

LAB REPORT

COURSE NO. : ICT 4256

COURSE TITLE : COMPUTER NETWORKING LAB

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Report No: 01

Report Title: Basics of Cisco Packet Tracer.

Objectives:

- To learn how to create a basic network in PT
- To learn how to configure a network topology using command mode

Discussion:

A Network simulation tool helps to understand visually how networks work. Network topology is the geometric representation of the relationship of all the links connecting the devices or nodes.

Network topology represents in two ways one is physical topology that defines the way in which a network is physically laid out and another one is logical topology that defines how data flows through the network. In this paper we have discussed the basics of Cisco packet tracer, how to design a peer to peer network and provide interfacing and simulation between end points using packet tracer software.

Methodology of my project:

- See the basics of CPT
- Create a basic peer to peer Network.
- Configuration of the Network Nodes.
- Choose the Statistics.
- Run the Simulation.
- Analysis of the Results.

Working Procedure:

To implement this practical following peer to peer network is required to be configured. After configuring the given network, a packet should be ping from any one machine to another.

Cisco Packet Tracer

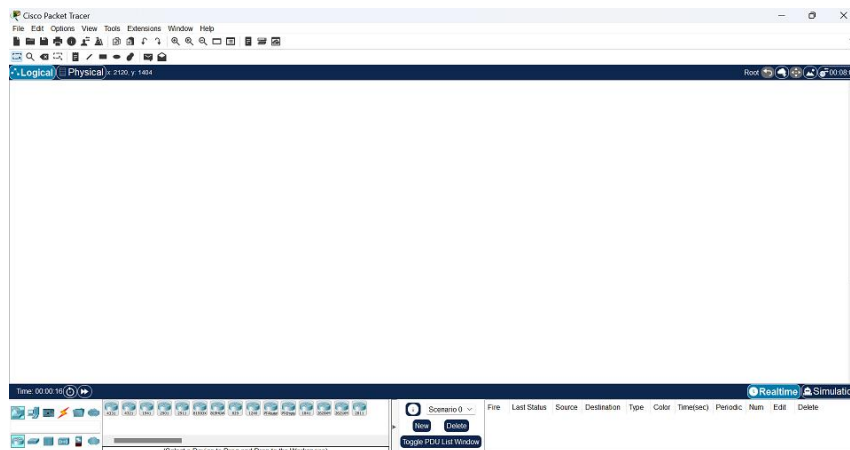


Figure 1.1: Cisco Packet Tracer



Figure 1.2: Network components with different types in CPT

1. Establishing a peer to peer network



Figure 1.3: Choosing Desktop PC from end devices in CPT

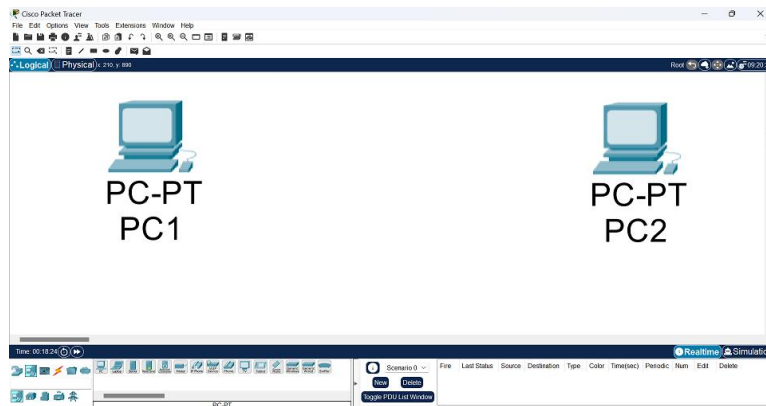


Figure 1.4: Taking two desktop PCs in CPT

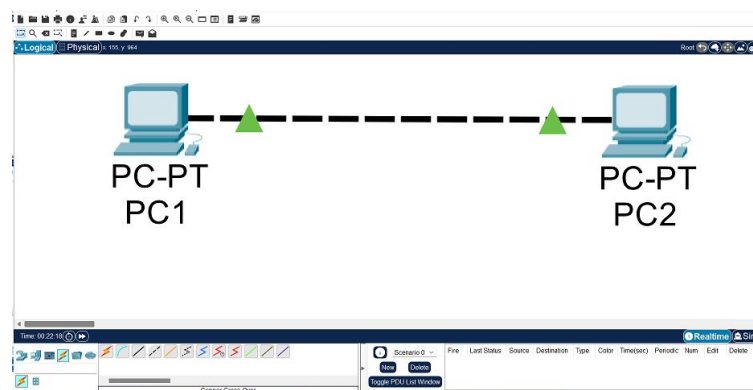


Figure 1.5: Two desktop PCs connected by copper cross-over cables by Fast Ethernet ports in CPT

