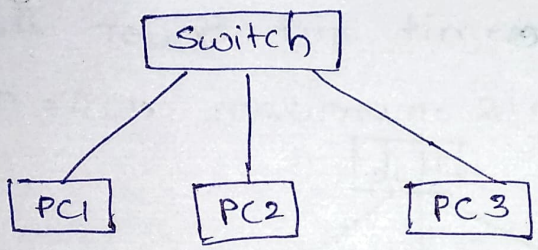
Experiment 1

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

Switch:

Aim: to create a topology and send simulate sending simple PDU from source to destination using switch as connecting device.

Topology:



Procedure:

Take 3 generic PC's connect them to switch. Set IP addresses of the PCs. When the switch is ready for communication, simulate sending a PDU from one PC to other.

In real time, Ping a PC by command prompt of sender PC

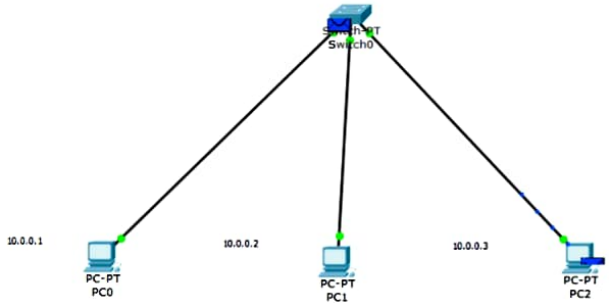
Result: PC > PING 10.0.0.2

```
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 statics for 10.0.0.2: Packets: sent=4, receiver=4, lost=0 (0% loss), approximate round trip times in ms: minimum=0ms, max=0ms, avg=0ms
```

Cisco Packet Tracer Student

File Edit Options View Tools Extensions Help

Logical [Root] New Cluster Move Object Set Tiled Background Viewport



Simulation Panel

Event List

Vis.	Time(sec)	Last Devi	At Devi	Type	Info
	0.002	Switch0	PC0	ARP	
	0.002	Switch0	PC2	ARP	
	0.003	PC2	Switch0	ARP	
	0.004	Switch0	PC1	ARP	
	0.004	--	PC1	ICMP	
	0.005	PC1	Switch0	ICMP	
	0.006	Switch0	PC2	ICMP	

Reset Simulation Constant Delay Captured to: 0.006 s

Play Controls

Back Auto Capture / Play Capture / Forward

Event List Filters - Visible Events

ACL Filter, ARP, BGP, CDP, DHCP, DHCPv6, DNS, DTP, EIGRP, EIGRPv6, FTP, H.323, HSRP, HSRPv6, HTTP, HTTPS, ICMP, ICMPv6, IPSec, ISAKMP, LACP, NDP, NETFLOW, NTP, OSPF, OSPFv6, PAgP, POP3, RADIUS, RIP, RIPng, RTP, SCCP, SMTP, SNMP, SSH, STP, SYSLOG, TACACS, TCP, TFTP, Telnet, UDP, VTP

