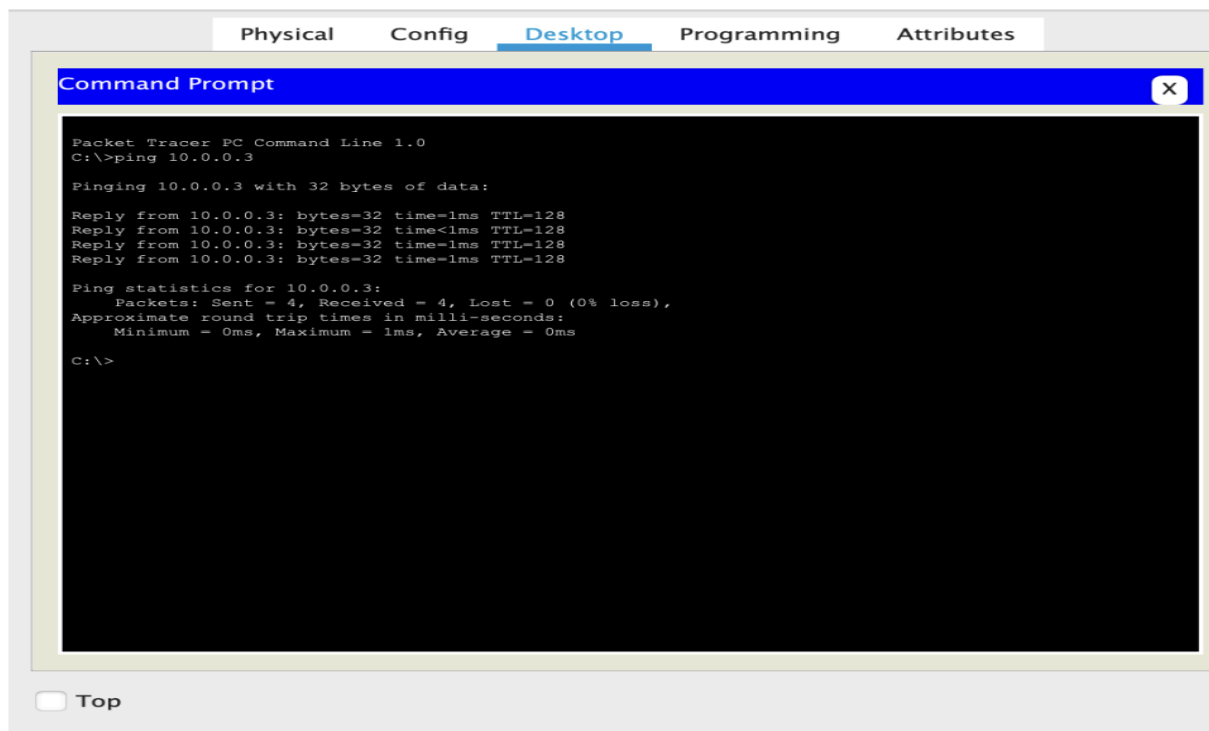
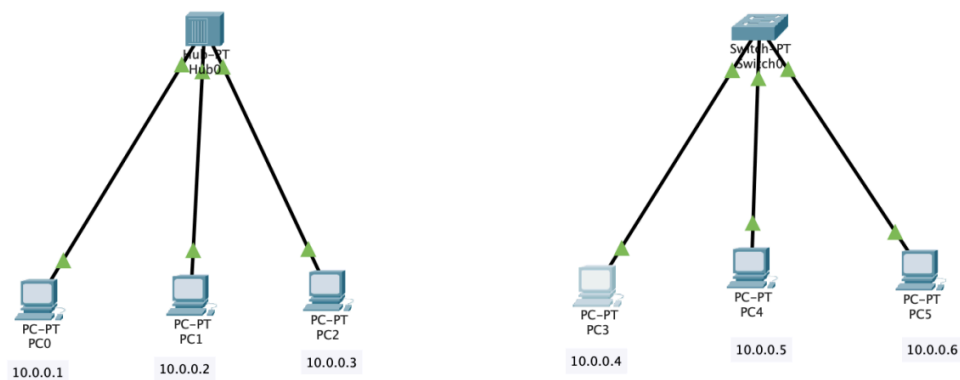


