

DATE : 20/7/24

EX : 03

EXPERIMENT ON CISCO

PACKET TRACER

(SIMULATION TOOL)

- a) To understand environment of CISCO PACKET TRACER to design simple network.

Introduction:

A simulator, as the name suggests, simulates network devices and its environment. Packet tracer is an exciting network design, simulation and modelling tool.

1. It allows you to model complex systems without the need for dedicated equipment.
2. It allows you to help you to practice your network configuration and troubleshooting skills via computer or an android or ios based mobile device.
3. It is available for both the Linux and windows desktop environments.
4. protocols in transfer are coded to work and behave in the same way as they would on real hardware.

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user interface overview:

1. Menu bar : This is a common menu found in all software application. It is used to open, save, print, change preference and so on.

2. Main toolbar : This bar provides shortcut icons to menu options that are commonly accessed, such as open, save, zoom, undo and redo and on the right-hand side an icon for entering network information for entering network information for the current network.

3. Logical / physical workspace tabs : allows you to toggle between the logical & physical work areas.

4. Workspaces : topology created & simulation displayed here.

5. Common tools bar : This toolbar controls topologies - select, move, layout, place note, delete, inspect, resize shape, and simple/complex PDU.

6. Realtime / simulation tabs : these tabs are used to toggle between the real & simulation modes. Buttons are also provided to control the time, and to capture the pac-

7. Network component box : divided into i) Area-a : shows categories of devices (eg: router, PC). ii) Area-b: displays specific models within the selected category

8. user created packet box : users can create highly-customized packets, to test their topology from this area and the results are displayed as a test.

b) Analyse the devices using CIS

1. From the and drag and

- a) 4
- b) 4

2. click on

a) click cable.

b)

connect it to link LED shows that the link remaining 3PC

c)

switch using

3. click on to the device and enter mask. Help and DNS as there are the network

✓

b) Analyse the behaviour of network devices using Cisco packet tracer simulator.

1. From the network component box, click and drag and drop the below components:

- 4 Generic PCs and One HUB
- 4 Generic PCs and one switch

2. Click on Connections:

a) Click on copper straight-through cable.

b) Select one of the PC and connect it to HUB using the cable. The link LED should glow in green, indicating that the link is up. Similarly connect remaining 3 PCs to the HUB.

c) Similarly connect 4 PCs to the switch using copper straight-through cable.

3. Click on the PCs connected to hub. Go to the Desktop tab, click on IP Configuration, and enter an IP address and subnet mask. Here the default gateway and DNS server information is not needed as there are only two end devices in the network.

click on the PDU (message icon)

from the common tool bar.

a) drag and drop it on one of
PC (source machine) and then drop it
on another PC (destination machine)
connected to the HUB.

4. observe the flow of PDU from
source PC to destination PC by selecting
the realtime mode of simulation.

5. repeat step #3 to step #5 for the
PCs connected to the switch.

6. observe how HUB and switch are
forwarding the PDU and write your
observation and conclusion about the
behaviour of switch and HUB.

observation:

- a) From your observation write down the behaviour of switch and HUB in terms of forwarding the packets received by them.

switch:

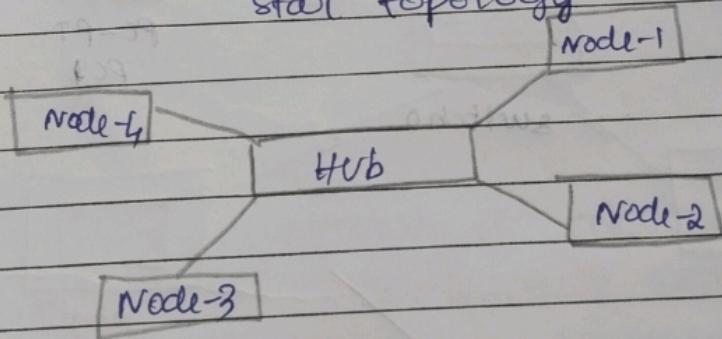
- forwards packets based on MAC address
- sends packets only to the destination port, reducing network traffic.

HUB:

- Broadcasts packets to all connected devices
- sends packets to every port, increasing network congestion.