Edit Filters Show All/None

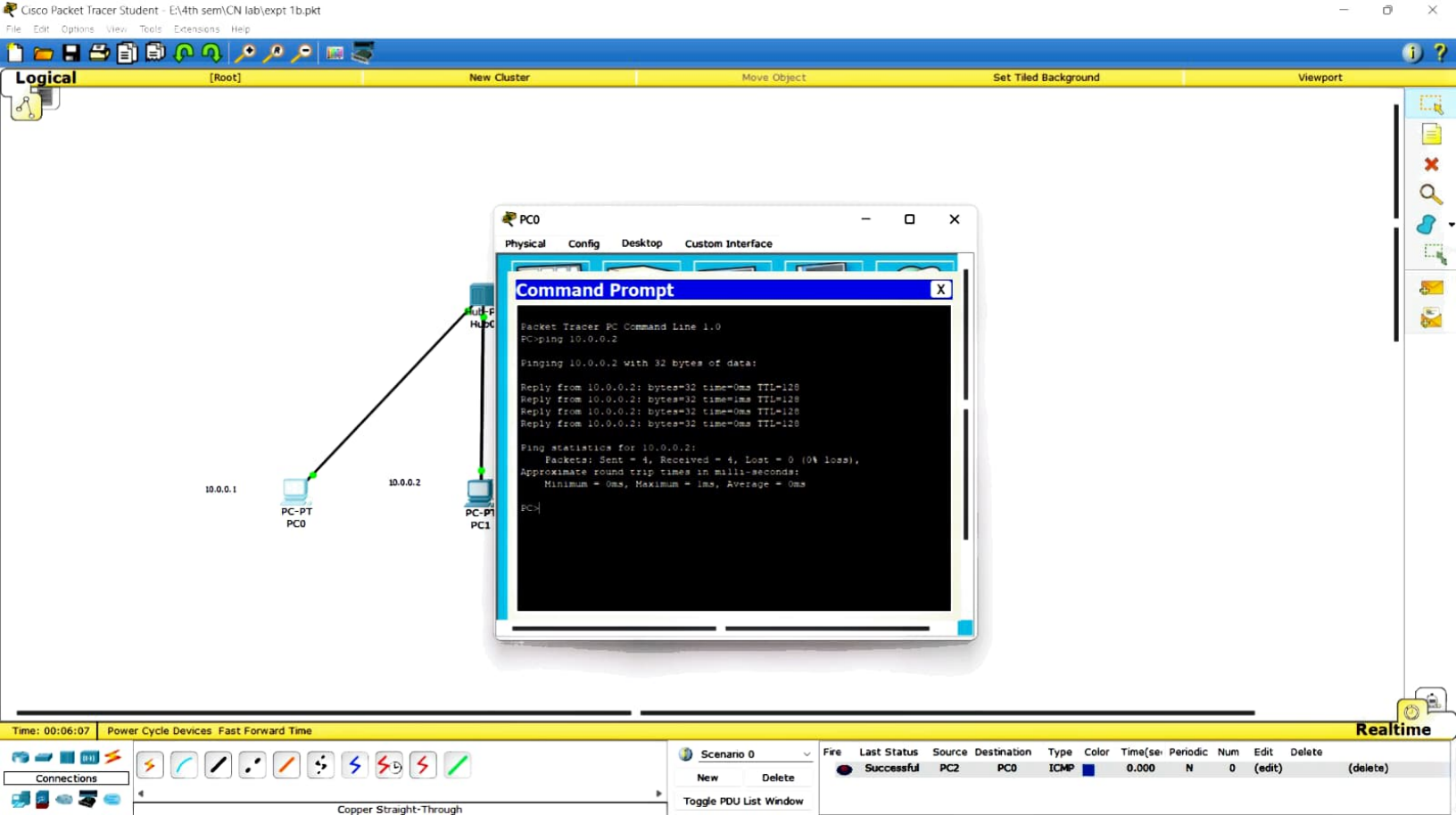
Time: 00:06:44.043 Power Cycle Devices PLAY CONTROLS: Back Auto Capture / Play Capture / Forward Event List Simulation

Connections

Copper Straight-Through

Scenario 0 New Delete Toggle PDU List Window

Fire	Last Status	Source	Destination	Type	Color	Time(se	Periodic	Num	Edit	Delete
	In Progress	PC1	PC2	ICMP		0.000	N	0	(edit)	(delete)


Cisco Packet Tracer Student - E:\4th sem\CN lab\expt 1b.pkt
File Edit Options View Tools Extensions Help
Logical
[Root]
New Cluster
Move Object
Set Tiled Background
Viewport
PC0
Physical
Config
Desktop
Custom Interface
Command Prompt
X
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=0ms TTL=128
Reply from 10.0.0.2: bytes=32 time=1ms 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 = 1ms, Average = 0ms
PC>
10.0.0.1
10.0.0.2
PC-PT
PC0
PC-PT
PC1
Time: 00:06:07
Power Cycle Devices Fast Forward Time
Realtime
Connections
Copper Straight-Through
Scenario 0
New
Delete
Toggle PDU List Window
Fire
Last Status
Source
Destination
Type
Color
Time(se
Periodic
Num
Edit
Delete
Successful
PC2
PC0
ICMP
0.000
N
0
(edit)
(delete)

observation:

