Experiment-3

To study the Packet tracer tool Installation and User Interface Overview

Cisco Packet Tracer - Simulator (simulation and modelling tool) → simulates network devices and its environment.

Why? 2. To practice network configuration and troubleshooting skills

⇒ To analyse the behaviour of network devices using CISCO PACKET TRACER simulator

(a) HUB

1) 4 Pcs, 1 HUB

2) Use Copper Straight Through cable

Straight-Through Cable: Used to connect different types of devices

PC to Switch, PC to Hub, Switch to Router, Hub to Router

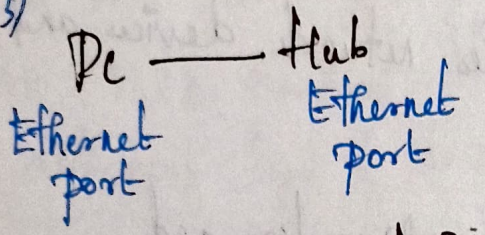
Purpose: Matches the transmit and receive pairs of different devices to enable proper communication

Cross-Over cable: Used to connect similar types of devices directly

PC to PC, Switch to Switch, Hub to Hub, Router to Router.

Purpose: Switches the transmit and receive pairs on one end to match the transmit on one device to the receive on the other device.

3)



Why Ethernet port?: Ethernet port is used for network connections because it supports the necessary protocols for data communication over Local Area Networks.

* Ethernet is the standard protocol for wired network connections. Supports TCP/IP protocol suite which is the foundation for most network communications.

4) Ensure the link LED on the HUB glows green

5) Pc → Desktop → IP configuration

IP address: Within any single network (ex: LAN) each device must have a unique IP addr to communicate properly.

Note: But same IP addresses can be used in different networks

IPv4 → 32 bit addresses : 4.3 billion unique addresses (2^{32})

IPv6 → 128 bit addresses : (2^{128})

Subnet mask is a way to divide an IP network

IP addr: 192.168.1.1

Subnet Mask: 255.255.255.0

255 - 11111111 (in binary)

0 - 00000000 (in binary)

Expl: The subnet mask 255.255.255.0 means the first three numbers (octets) of the IP address are the network, and the last name (octet) is the specific device (host) on that

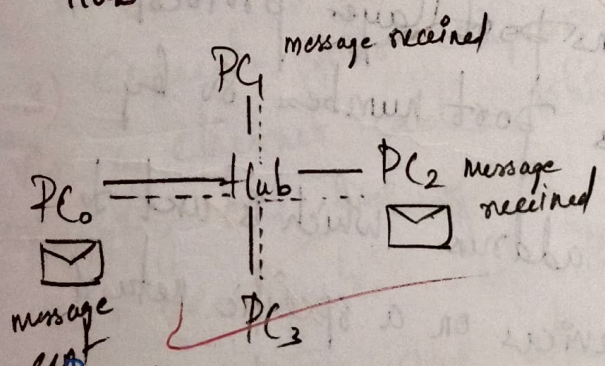
network 1 - 192.168.1.1

Device 2 - 192.168.1.2 } ⇒ 255.255.255.0

3 - 192.168.1.3

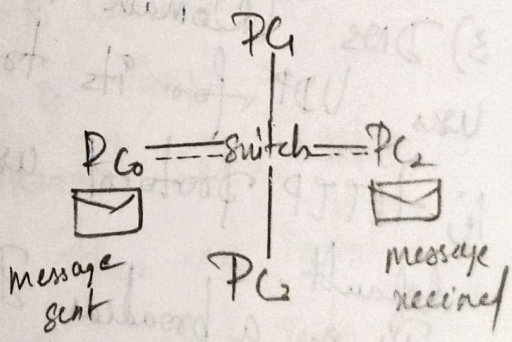
4 - 192.168.1.4

Hub



Result: Broadcasts incoming data packets to all ports regardless of dest. message received

Switch



Switch uses MAC address to determine the destination of data packets (desired)