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(INFORMATION AND COMMUNICATION TECHNOLOGY)
Year 10

NETWORKS AND THE EFFECT OF USING THEM

A **network** is a collection of computers, servers, mainframes, **network** devices, peripherals, or other devices connected to one another to allow the sharing of data.

NETWORK DEVICES

MODEMS: Means "modulator demodulator" A **modem** is a hardware device that allows a computer to send and receive data over a telephone line or a cable or satellite connection.

HUBS: Hardware devices that can have devices or computer connected to them Used to connect devices to form a LAN. Main task is to take any data packet and broadcast to every computer in the network.

SWITCHES: switches are Like hubs but more efficient in distributing data packets Unlike hubs, it checks the data packet and send the data to the appropriate computers only. Switches makes it more secure and each device on a network has media access control (MAC).

BRIDGE: These are device that connect two LANs that uses the same protocol. it connects different parts of a LAN so they function as a single LAN.

ROUTER: This is a device that enable data packets to be routed between the different networks. The main function is to transmit internet and transmission protocols between 2 networks and allow private networks to be connected.

DATA PACKETS: this usually contains form of header to identify the data packets, Sender's IP address Receiver's IP address How many data packets in the message Identity number of each packet Information allows router to send packets across network to its destination

OTHER DEVICE USE IN NETWORKING

GATEWAY: This is a network point that acts an entrance to another network, it's a key point for data going to or from other networks, if a network node needs to communicate outside its network, gateway is needed.

INTERNET PROTOCOL (IP) AND MEDIA ACCESS CONTROL (MAC) ADDRESS: Each device on internet is given an address known as internet protocol (IP) address, IP address gives the location of device on the internet while a MAC address identifies the device on the internet. IP address can be changed but MAC address remains the same.

WI-FI: This is a device that receives radio waves via wireless adaptor that allows it to download info from the data source. A Wi-Fi enabled device can access internet at any access point (AP) or hot spot 100m away.

BLUETOOTH: this sends and receives radio waves in 79 different frequencies, devices using Bluetooth detect and connect to each other, Spread-spectrum frequency hopping is when device changes channel if it's used to connect to other device.

HOW TO SET UP AND CONFIGURE A SMALL NETWORK

When setting up and configuring a network, think about doing the following:

a. Setting up an IP account if internet access is required

b. Setting up the system

c. Configuring all the hardware and software so they work together If internet's required, ensure that high-speed broadband exists

d. Putting all the common software onto a server and a network license is acquired

e. Setting up privileges so each user can only access their area

f. Setting up a network-manager-level of privilege do that they can monitor network usage,

g. Change passwords

INTERNET

It is a worldwide/global system of interconnected computer networks. It uses the standard Internet Protocol (TCP/IP). Every computer in Internet is identified by a unique IP address. IP Address is a unique set of numbers (such as 110.22.33.114) which identifies a computer's location.

Internet is accessible to every user all over the world.

INTRANET

Intranet is the system in which multiple PCs are connected to each other. PCs in intranet are not available to the world outside the intranet. Usually each organization has its own Intranet network and members/employees of that organization can access the computers in their intranet.

Each computer in Intranet is also identified by an IP Address which is unique among the computers in that Intranet.

SIMILARITIES BETWEEN INTERNET AND INTRANET

- Intranet uses the internet protocols such as TCP/IP and FTP.

- Intranet sites are accessible via the web browser in a similar way as websites in the internet. However, only members of Intranet network can access intranet hosted sites.

- In Intranet, own instant messengers can be used as similar to yahoo messenger over the internet.

DIFFERENCES BETWEEN INTERNET AND INTRANET

- Internet is general to PCs all over the world whereas Intranet is specific to few PCs.

- Internet provides a wider and better access to websites to a large population, whereas Intranet is restricted.

- Internet is not as safe as Intranet. Intranet can be safely privatized as per the need.

SHOULD THE INTERNET BE POLICED?

There were many arguments for the past years which are listed below:

Arguments in favor of some form of control

i. Prevent illegal material to be posted

ii. Prevent people from discovering info that has serious consequences

iii. Help prevent children and other vulnerable groups from being subjected to undesirable website

iv. Help stop incorrect info being published on websites

Arguments against some form of control

v. Material published on webs is available from other sources

vi. Very expensive to 'police' all websites and users would have to pick up the bill

vii. Difficult to enforce rules and regulations on a global scale

viii.   Can be argued that policing would go against freedom of info

ix.   Laws already exist to deal with those who post illegal material

EFFECT OF USING THE INTERNET

- Inappropriate sites and the accuracy of info

- Reliability of information

- Undesirability of certain websites

- Security issues

- Authentication

- Antivirus software

- Avoiding viruses when accessing the internet

- Viruses from hardware devices

BENEFITS OF USING THE INTERNET

a. Online Shopping

b. Online Banking

c. Emails

d. Video Conferencing

e. Audio Conferencing

f. Web Conferencing

ANSWER THE FOLLOWING QUESTIONS BELOW

1. List four differences between a switch and a router.

2. Explain what online banking is all about.

3. Explain in your own word why you think the internet should be policed.