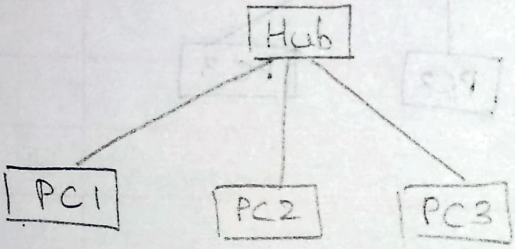
the PDU is sent to switch, it is broadcasted to all PCs. and then the PCs which are not destination PCs, rejects PDU. Acknowledgement is sent to switch by the destination PC.

Then the PDU is sent to switch, switch broadcasts PDU to destination PC only.

Hub:

Aim: To create a topology and simulate sending simple PDU from source to destination using Hub as connection device.

Topology:



Procedure: 3 generic PCs are taken. IP address of PCs are set. PCs are connected to the Hub.

Simulation of sending a PDU to one PC to other is done.

In real time, Ping message is sent from one PC to other.

Result:

Package 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 = 21 ms TTL = 128

Reply from 10.0.0.2: bytes = 32 time = 7 ms TTL = 128

Reply from 10.0.0.2: bytes = 32 time = 0 ms TTL = 128

Reply from 10.0.0.2: bytes = 32 time = 0 ms TTL = 128

Ping statics for 10.0.0.2:

Packets: sent = 4, received = 4, lost = 0 (0% loss),

Approximate round trip times in milli-seconds:

minimum = 0 ms, maximum = 21 ms, Average = 7 ms

Observation:

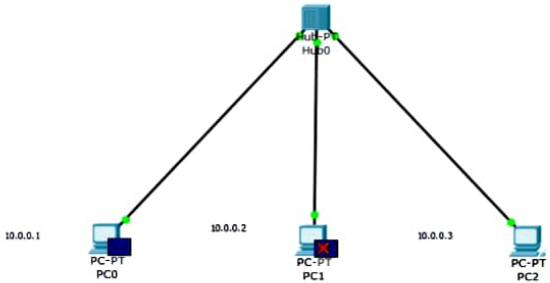
PDU is sent from source to hub. It is broadcasted to every other PC. The destination PC receives PDU. other PCs reject. Acknowledgement is sent from destination PC.

Ping message is sent from source to destination.

Cisco Packet Tracer Student - E:\4th sem\CN lab\expt 1b.pkt

File Edit Options View Tools Extensions Help

Logical [Root] New Cluster Move Object Set Tiled Background Viewport



Simulation Panel

Event List

Vis.	Time(sec)	Last Devi	At Devic	Type	Info
	0.003	PC0	Hub0	ARP	
	0.004	Hub0	PC1	ARP	
	0.004	Hub0	PC2	ARP	
	0.004	--	PC2	ICMP	
	0.005	PC2	Hub0	ICMP	
	0.006	Hub0	PC0	ICMP	
	0.006	Hub0	PC1	ICMP	

Reset Simulation | Constant Delay | Captured to: 0.006 s

Play Controls

Back | Auto Capture / Play | Capture / Forward

Event List Filters - Visible Events

ACL Filter, ARP, BGP, CDP, DHCP, DHCPv6, DNS, DTP, EIGRP, EIGRPv6, FTP, H.323, HSRP, HSRPv6, HTTP, HTTPS, ICMP, ICMPv6, IPSec, ISAKMP, LACP, NDP, NETFLOW, NTP, OSPF, OSPFv6, PAgP, POP3, RADIUS, RIP, RIPng, RTP, SCCP, SMTP, SNMP, SSH, STP, SYSLOG, TACACS, TCP, TFTP, Telnet, UDP, VTP

