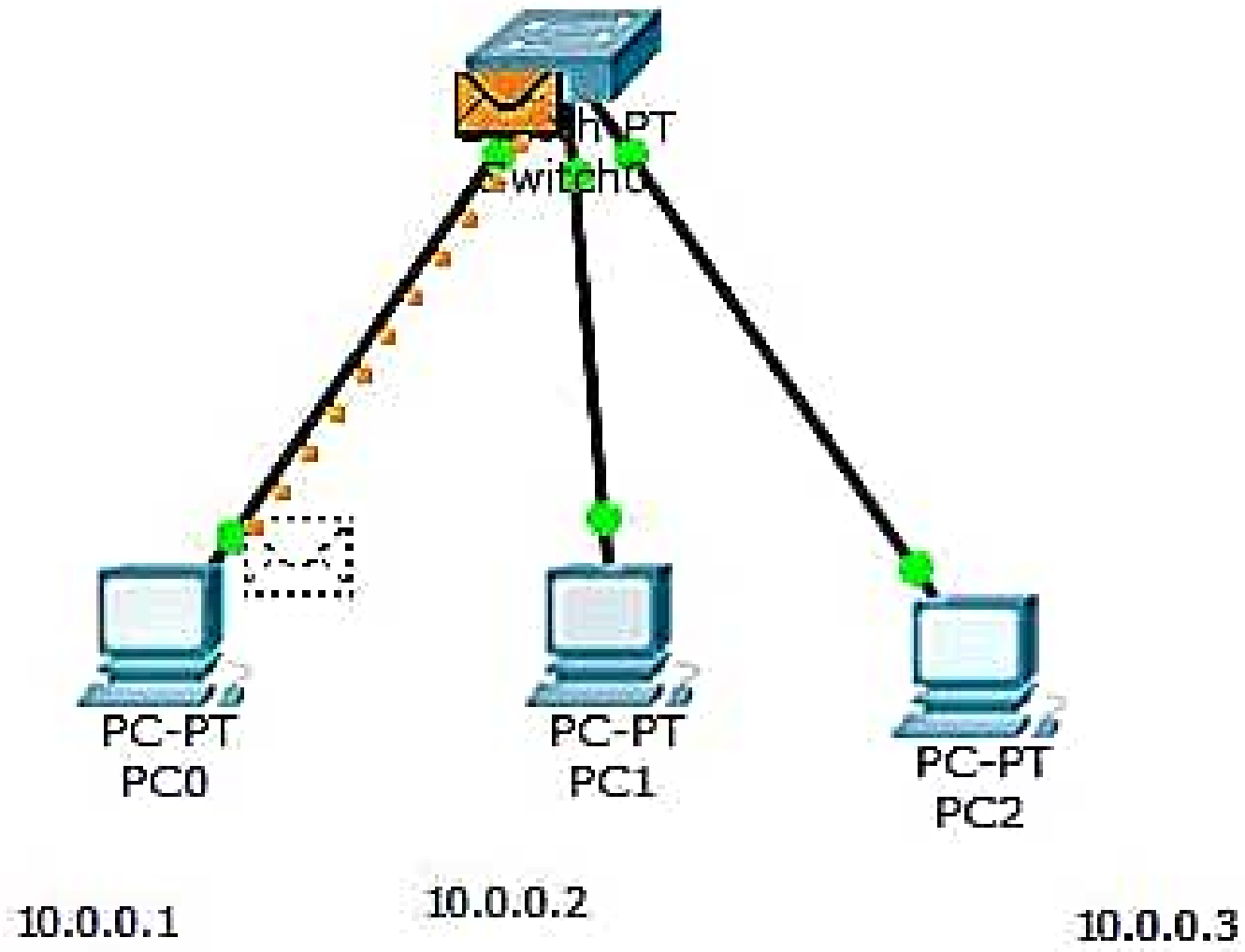
Ping statistics for 10.0.0.11
Packets: Sent=4, Received=4, Lost=0
Approximate round trip times in milli-seconds
Minimum=0ms, Maximum=0ms, Average=1ms

