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A Survey of Network Connectivity using Devices

Komalpreet Kaur[1], Priya[2]
[1, 2]*M.Tech Scholar, Dept. of CSE, ACET, Amritsar, India*

Abstract: In the term of Network Connectivity. The network is based on a set of bio reserves and patches linked by ecological corridors. The node dynamics built upon the consensus protocol. We consider a case of complete graph, where the ecological network is fully connected, where the ecological network is partially connected. We find that security connectivity in partially connected networks is more expensive than in fully connected networks, but should be undertaken when the opportunity costs are significant.

Keywords: Network Connectivity, Connectivity Devices

I. INTRODUCTION

Network connectivity is the process of connecting to one or more parts of a network. For example: Hub, Switch, Repeaters, MODEM, Router, Bridges, and Gateways etc. Each device here own characteristics and they perform their specific job. Networks are defined as a group of computer and other devices connected in different ways so as to be able to exchange data. Network connectivity consists of two or more computing devices that are connected in order to share the peripherals devices of your network. The most basic computer network devices on the network can be thought of as a node; each node has a unique address.

II. NETWORK CONNECTING DEVICES

A. Hub
B. Switch
C. Bridges
D. Router
E. Gateways
F. Repeaters
G. Network interface cards (NICs)
H. Wireless access points (WAPs)
I. Modems Transceivers (media converters)

III.EXPLANATION

A. Hub

Hub is basically network devices. A hub connects all the nodes of network using (UTP or STP) cables. It is not an intelligent device because it can be broadcast our data. The advantage of hub it is a low cost device and easy to integration .A hubs basically used four or five ports the main disadvantage of hub it can be reduced our bandwidth and also data security. Generally when we are connected two or more computer network we need or using hub. However it is possible to connect two computer to each other directly without the help of hub but when we can add third computer in the network we can using or need the hub to allow a data communication with in the network in such a proper way

Fig 1: HUB

B. Switch

On the computer networks, a switch looks like a hub. A switch is a multi-port device with a buffer and a design that can increase its efficiency. Switch is data link layer device. Switch is the intelligent device as compare to hub because it does not distribute any signals without verifying whether it really need to propagate to a given port or ports. Switch can be also performing error checking before forward the data that makes it very efficient as it does not send those packets that have errors and sends only goods packets selectively to correct and real port only. In the other words, switch can be divides collision domain of hosts.

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Fig 2: SWITCH

C. Bridge

Bridges are networking devices that connect networks. A bridge can operates at data link layer. A bridge functions very similar to a switch. It has a single input and single output port, thus making it a 2 port device. A bridge functions by blocking or forwarding data, based on the destination MAC address written into each frame of data. If the bridge believes the destination address is on a network other than that from which the data was received, it can forward the data to the other computer networks to which is connected. It can forward the data to the other computer networks to which are connected. Both the Devices Bridge and switch is OSI 2-layer device. It works basically the filter traffic based on the source address of the frame.

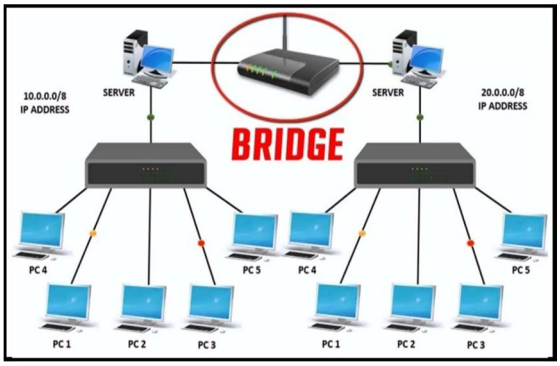

Fig 3: BRIDGE

D. Router

A router is a network device as like a switch a router connects multiple network a router can be used WAN network (wide area network). It is an OSI 3-layer device and works on the logical address of a host that sends or route data packets based on their IP addresses. Router is mainly a Network Layer device. Routers normally connect local area network and wide area network together .Router divide broadcast domains of hosts connected through it. Routers are network devices that literally route data around the network. By examining data as it arrives, the router can determine the destination address for the data; then, by using tables of defined routes, the router determines the best way for the data to continue its journey. Unlike bridges and switches, which use the hardware-configured MAC address to determine the destination of the data, routers use the software-configured network address to make decisions.