Edit Filters | Show All/None

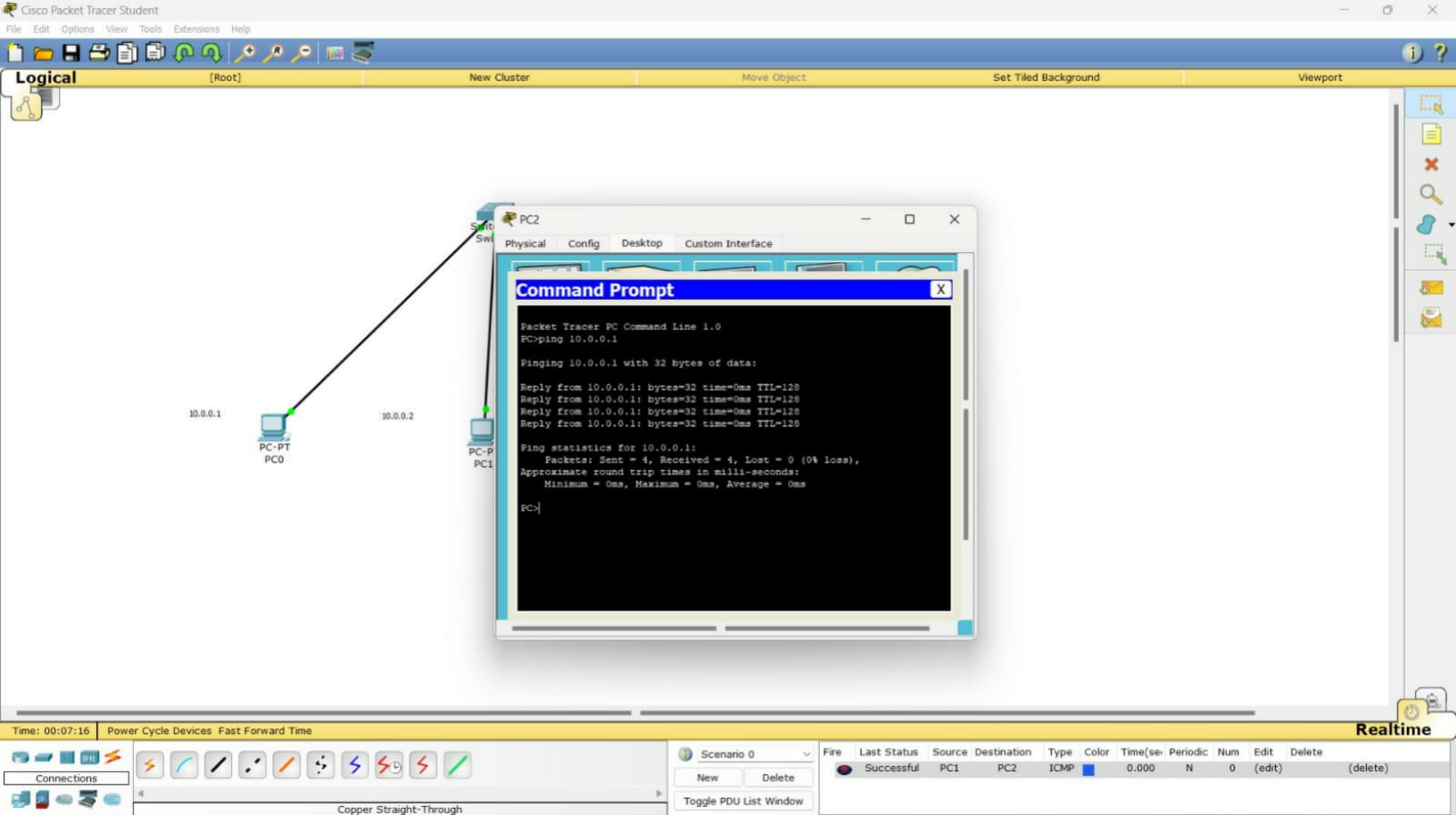
Time: 00:05:38.139 Power Cycle Devices PLAY CONTROLS: Back Auto Capture / Play Capture / Forward Event List Simulation