2. Configure PC1, PC2 with following IP addresses

Host	IP Address
PC1	10.10.10.1
PC2	10.10.10.2

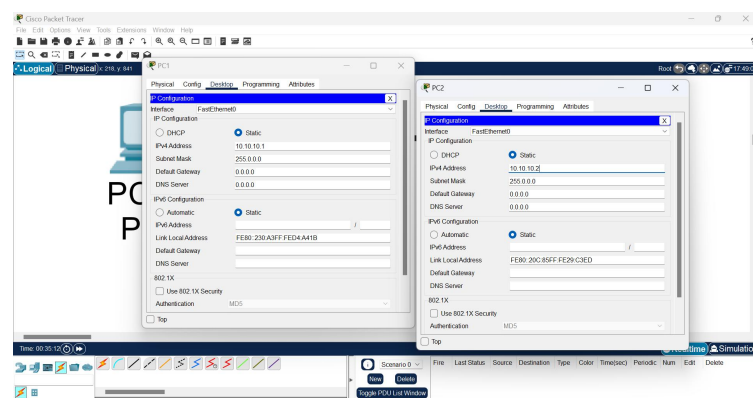


Figure 1.6: Assigning IP addresses to PC1 and PC2 in CPT

3. Using the ping command to verify the connection from PC1 to PC2

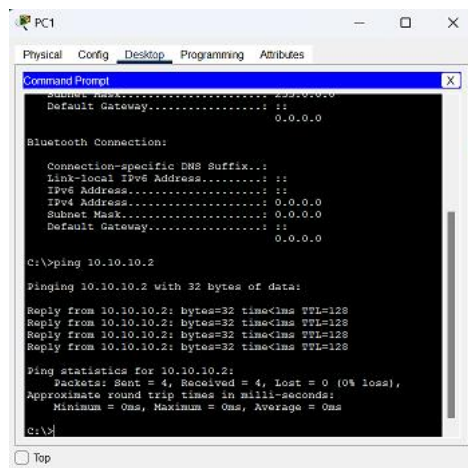


Figure 1.7: ping command to verify the connection from PC0 to PC1.

4. Simulation



Fire	Last Status	Source	Destination	Type	Color	Time(sec)	Periodic	Num	Edit	Delete
	Successful	PC1	PC2	ICMP		2296.856	N	0	(edit)	(delete)

Figure 1.8: Successful Packets travel across PCs.

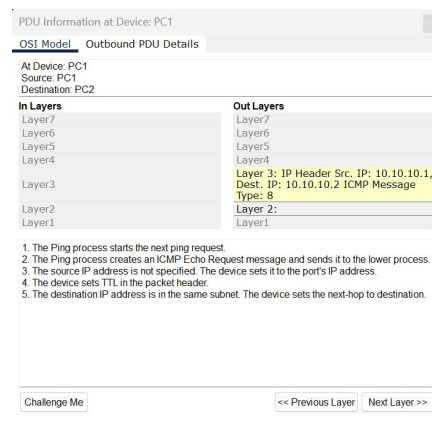


Figure 1.9: Protocol data unit at PC1

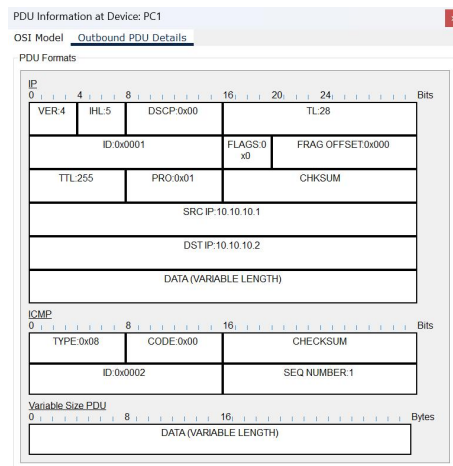


Figure 1.10: Outbound PDU (Protocol data unit) at PC1

Conclusion:

This network represents the Introduction with Network Topology using Cisco Packet Tracer. Here we have also compared the Check the connection from one PC to another using the ping command.

Report No: 02

Report Title: Star topology using Hub.

Objective:

- To learn how a hub works

Discussion:

Hub is an unintelligent, as it has no memory, network-connecting device usually used as a center in a star topology and always works in half-duplex mode and is only capable of broadcasting-transmission of data. It operates in the physical layer of OSI model.