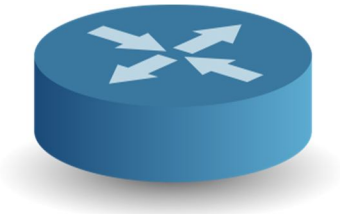

Fig 4: ROUTER

E. Gateways

A gateway is the completely the combination of software and hardware device .is the name suggests, is a passage to connect two network together that may work upon different networking layers or models. Gateways are also called protocol converters and can operate at any network layer. Gateways are more complex as compare to switch or router. It can handle addresses, messages and protocol conversions. Gateways are basically slow as compare to bridges and routers. The most common gateway is a router that connects at home or enterprise network to the internet.

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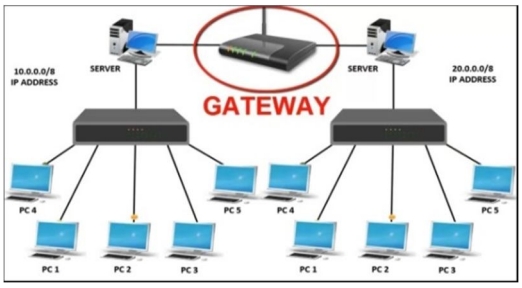

Fig 5: GATEWAY

F. Repeaters

A repeater is the single hardware device. It operates at the physical layer. Its works to regenerate the signal over the same network before the signal becomes too weak or interrupted. So as to extend the length to which the signal can be transmitted over the same network. Repeaters do not amplify the signal. When the signal becomes weak and corrupted they copy the signal bit by bit and regenerated it at the original strength. It is a 2 port device. Repeaters remove all the unwanted noise and interrupted an incoming signal. a repeater consists of an amplifier, radio receiver, a transmitter, an isolator, and two antennas. The repeater absorbs the original signal, copies it and retransmits it along another segment of cabling at the same time it makes the signal noise free too. Thus the repeater can absorbs the signal.

Fig 6: Repeaters

G. Network Interface Card

Network interface card is basically used to connect the computer to the external network. A network interface card provides the computer with a full-time connection to a network the NIC is also referred to as an Ethernet card and network adapter such as a home network, or the Internet using an Ethernet cable with an RJ-45 connector. Network cards" that connect over USB are not actually cards but instead regular USB devices that enable network connections through the USB port. These are called network adapters.

Fig 7: NIC

H. Wireless Access Points (Wap,S)

Wireless access point is a device that creates a wireless local area network, (LAN) or WLAN, usually in an office or large building. An access point connects to a wired switch, router, or hub via an Ethernet cable, Wi-Fi signal to a designated area. For example, if you want to enable Wi-Fi access in your office or company's reception area but don't have a router within range, you can install an access point near the front desk and run an Ethernet cable through the ceiling back to the server room. Wireless connectivity is useful for mobile workstations. It provides the high range of bandwidth and also provides the availability of hardware. It is easy to use everywhere without using the any wires.

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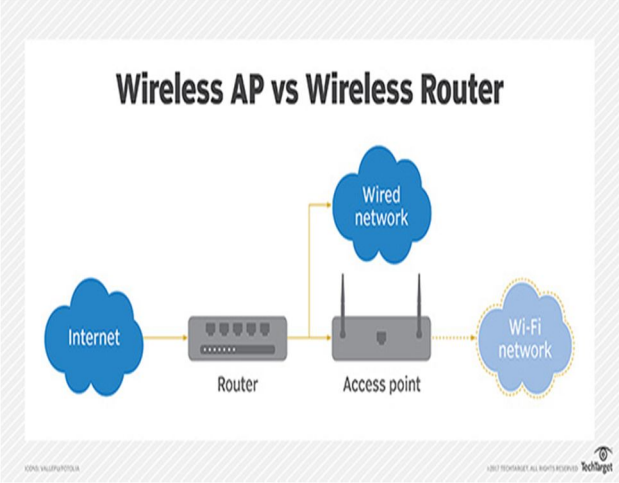