Connections

Copper Straight-Through

Scenario 0 New Delete Toggle PDU List Window

Fire	Last Status	Source	Destination	Type	Color	Time(se	Periodic	Num	Edit	Delete
	In Progress	PC2	PC0	ICMP		0.000	N	0	(edit)	(delete)


Cisco Packet Tracer Student
File Edit Options View Tools Extensions Help
Logical
[Root]
New Cluster
Move Object
Set Tiled Background
Viewport
PC2
Physical
Config
Desktop
Custom Interface
Command Prompt
X
Packet Tracer PC Command Line 1.0
PC>ping 10.0.0.1
Pinging 10.0.0.1 with 32 bytes of data:
Reply from 10.0.0.1: bytes=32 time=0ms TTL=128
Reply from 10.0.0.1: bytes=32 time=0ms TTL=128
Reply from 10.0.0.1: bytes=32 time=0ms TTL=128
Reply from 10.0.0.1: bytes=32 time=0ms TTL=128
Ping statistics for 10.0.0.1:
Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
Minimum = 0ms, Maximum = 0ms, Average = 0ms
PC>
10.0.0.1
10.0.0.2
PC-PT
PC0
PC-P
PC1
Time: 00:07:16
Power Cycle Devices Fast Forward Time
Realtime
Connections
Copper Straight-Through
Scenario 0
New
Delete
Toggle PDU List Window
Fire
Last Status
Source
Destination
Type
Color
Time(se
Periodic
Num
Edit
Delete
Successful
PC1
PC2
ICMP
0.000
N
0
(edit)
(delete)

Hub and switch:

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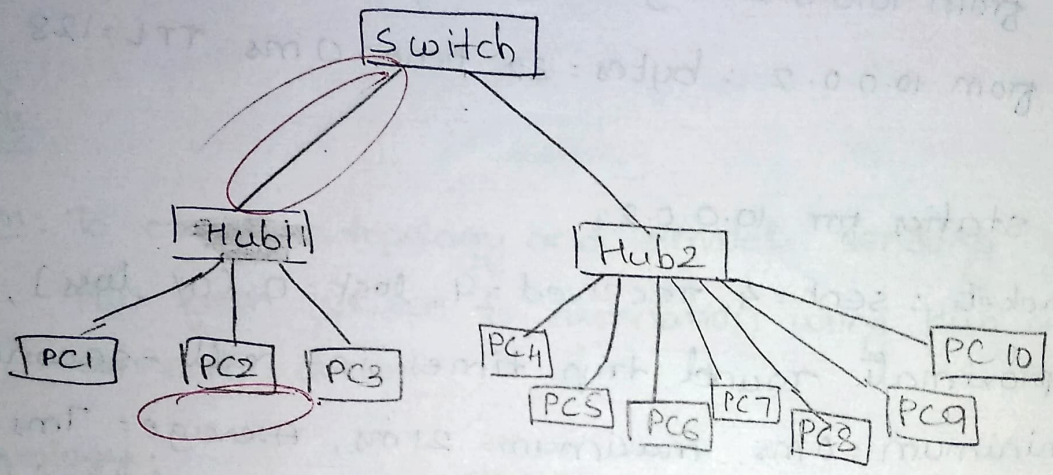
Aim: To create a topology and simulate sending PDU from source to destination using both hub and switch as connecting device.

Topology:



Procedure:

3 generic PCs are taken, IP addresses are set, and then connected to a hub.

1 generic PCs are taken, IP addresses are set, extra ports are added to hub if needed and the connections are made.

both hubs are then connected to a switch.

PDU is sent from one PC to other.

Ping manage is sent from one PC to other.