Methodology of my project:

- Create a star topology using hub.
- Configuration of the Network Nodes.
- Choose the Statistics.
- Run the Simulation.
- Analysis of the Results.

Working Procedure:

To implement this practical following network topology is required to be configured using the commands learned in previous practical. After configuring the given network, a packet should be ping from any one machine to another.

Star topology using a hub

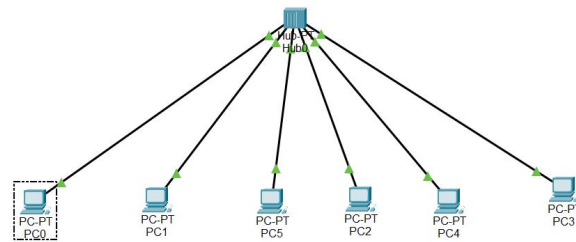


Figure 2.1: Star topology using a hub in CPT

1. IP configuration on PCs

Click PC→Desktop→IP Configuration . On each PC assign these IP addresses:

PC0: IP address: 10.10.10.1

PC1: IP address: 10.10.10.2

PC2: IP address: 10.10.10.3

PC3: IP address: 10.10.10.4

PC4: IP address: 10.10.10.5

PC5: IP address: 10.10.10.6

2. Connection test across PCs

In each PC' s Command Prompt write “ping<space>IP address of one other PC”.If connection is there, four replies will be gotten. Need to check for connections with every other PCs.

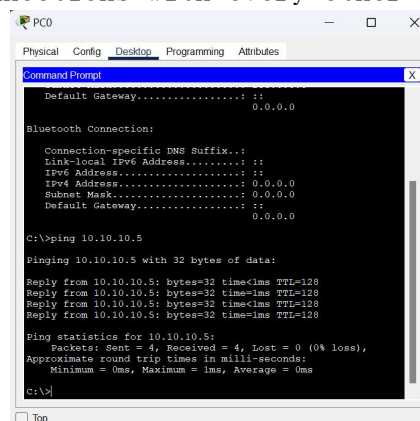


Figure 2.2: ping command verifying the connection from PC0 to PC1.

3. Working of a hub

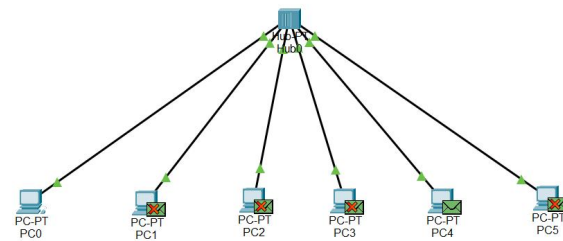


Figure 2.3: Hub sending data from PC0 to PC4.

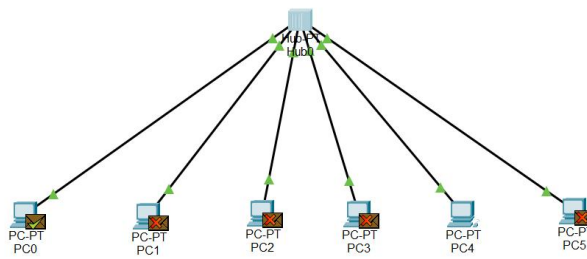


Figure 2.4: Hub sending reply from PC4 to PC0.

5. Simulation

Fire	Last Status	Source	Destination	Type	Color	Time(sec)	Periodic	Num	Edit	Delete
	Successful	PC0	PC4	ICMP		0.000	N	0	(edit)	(delete)

Figure 2.5: Successful Packets travel across PCs.