Fig 8: WAPs

I. Modems

A modem is the term of modulator and demodulator.it is also a network device. A modem is basically used for send digital data to through a phone line a modem is a hardware device that allows a computer to send and receive data over a telephone line. Traditional modems used on dial-up networks convert data between the analogy from used on telephone lines and the digital from used on computer. Broadband modems are often too referred as high-speed modems. Modern dial-up network modems transmit data at a maximum rate of 56,000 bits per second

Fig 9: MODEM

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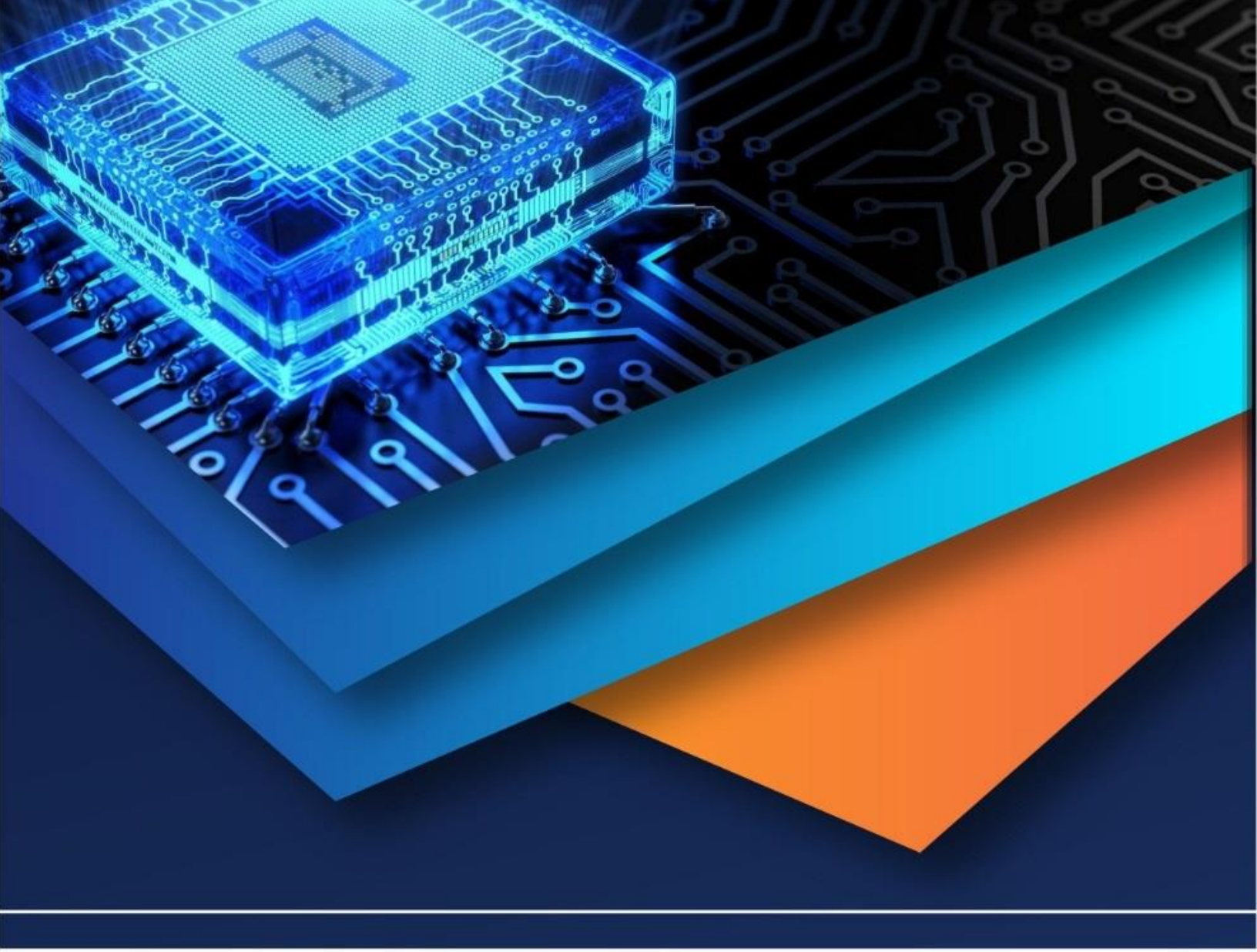

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