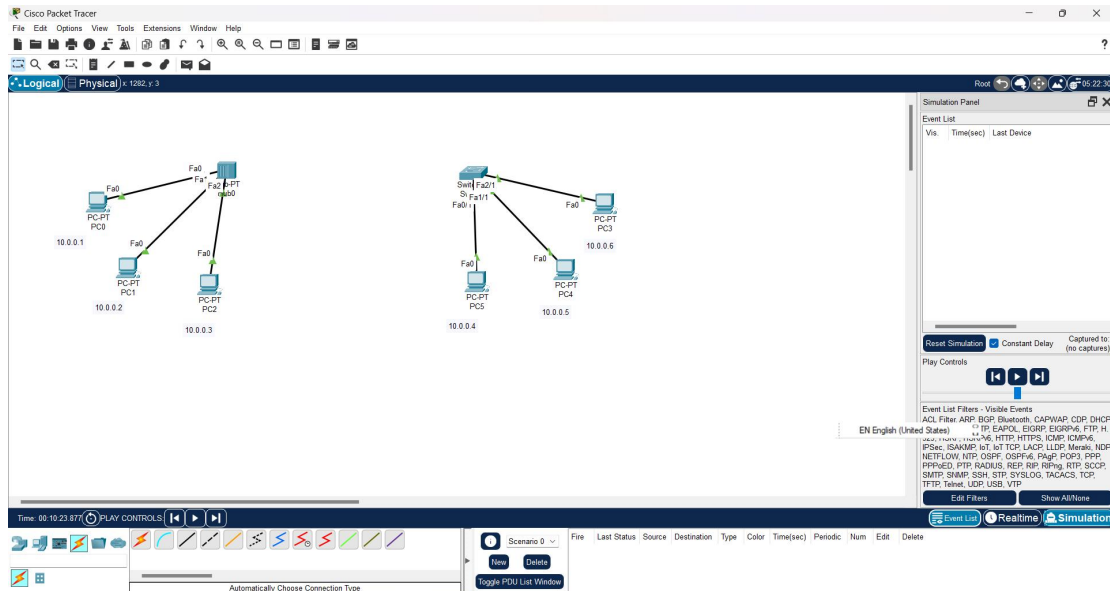


Aim-1

1. 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 for Hub:

15/06/23 Aim-1

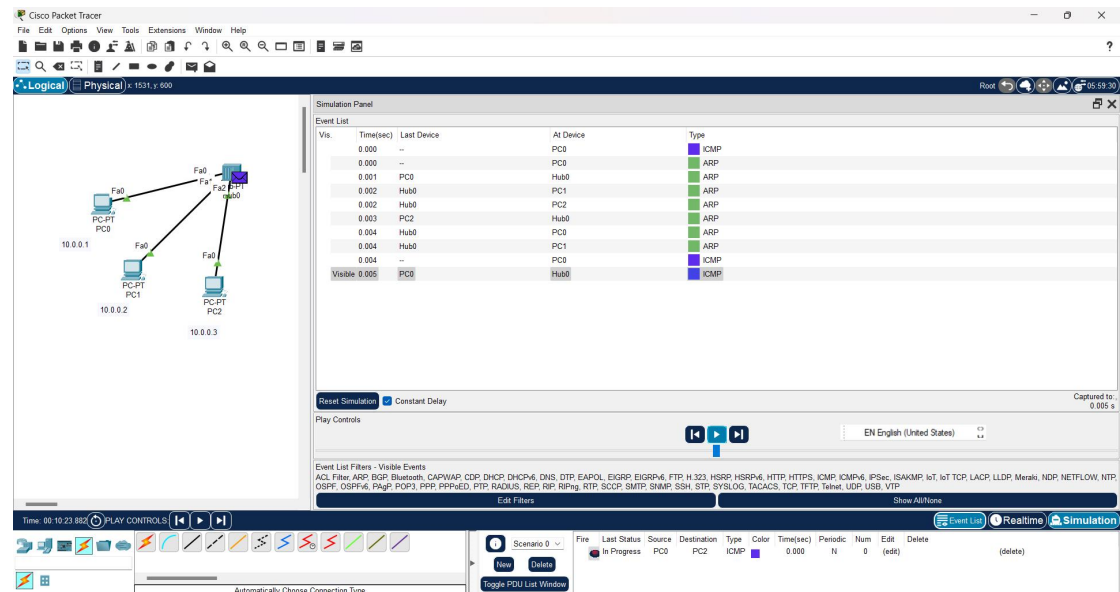
Create a topology & simulate sending a simple PDU from source to destination using a simple hub & switch using a simple domain connection.

