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EXPERIMENT-1

CONFIGURATION OF NETWORK COMPONENTS

Aim: To Study the following network devices in detail:
PC, Server, Repeater, Hub, Switch, Bridge, Router, Gateway, Transmission medium.

Apparatus (Software): CISCO Packet tracer

1. Node: In a communications network, a network node is a connection point that can recieve, create, store or send data along distributed network routes.

2. Repeater: Functioning at physical Layer.
A repeater is an electronic device that recieves a signal and retransmits it at a higher level and/or higher power, or onto the other side of an obstruction, so that the signal can cover longer distances.

3. Hub: Ethernet hub, active hub, network hub, repeater hub. Hub or concentrator is a device for connecting multiple twisted pair or fiber optic Ethernet devices together & making them act as a single network segment. Hubs work at the physical layer of the OSI model. The device is a form of multiport repeater. Repeater hubs also participate in collision detection, forwarding a jam signal to all ports if it detects a collision.

4. Switch: A network switch or switching hub is a computer networking device the connects network segm-ents. The term commonly refers to a network bridge that processes and routes data at the data link layer of the OSI model. Switches that additionally processes and routes data at the network layer are often reffered to as Layer 3 switches or multilayer switches.

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5. Bridge: A network bridge connects multiple network segments at the data link layer of the OSI model. In Ethernet networks, the term bridge formally means a device that behaves according to the IEEE 802.1D standard. A bridge and switch are very much alike; a switch being a bridge with numerous ports. Switch or Layer 2 switch is often used interchangeably with bridge. Bridges can analyzes incoming data packets to determine if the bridge is able to send the given packet to another segment of the network.

6. Router: A router is an electronic device that interconnects two or more computer networks, and selectively interchanges packets of data between them. Each data packet contains address information that a router can use to determine if the source and the destination are on the same network, or if the data packet must be transferred from one network to another. The multiple routers are used in a large collection of interconnected networks, the routers exchange information about target system addresses so that each router can build up a table showing the preferred paths between any two systems on the interconnected networks.

7 Gateway: In a communication network, a network node equipped for interfacing with another network that uses different protocols. A gateway may contain devices such as protocol translators, impedance matching devices, rate converters, fault isolators, or signal translators as necessary to provide system interoperability. It also requires the establishment

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Of mutally acceptable administrative produces between both networks.

- A protocol translation/mapping gateway interconnects networks with different network protocol technologies by performing the required protocol conversions.

8. Server: A server is a type of computer or devices on a network that manages network resources. Servers are often dedicated, meaning that they perform no other tasks besides their servers tasks. On multiprocessing operating systems, however, a single computer can execute several programs at once. A server in this case could refer to the program that is managing resources rather than the entire computer.

9. Transmission media: The medium through which the signals travel from one device to another. There are classified as guided and unguided. Guided media are those that provide a conduit from one device to another. Eg. Twisted pair, coaxial pair etc. Unguided media transport signals without using physical cables. Example: Air.

Result:

Thus the network components are studied in detail.