- b) The topology followed in our lab:

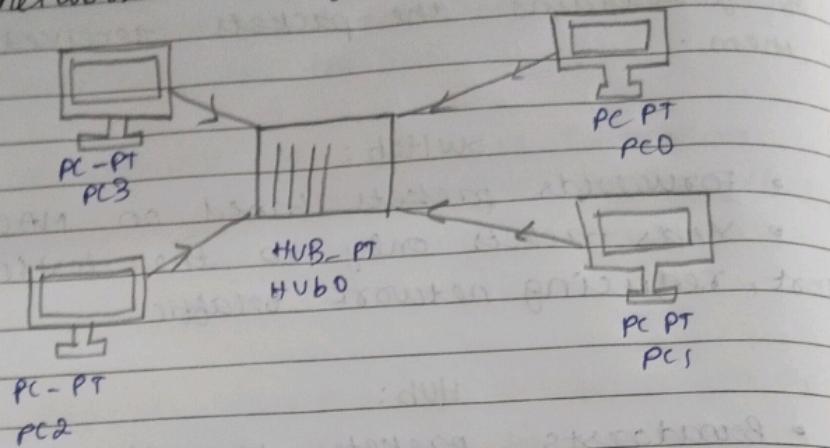
star topology



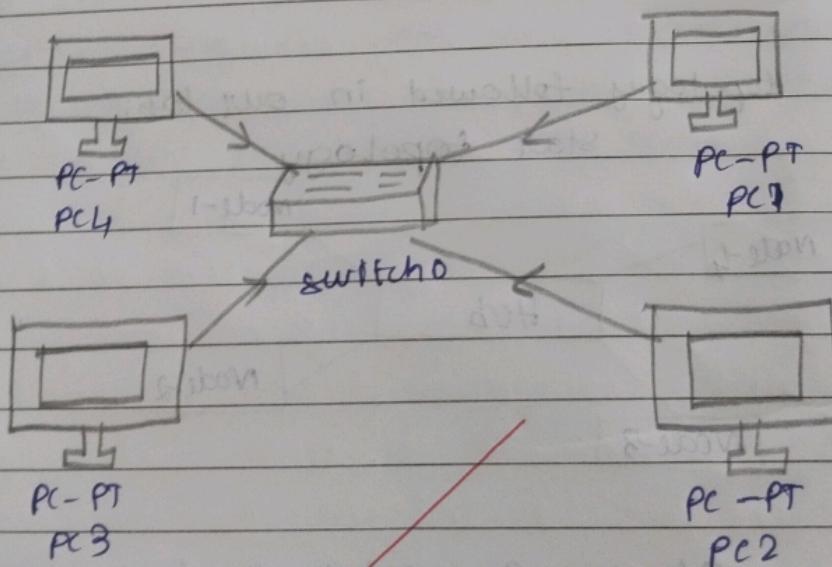
It is a network design where all devices are connected to a central hub or switch and messages are passed to the central core that, in turn passes the messages to either all other system or the specific destination system depending on the network design.

Network design:

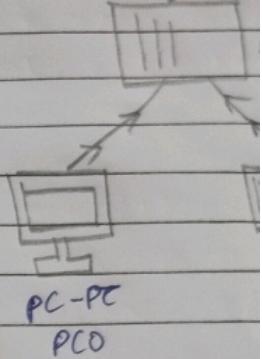
1. use only HUB to design a small network having 4 to 6 host.



2. use only 1 or 2 switch to design a small network having 4 to 6 host.



- 3 use both devices a network as difference between

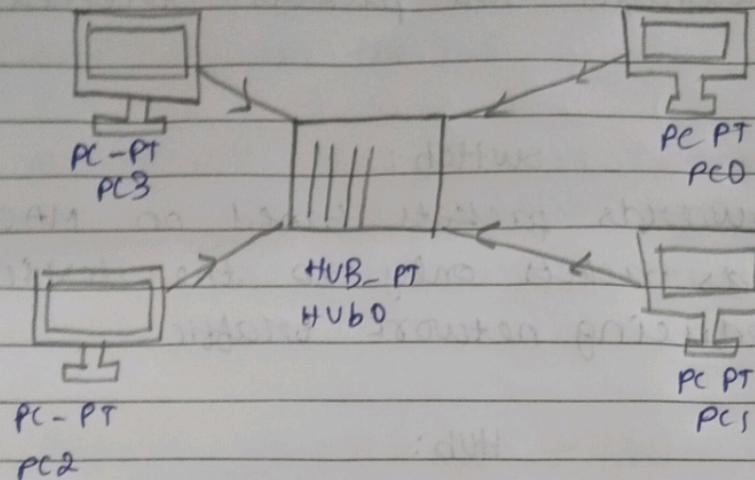


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Result:

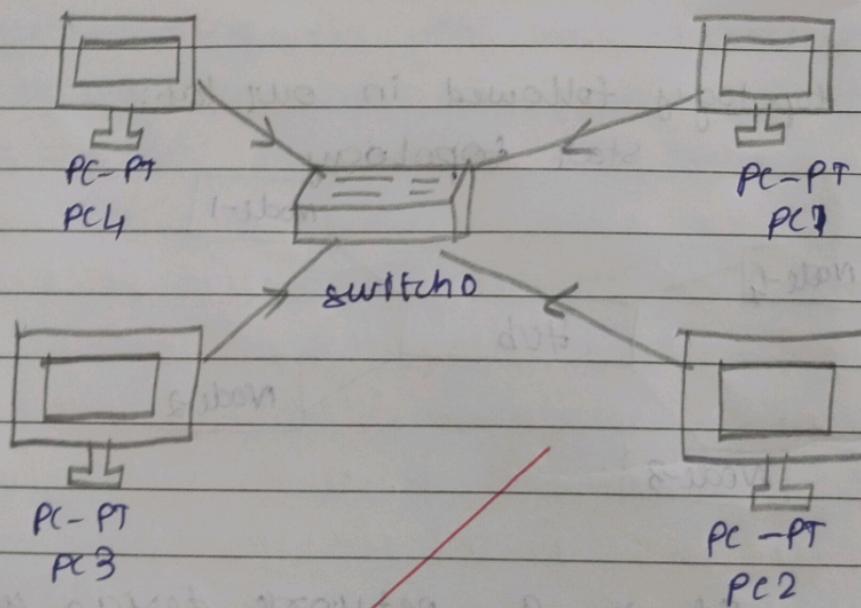
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Network design :

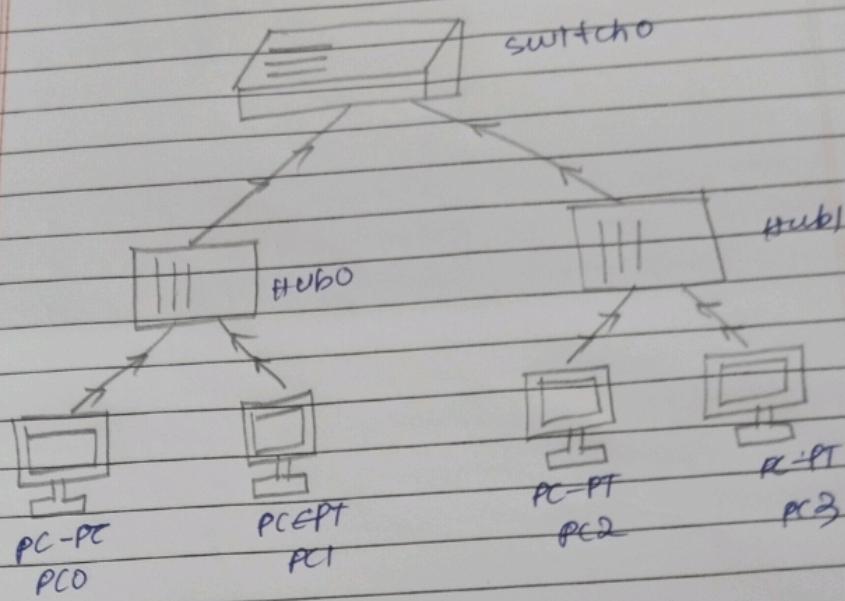
1. use only HUB to design a small network having 4 to 6 host.



2. use + only hub switch to design a small network having 4 to 6 host.



3. Use both device (Hub and switch) for a network and find out functioning difference between switch and hub.



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Result:

Experiment on Cisco packet transfer is successfully executed and the network design is studied.