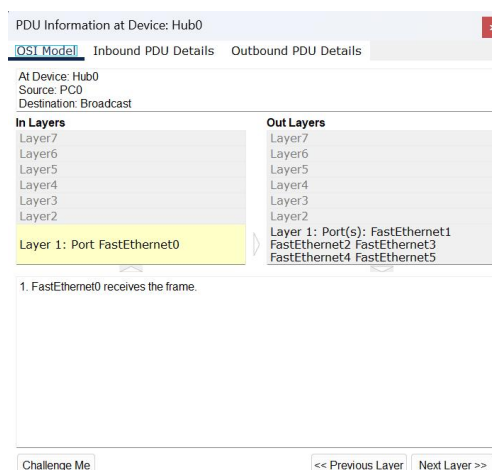


Figure 2.6: Protocol data unit at Hub

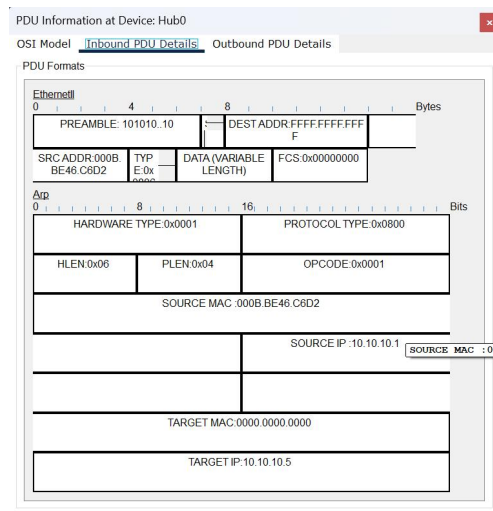


Figure 2.7: Inbound PDU (Protocol data unit) at Hub

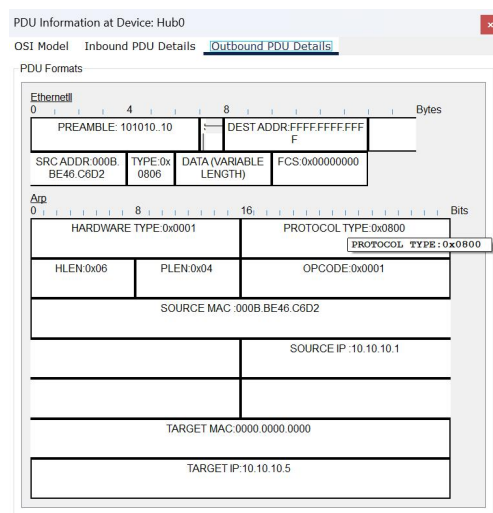


Figure 2.8: Outbound PDU (Protocol data unit) at Hub

Conclusion:

Hub is an unintelligent network-connecting device with no memory that always transmits data by broadcasting.

Report No: 03

Report Title: Star topology using Switch.

Objective:

- To learn how a switch works
- See how switches are different from a hub

Discussion:

Switch, unlike hubs, is an intelligent, as it has a memory, network-connecting device usually used as a center in a star topology and always works in full-duplex mode and is capable of broadcasting, unicasting and multi-casting-transmission of data. It operates in the data link layer of OSI model.

Methodology of my project:

- Create a star topology using a switch.
- Configuration of the Network Nodes.
- Choose the Statistics.
- Run the Simulation.
- Analysis of the Results.

Working Procedure:

To implement this practical following network topology is required to be configured using the commands learned in previous practical. After configuring the given network, a packet should be ping from any one machine to another

Star topology using a switch

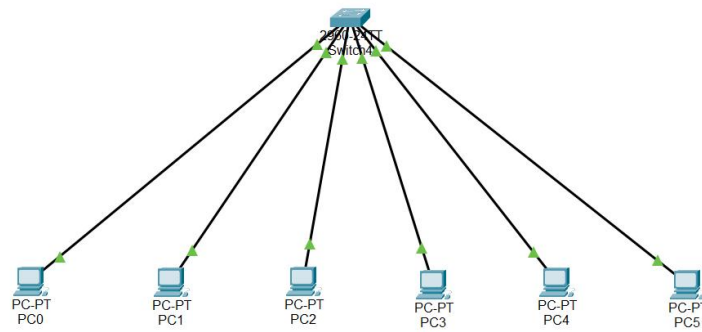


Figure 3.1: Star topology using a switch in CPT

4. IP configuration on PCs

Click PC->Desktop->IP Configuration . On each PC assign these IP addresses:

PC0: IP address: 10.10.10.1

PC1: IP address: 10.10.10.2

PC2: IP address: 10.10.10.3

PC3: IP address: 10.10.10.4

PC4: IP address: 10.10.10.5

PC5: IP address: 10.10.10.6

5. Connection test across PCs

In each PC' s Command Prompt write “ping<space>IP address of one other PC”

If connection is there, then four replies will be gotten.

Need to check for connections with every other PCs.