Topology: PC's - Hub.
Hub-PT

Procedure

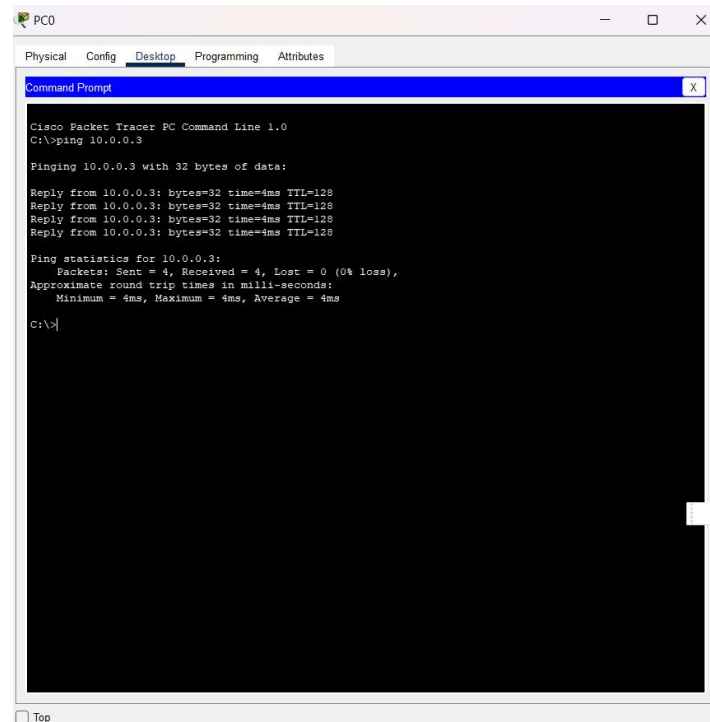
- => place a hub. (Hub-PT)
- => place three PC's PC0, PC1, & PC2
- => place three PC's PC0, PC1, & PC2
- => Configure the IP addresses of PC's PC0 (10.0.0.1), PC1 (10.0.0.2) & PC2 (10.0.0.3)
- => then send simple PDU from source end device to destination end device.

Simulation:



Sending PDU from source device (pc0) to destination device (pc2).

Ping Response:



Ping response from pc0 to pc2.

Procedure for Switch:

Output

=> Hub broadcasts the PDU among the PCs.

=> Ping to 10.0.0.11.

Topology: PC - Switch

Procedure

=> Place a Switch (Cisco, Switch-PT)

=> Place three PCs PC3, PC4, PC5.

=> Configure the PCs with IP addresses.

PC3 (10.0.0.4), PC4 (10.0.0.5), PC5 (10.0.0.6)

=> Then send the PDU to destination PC (PC5) from source PC (PC3)

Output

Simulation:

Simulation Panel

Event List

Vis	Time(sec)	Last Device	At Device	Type
	0.000	PC5	PC5	ICMP
	0.000	PC5	Switch0	ARP
	0.001	PC5	Switch0	ARP
	0.002	Switch0	PC4	ARP
	0.002	Switch0	PC3	ARP
	0.003	PC3	Switch0	ARP
	0.004	Switch0	PC5	ARP
Visible	0.004	Switch0	PC5	ICMP

Reset Simulation Constant Delay Captured to: 0.004 s

Play Controls

Event List Filters - Visible Events

ACL Filter, ARP, BGP, Bluetooth, CAPWAP, CDP, DHCP, DHCPv6, DNS, DTP, EAPOL, EIGRP, EIGRPv6, FTP, H.323, HSRP, HSRPv6, HTTP, HTTPS, ICMP, ICMPv6, IPsec, ISAKMP, IRI, IRI TOP, LACP, LLDP, Meraki, NDP, NETFLOW, NTP, OSPF, OSPFv6, PAgp, POP3, PPP, PPPoE, PTP, RADIUS, REP, RIP, RIPng, RTP, SCDP, SMTP, SNMP, SSH, SIP, SYSLOG, TACACS, TCP, TFTP, Telnet, UDP, USB, VTP