Result:

Pinging 10.0.0.7 with 32 bytes of data:

Reply from 10.0.0.7: bytes=32 time=0ms TTL=128

Reply from 10.0.0.7: bytes=32 time=0ms TTL=128

Reply from 10.0.0.7: bytes=32 time=0ms TTL=128

Reply from 10.0.0.7: bytes=32 time=0ms TTL=128

Ping statics for 10.0.0.7:

Packets: sent=4, received=4, lost=0 (0% loss),

Approximate round trip times in millie-seconds:

minimum=0 ms, maximum=0 ms, Average=0 ms

Observation:

PDU sent from one PC goes to the hub connected to it. Hub broadcasts it to every other PC it is connected to, and also to switch. Switch receives the PDU sends it to all hubs, the hub then broadcasts it to every PC it is connected to. The destination PC receives PDU and sends acknowledgement to hub that is sent to switch and sent back to source hub. All other PCs rejects the PDU.

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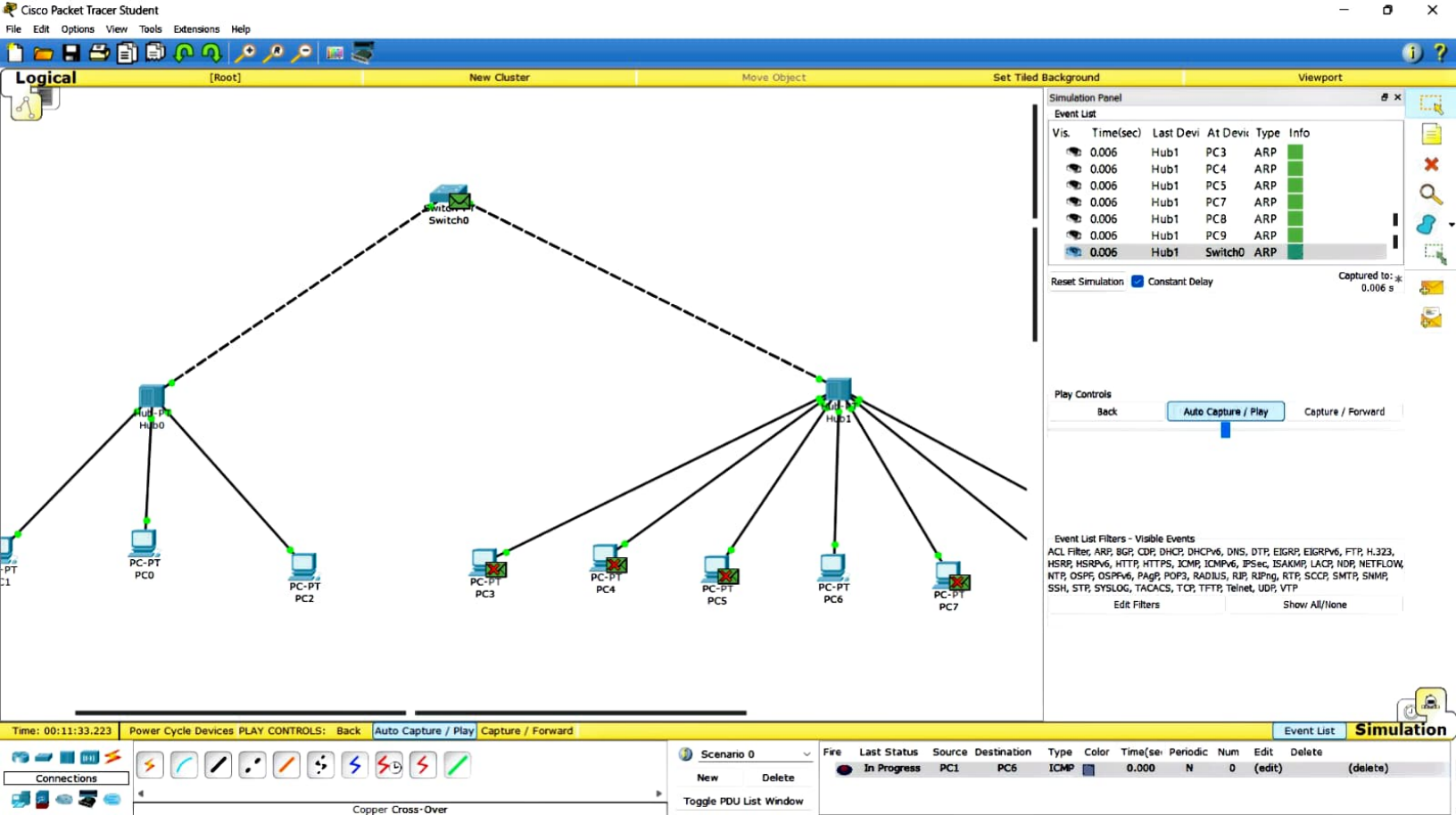
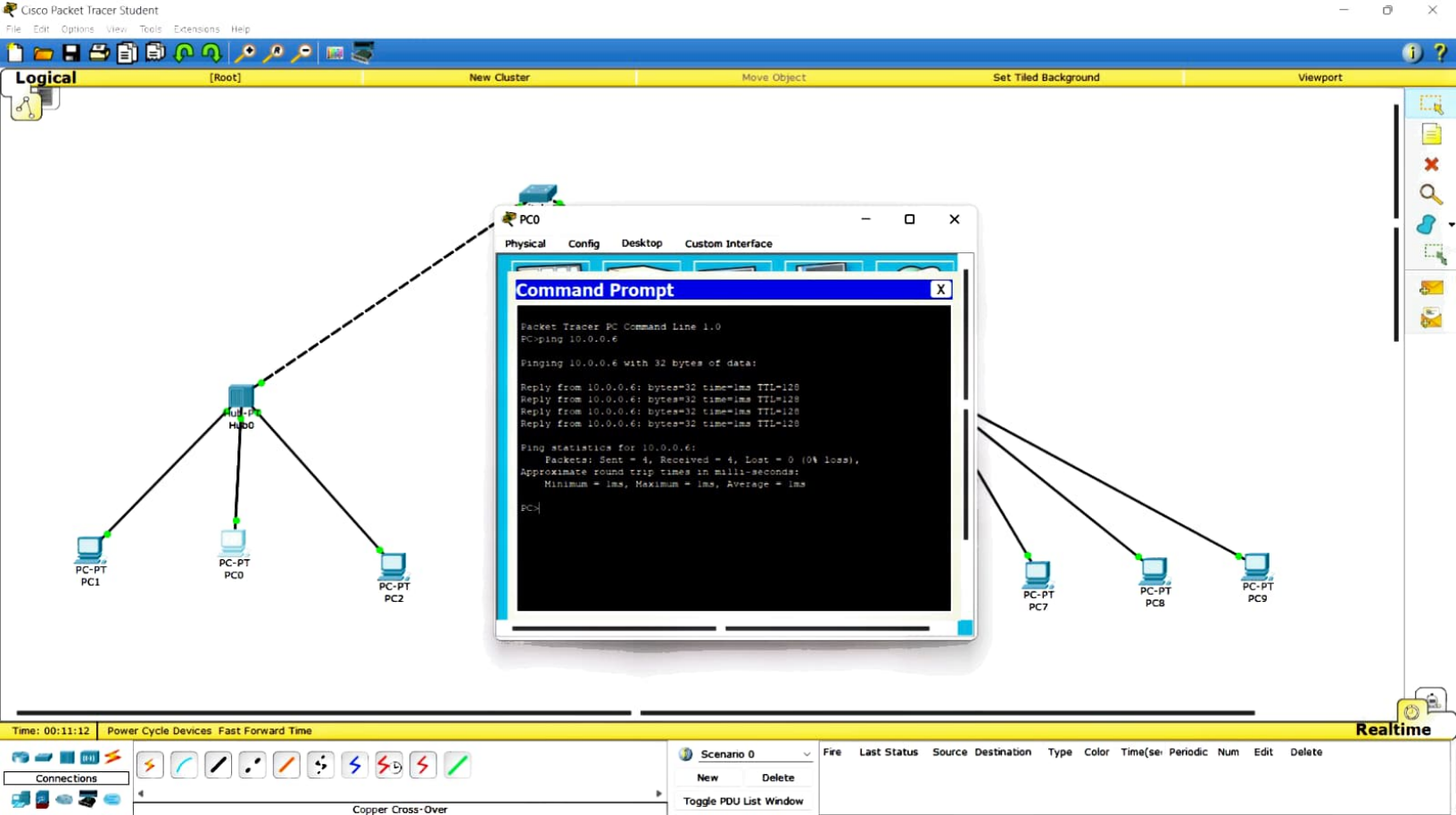