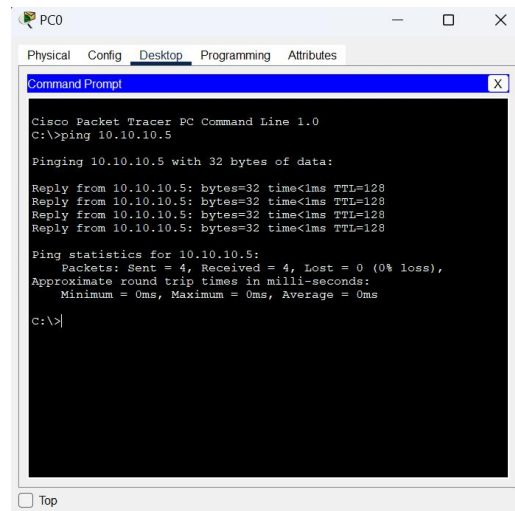


Figure 3.2: ping command verifying the connection from PC0 to PC4.

6.Result

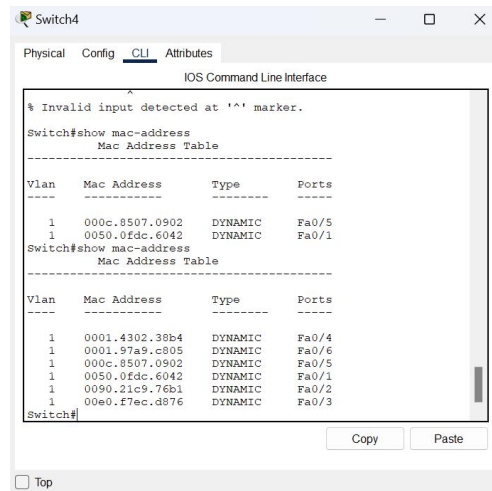


Figure 3.3: Switch storing MAC addresses of PCs.

7.Working of a switch

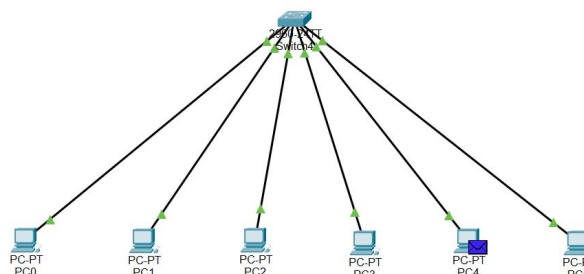


Figure 3.4: Switch sending data from PC0 to PC4.

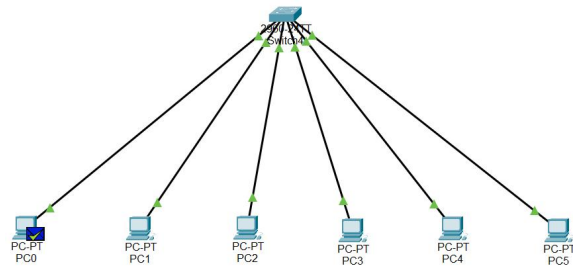


Figure 3.5: Switch sending reply from PC4 to PC0.

6. Simulation

Fire	Last Status	Source	Destination	Type	Color	Time(sec)	Periodic	Num	Edit	Delete
	Successful	PC0	PC4	ICMP		0.000	N	0	(edit)	(delete)

Figure 3.6: Successful Packets travel across PCs.

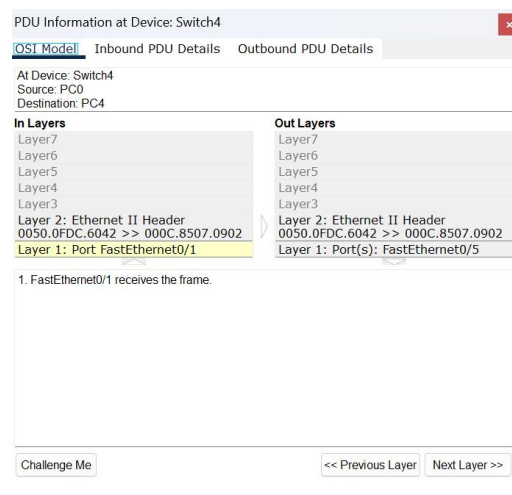


Figure 3.7: Protocol data unit at Switch

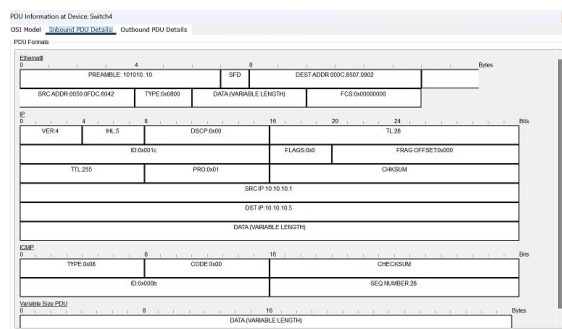


Figure 3.8: Inbound PDU (Protocol data unit) at Switch