Edit Filters Show All/None

Time: 00:10:53.830 PLAY CONTROLS

Scenario 1

New Delete

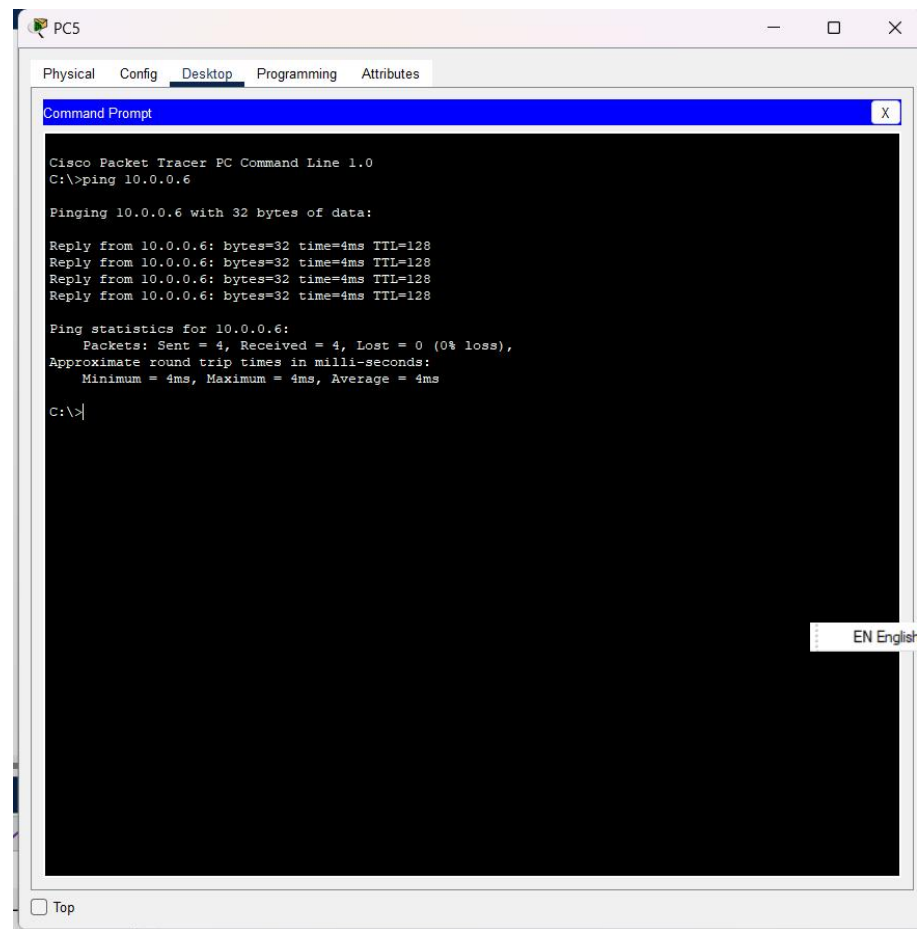
Toggle PDU List Window

Fire Last Status Source Destination Type Color Time(sec) Periodic Num Edit Delete

In Progress PC5 PC3 ICMP 0.000 N 0 (edit) (delete)