Experiment 1:

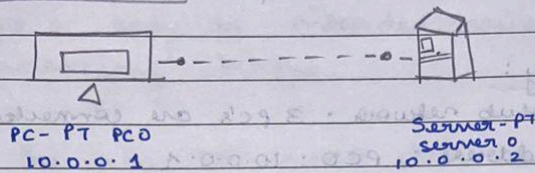
Q)CREATE A TOPOLOGY AND STIMULATE SENDING A SIMPLE PDU FROM SOURCE TO DESTINATION USING HUBS AND SWITCHES

Hubs and Switches:



Experiment - 1

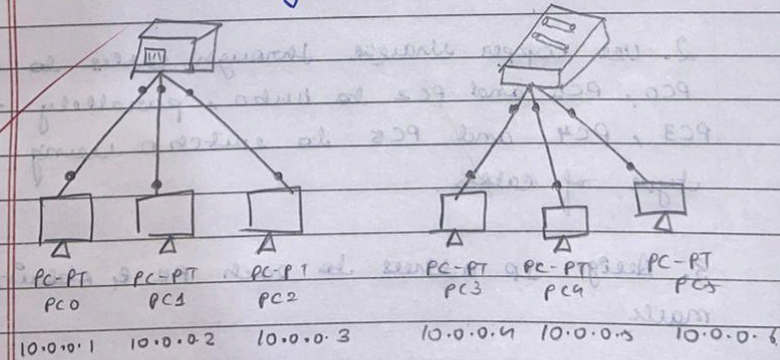
1 PC to server



Aim: To set up a point-to-point network b/w a PC & a server, facilitating direct communication to observe data exchange.

Topology: A PC is connected to server using a crossover ethernet cable. IP address PC0: 10.0.0.1
IP address of server 0: 10.0.0.2

Observation: The direct connection allows PC to communicate w server 0, which is typical in small networks for tasks such as file sharing, server requests, feeding server responses to client queries.



Q1) Create a topology and simulate sending a simple PDU from source to destination using hub and switch as connecting devices and demonstrate ping message.

Aim: To create a simple network consisting of 3 PC's connected to a central Hub and another network with 3 PC's connected to a switch. This configuration will help observe.

Topology:

1. Hub network: 3 PC's are connected to switch

IP - addresses: PC0: 10.0.0.1

PC1: 10.0.0.2

PC2: 10.0.0.3

2. Switch network: 3 PC's (PC3, PC4, PC5) are connected to a (switch 0) using straight-through ethernet cables

IP - addresses: PC3: 10.0.0.4

PC4: 10.0.0.5

PC5: 10.0.0.6

Procedure:

1. Add 1 hub, 1 switch and 6 PC's (PC0, PC1, PC2 for the hub; PC3, PC4, PC5 for the switch) to Cisco packet tracer.

2. Use copper straight through cables to connect PC0, PC1 and PC2 to hub0, parallelly connect PC3, PC4 and PC5 to switch0 using same type of cables.

3. Assign IP address to each PC & obtain subnet mask

4. switch to emulation to observe data traffic because when packets are sent b/w devices

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5. In the hub network, notice how the hub broadcasts packets to all devices, causing potential traffic overlap. In the switch network, observe the switch forwards packets only to intended recipient reducing unnecessary traffic.

6. The hub broadcasts data to all connected devices leading to more network congestion while the switch efficiently sends data only to the correct device, optimizing performance.

Observation:

1. The hub broadcasts packets to all devices which may cause unnecessary traffic.
2. The switch forwards packets only to the appropriate device by learning new addresses, making it more efficient in reducing traffic.

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