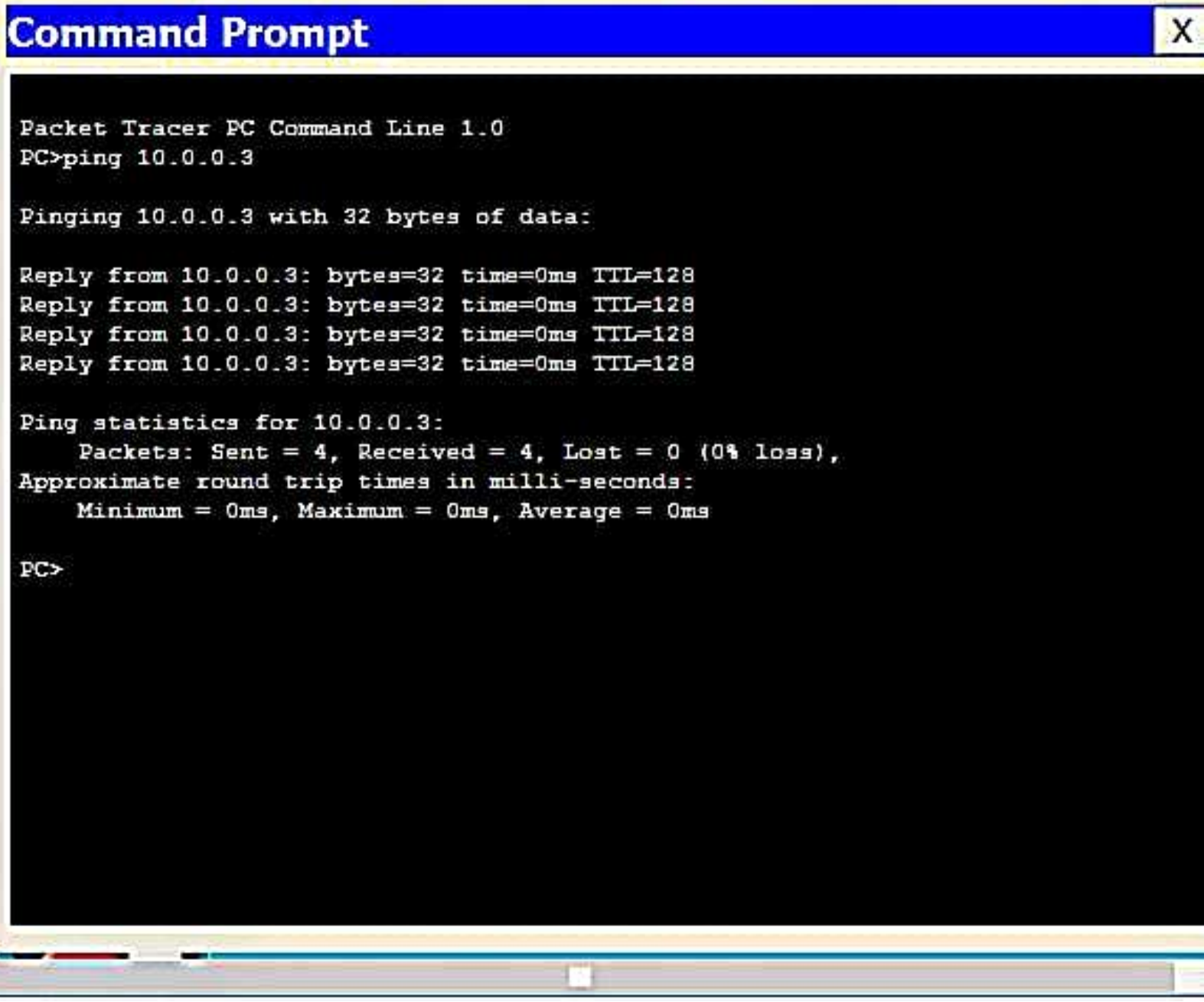
Observations

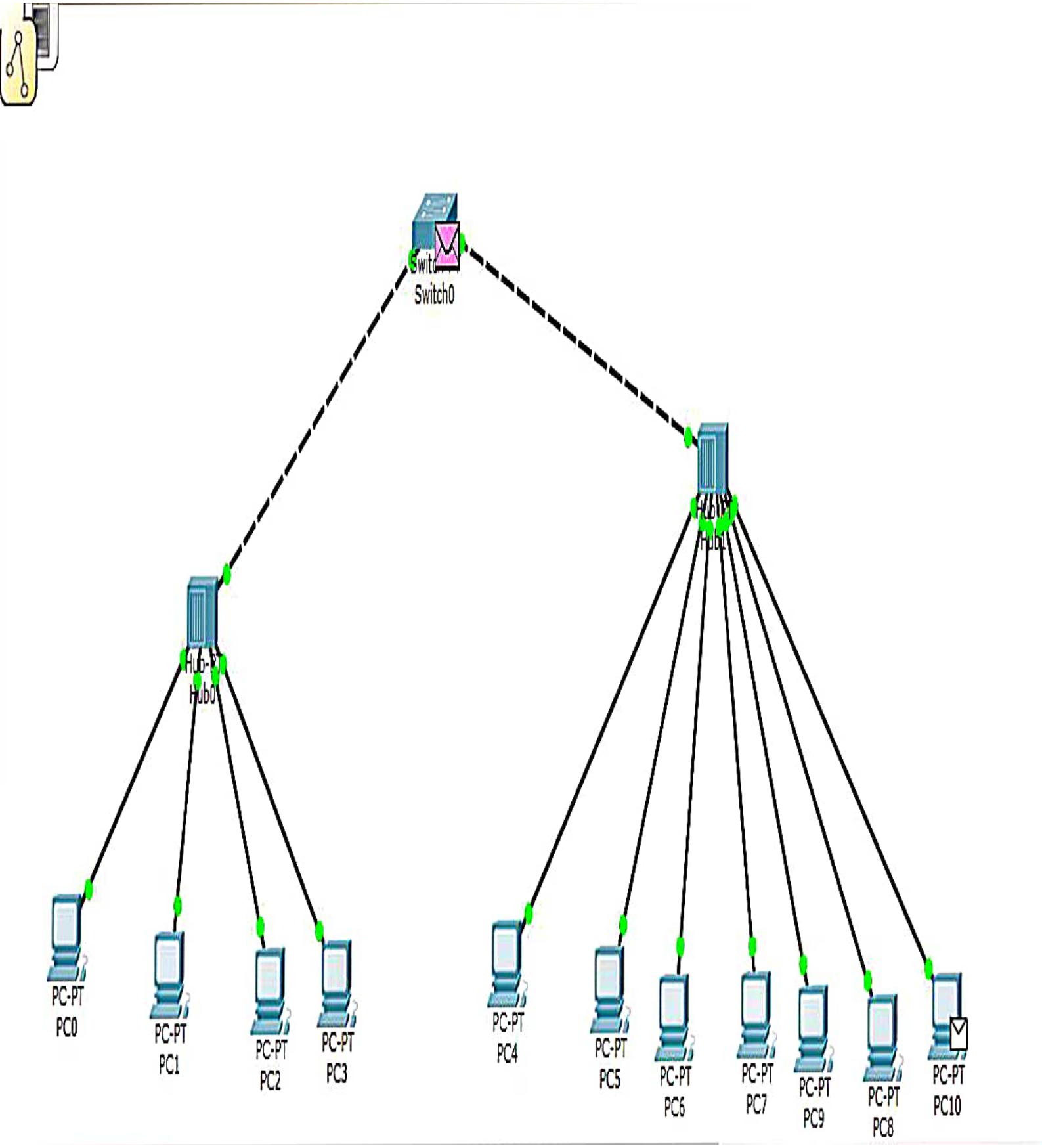
Packets travelled from receiver to the destination by the hub in both the hubs and in it in turns travels to switch and broadcast to all other devices


Hub-PT
Hub0
PC-PT
PC0
PC-PT
PC1
PC-PT
PC2
10.0.0.1
10.0.0.2
10.0.0.3


Command Prompt
X
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 for 10.0.0.3:
Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
Minimum = 0ms, Maximum = 0ms, Average = 0ms
PC>


PC-PT
PC0
PC-PT
PC1
PC-PT
PC2
10.0.0.1
10.0.0.2
10.0.0.3


Command Prompt
X
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 for 10.0.0.3:
Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
Minimum = 0ms, Maximum = 0ms, Average = 0ms
PC>


Switch0
Hub0
PC-PT
PC0
PC-PT
PC1
PC-PT
PC2
PC-PT
PC3
PC-PT
PC4
PC-PT
PC5
PC-PT
PC6
PC-PT
PC7
PC-PT
PC9
PC-PT
PC8
PC-PT
PC10