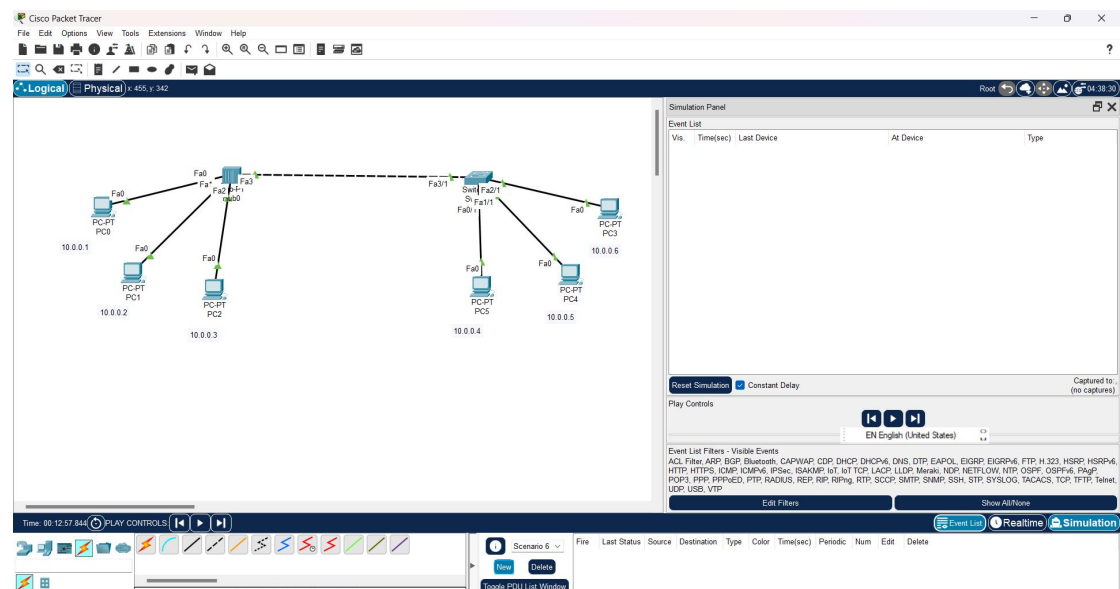
Sending PDU from source device (pc5) to destination device (pc3).

Ping Response:

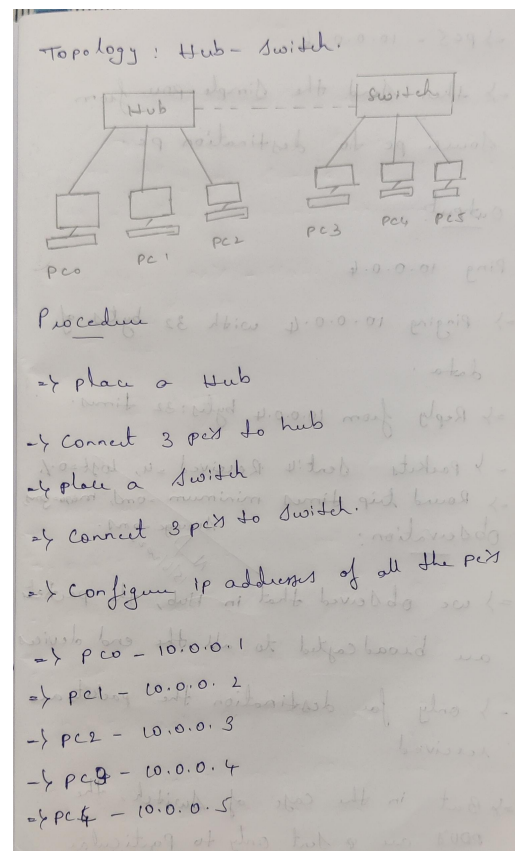


Ping response from pc5 to pc3.

Topology (Hub-Switch):



Procedure (Hub-Switch):



→ PC5 - 10.0.0.6.

→ then send the simple PDU from source PC to destination PC.

Output:

Ping 10.0.0.4

→ Pinging 10.0.0.4 with 32 bytes of data.

→ Reply from 10.0.0.4 bytes: 32 times.

- > Packets Sent: 4 Received: 4, lost=0%.

- > Round trip times minimum -ms, maximum -ms, Average -ms.

Observation:

→ we observed that in Hub, the packets are broadcasted to all the end devices.

- > only for destination the packets are received.

→ But in the case of Switch, the PDUs are sent only to particular destination.