Cisco Packet Tracer Student
File Edit Options View Tools Extensions Help
Logical
[Root]
New Cluster
Move Object
Set Tiled Background
Viewport
Switch0
Hub0
Hub1
PC-PT PC0
PC-PT PC2
PC-PT PC3
PC-PT PC4
PC-PT PC5
PC-PT PC6
PC-PT PC7
Simulation Panel
Event List
Vis. Time(sec) Last Devi At Devi Type Info
0.006 Hub1 PC3 ARP
0.006 Hub1 PC4 ARP
0.006 Hub1 PC5 ARP
0.006 Hub1 PC7 ARP
0.006 Hub1 PC8 ARP
0.006 Hub1 PC9 ARP
0.006 Hub1 Switch0 ARP
Reset Simulation
Constant Delay
Captured to: 0.006 s
Play Controls
Back
Auto Capture / Play
Capture / Forward
Event List Filters - Visible Events
ACL Filter, ARP, BGP, CDP, DHCP, DHCPv6, DNS, DTP, EIGRP, EIGRPv6, FTP, H.323, HSRP, HSRPv6, HTTP, HTTPS, ICMP, ICMPv6, IPSec, ISAKMP, LACP, NDP, NETFLOW, NTP, OSPF, OSPFv6, PAgP, POP3, RADIUS, RIP, RIPng, RTP, SCCP, SMTP, SNMP, SSH, STP, SYSLOG, TACACS, TCP, TFTP, Telnet, UDP, VTP
Edit Filters
Show All/None
Time: 00:11:33.223
Power Cycle Devices PLAY CONTROLS: Back
Auto Capture / Play
Capture / Forward
Event List
Simulation
Connections
Copper Cross-Over
Scenario 0
New
Delete
Toggle PDU List Window
Fire Last Status Source Destination Type Color Time(se Periodic Num Edit Delete
In Progress PC1 PC6 ICMP 0.000 N 0 (edit) (delete)


Cisco Packet Tracer Student
File Edit Options View Tools Extensions Help
Logical
[Root]
New Cluster
Move Object
Set Tiled Background
Viewport
PC0
Physical
Config
Desktop
Custom Interface
Command Prompt
X
Packet Tracer PC Command Line 1.0
PC>ping 10.0.0.6
Pinging 10.0.0.6 with 32 bytes of data:
Reply from 10.0.0.6: bytes=32 time=1ms TTL=128
Reply from 10.0.0.6: bytes=32 time=1ms TTL=128
Reply from 10.0.0.6: bytes=32 time=1ms TTL=128
Reply from 10.0.0.6: bytes=32 time=1ms TTL=128
Ping statistics for 10.0.0.6:
Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
Minimum = 1ms, Maximum = 1ms, Average = 1ms
PC>
Hub-PT
Hub0
PC-PT
PC1
PC-PT
PC0
PC-PT
PC2
PC-PT
PC7
PC-PT
PC8
PC-PT
PC9
Time: 00:11:12
Power Cycle Devices Fast Forward Time
Realtime
Connections
Copper Cross-Over
Scenario 0
New
Delete
Toggle PDU List Window
Fire
Last Status
Source
Destination
Type
Color
Time(se
Periodic
Num
Edit
Delete