Simulation:

The screenshot shows the Cisco Packet Tracer interface with a network topology and an event list. The network consists of two switches, S1 and S2, connected via their Fa3/24 interfaces. S1 has Fa0/24 connected to PC0 (10.0.0.1) and Fa0/23 connected to PC1 (10.0.0.2) and PC2 (10.0.0.3). S2 has Fa0/24 connected to PC3 (10.0.0.6) and Fa0/23 connected to PC4 (10.0.0.5) and PC5 (10.0.0.4). The event list on the right shows a sequence of events:

Vis.	Time(sec)	Last Device	At Device	Type
	0.000	--	PC0	ICMP
	0.000	--	PC0	ARP
	0.001	PC0	Hub0	ARP
	0.002	Hub0	PC1	ARP
	0.002	Hub0	PC2	ARP
	0.002	Hub0	Switch0	ARP
Visible	0.003	Switch0	PC5	ARP
Visible	0.003	Switch0	PC4	ARP
Visible	0.003	Switch0	PC3	ARP

The simulation is running at 00:12:57. The event list filters show visible events for ACL, Filter, ARP, BGP, Bluetooth, CAPWAP, CDP, DHCP, DHCPv6, DNS, DTP, EAPOL, EIGRP, EIGRPv6, FTP, H.323, HSRP, HSRPv6, HTTP, HTTPS, ICMP, ICMPv6, IPsec, ISAKMP, IoT, IoT TCP, LACP, LLDP, Meraki, NDP, NETFLOW, NTP, OSPF, OSPFv6, PAgP, POP3, PPP, PPPoE, PTP, RADIUS, RDP, RDPing, RTP, SDO, SMTP, SNMP, SSH, STP, SYSLOG, TACACS, TFTP, Telnet, UDP, USB, VTP.

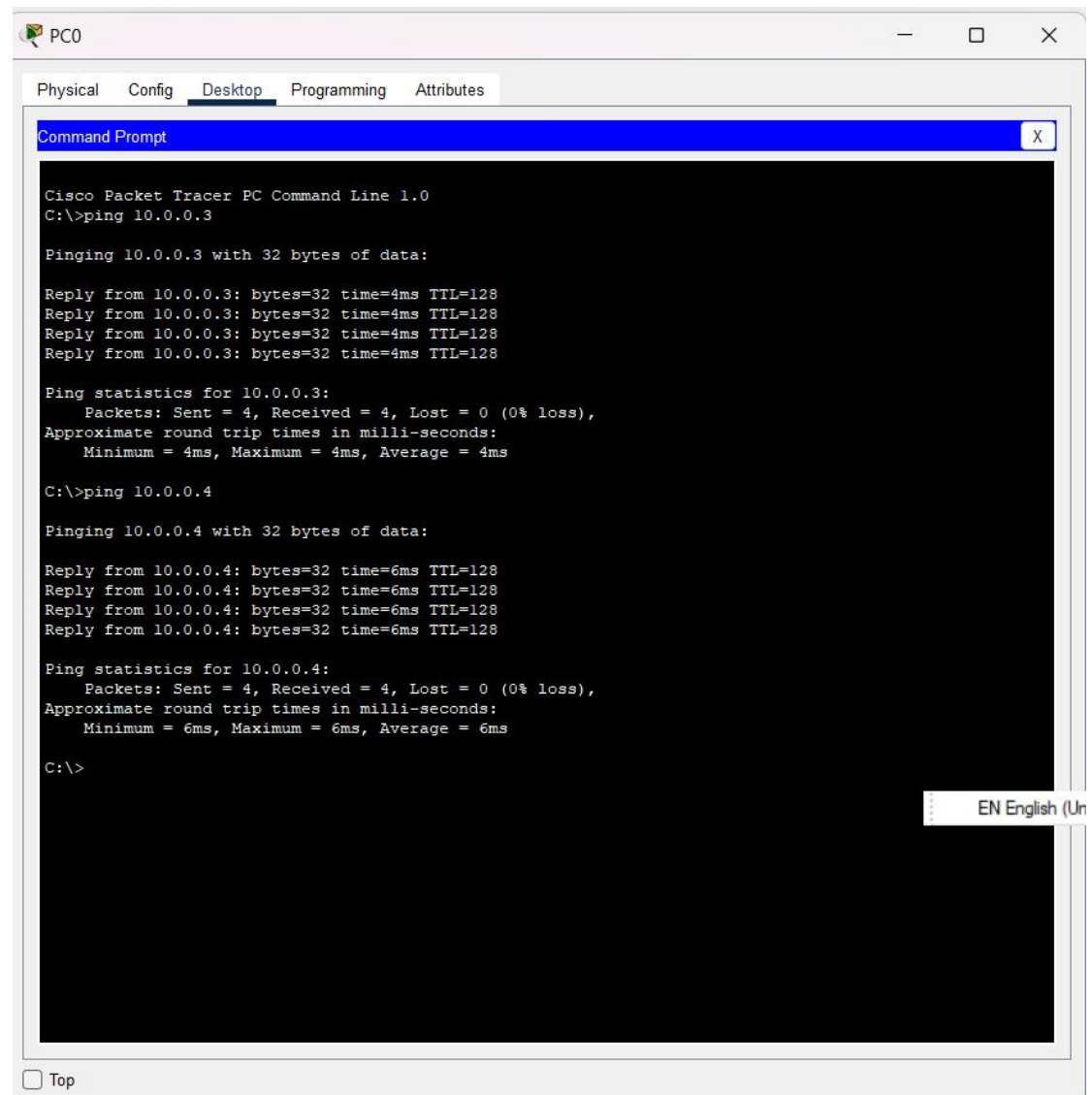
The screenshot shows the Cisco Packet Tracer interface with the same network topology as the previous image. The event list on the right shows a sequence of events:

Vis.	Time(sec)	Last Device	At Device	Type
	0.000	--	PC0	ICMP
	0.000	--	PC0	ARP
	0.001	PC0	Hub0	ARP
	0.002	Hub0	PC1	ARP
	0.002	Hub0	PC2	ARP
	0.002	Hub0	Switch0	ARP
	0.003	Switch0	PC5	ARP
	0.003	Switch0	PC4	ARP
	0.003	Switch0	PC3	ARP
	0.004	Switch0	PC4	ARP
	0.005	Switch0	Hub0	ARP
Visible	0.006	Hub0	PC1	ARP
Visible	0.006	Hub0	PC2	ARP
Visible	0.006	--	PC0	ICMP

The simulation is running at 00:12:57.800. The event list filters show visible events for ACL, Filter, ARP, BGP, Bluetooth, CAPWAP, CDP, DHCP, DHCPv6, DNS, DTP, EAPOL, EIGRP, EIGRPv6, FTP, H.323, HSRP, HSRPv6, HTTP, HTTPS, ICMP, ICMPv6, IPsec, ISAKMP, IoT, IoT TCP, LACP, LLDP, Meraki, NDP, NETFLOW, NTP, OSPF, OSPFv6, PAgP, POP3, PPP, PPPoE, PTP, RADIUS, RDP, RDPing, RTP, SDO, SMTP, SNMP, SSH, STP, SYSLOG, TACACS, TFTP, Telnet, UDP, USB, VTP.

Sending PDU from source device (pc0) to destination device (pc4).

Ping Response:



The screenshot shows a Cisco Packet Tracer PC Command Prompt window for PC0. The window has tabs for Physical, Config, Desktop, Programming, and Attributes. The Desktop tab is active, showing a Command Prompt window. The Command Prompt displays the output of two ping commands: ping 10.0.0.3 and ping 10.0.0.4. Both commands show successful results with 0% loss and a 4ms/6ms average round trip time.

```
Cisco Packet Tracer PC Command Line 1.0
C:\>ping 10.0.0.3

Pinging 10.0.0.3 with 32 bytes of data:

Reply from 10.0.0.3: bytes=32 time=4ms TTL=128
Reply from 10.0.0.3: bytes=32 time=4ms TTL=128
Reply from 10.0.0.3: bytes=32 time=4ms TTL=128
Reply from 10.0.0.3: bytes=32 time=4ms 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 = 4ms, Maximum = 4ms, Average = 4ms

C:\>ping 10.0.0.4

Pinging 10.0.0.4 with 32 bytes of data:

Reply from 10.0.0.4: bytes=32 time=6ms TTL=128
Reply from 10.0.0.4: bytes=32 time=6ms TTL=128
Reply from 10.0.0.4: bytes=32 time=6ms TTL=128
Reply from 10.0.0.4: bytes=32 time=6ms TTL=128

Ping statistics for 10.0.0.4:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 6ms, Maximum = 6ms, Average = 6ms

C:\>
```

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☐ Top

Ping response from pc0 to pc5.