

COMPUTER STUDIES

THE INTERNET

Meaning: The internet is a global system of interconnected computer networks that use the standard internet protocol suite (TCP/IP) to serve billions of users worldwide. It is a network of networks that consists of millions of private, public, academic, business, government etc that are linked by a broad array of electronic and optical networking technologies. The internet carries a vast array of information resources and services, most notably, the inter-linked hypertext documents of the World Wide Web (www) and the infrastructure to support electronic mail. One of the simplest definitions of internet is that it is a collection of computers, linked together.

The origins of the internet dates back to 1960s when the United States funded research projects of its military agencies to build robust, fault-tolerant and distributed computer networks. The internet technology was created by Vinton Cerf and Robert Kahn in early 1973.

Advantages of internet

- It brings word information to one's door step.
- It exposes new research information
- It is the easiest way of searching for information
- It is one of the fastest message sender
- It is the cheapest global way of advertising
- It provides easy access for transaction.

Disadvantages of internet

- It corrupts the minds of the youth, in the sense that some youth go to internet to watch sex films ie. Pornography instead of searching for information.
- It provides room for piracy, whereby some new films programmes etc are free for download, thereby resulting copying exact work of others.
- Wastage of finance: Some students waste their money in internet by watching films, pop music, football etc which are less important than their studies

Some Important Internet Terms

- Browse:** This simply means to read (websites) casually on the internet. It is the process of accessing and viewing web pages on the internet.
- Browser or web browser:** It is an internet software application that is used to access and view web pages in the internet. Some popular browser are: Internet explorer, Chrome, Firefox, Safari, Opera, Netscape Navigator etc.
- 3. **Chat room:** This is a virtual communication platform where many people keep in contact with family, friends and classmates. Some websites that have chatrooms are Yahoo, AOL, MSN and Google.
 - Some chat rooms allow the use of webcam to view each other and communication of emotions using chat emotions.
- Cyber café:** It is a place where a number of personal computers connected to the internet are made available for use by customers at a price. In a cyber café, customers are allowed to use the computers by charging them some amount of money by the hour or fraction of an hour. A cyber café is also known as Internet café.

Cyber space: This term is used to describe internet network and the World Wide Web (www).

Download: This is the process of retrieving information from the internet onto a personal computer. A user can download files, music, software or games onto a personal computer.

Upload: This is an opposite of download. It means to send data from a local system to a remote system such as a server or remote system should store a copy of the data being transferred, or the launch of such a process.

8. **Electronic mail (E-mail):** A Mail that is sent and received through the internet is called an e-mail. For a user to send and receive message on the internet he/she must have an email address. Example of an email address is okekechisom@yahoo.com and ohanehisylvester@gmail.com

Home page: This is the start page of any website. It refers to the initial or main page of a website that loads when a user specifies the URL of a website in a web browser.

HTML: HTML, a short for Hyper Text Mark-up Language is a computer language with sets of markup symbols and codes that are used for building websites.

Protocol: It is the standard or set of rules by which computers communicate over the network.

Web page: A web page is a HTML document or resource of information in a website that is presented as a page.

HTTP: This means Hyper Text Transfer protocol. It is the protocol used by the www. HTTP describes how messages are formatted and transmitted and what actions web servers and browsers should take in response to various commands. For example, when you enter a Universal Resource Locator (URL) in your browser, this actually sends an http command to the web server which directs it to fetch and transmit the requested web page.

ISP (Internet Service Provider): This is a company that provides individuals and companies access to the internet, host data, or does both. ISP connect customers to the internet using copper wireless or fibre connections. Common ISPs in Nigeria include Visa-phones, Globacom, Starcomms, MTN, Kkontech, Junisat, 21st Century, Cobranet, Tara systems, Swift, IPNX, Netcom, Cyberspace, Linkserve, Direct on PC, etc

Website: This is a collection of related webpages that are related to an entity, activity or event. The beginning page of a website is called the homepage. Some examples of websites are:

www.smbssonline.com

www.cpn.gov.ng

www.microsoft.com

www.cormariaegirlsonline.com

www.waeconline.org.ng

www.ndlea.gov.ng

www.neco.gov.ng

www.waecnigeria.org

www.waecdirect.org

Side-load: This term is used to refer to local transfers (sending data from one local system to another local system). It is often difficult to decide if it is an upload or download as both source and destination are in the local control of the user. It is the process of transferring data between a computer and a mobile device such as a cellphone, smartphone, PDA or portable media player.

INTERNET MAIN BROWSERS

Internet main browsers are computer programs commonly used to access websites. Below are some common internet main browsers:

i. Internet Explorer

Opera

Firefox

Google

Netscape Navigator

Safari

Internet Explorer: Internet explorer is a graphical web browser developed by Microsoft and included as part of the Microsoft windows line of operating system starting in 1995.

Opera: The Opera browser is a web browser developed by Opera software. It is the smallest and fastest browser in the world.

Firefox: Mozilla Firefox is a free and open source web browser managed by Mozilla Corporation. Firefox is one of widely used browser.

Netscape Navigator: Netscape Navigator browser is a product of the Netscape communications corporation.

FEATURES OF MAIN BROWSERS

Title Bar: It is at the very top of the browser window. This bar displays the title of the web page displayed. It reveals the name of the site that is opened.

Menu bar: This bar contains menu items that are not commands like file, edit, view, history etc. It however contains sub-menus that are commands used on the page. The menu bar is underneath the title bar.

3. **Tool bar:** The tool bar and its icons are displayed at the top of the browser underneath the menu bar. This is where the back button, the home button, the refresh button etc. are found.

Web Page: This area of the website is the web content page. It reveals all the facilities or resources on the websites. To open any content bar requires. To open any content bar requires clicking on the content icon.

Address bar: This bar displays the website name. The website is usually typed on the address bar.

Window task bar: This bar contains information about the windows status i.e the running program, the opened programs and some resources.

REQUIREMENT FOR INTERNET CONNECTION

1. A personal computer
2. **RAM (Random Access Memory):** Minimum RAM requirement is 16MB to improve the speed of operation.

A MODEM (Modulator and Demodulator): This should have at least 28 – 8 minimum speed to send and receive signal.

An active virus checker (Antivirus).

Internet Service Provider (ISP).

INTERNET SERVICES

The internet offers many services to its users; with the internet, users are able to interact with one another, advertise their products, chat with friends, watch video clips, download software, buy products, do banking transactions and many more. Most of the customized internet services we use amongst others are:

E-Mail: This stands for Electronic Mail. It is an internet service that enables internet users to send and receive mails.

Email discussion groups: They are made up of people anywhere on the internet who agree to communicate, using email, as a group where the messages they share related. Examples of these groups are Usenet, Newsgroups etc.

Usenet: This simply means *Users Network* is an online discussion system. Usenet encompasses a wide variety of forums or newsgroups whereby participants can discuss topics with people in other part of the world.

Telnet: Telnet is the main internet protocol for creating a connection with a remote computer. It gives the user the opportunity to access the resources on another computer.

FTP: This is an acronym for *File Transfer Protocol*. It is the simplest way to exchange files between computers in a network. FTP is commonly used to download/upload files to/from your computer.

www: This stands for World Wide Web. Also abbreviated as W3, consists of Hyper-Text Mark-up Language (HTML) documents accessed via web browsers.

BENEFITS OF INTERNET TO THE SOCIETY

The internet plays a major role in the society on the following application areas:

Education/E-learning: With the internet, people can get educational materials and read them in preparation for examinations or use them for school assignments. The internet also enhances electronic learning whereby courses or subjects are taught online using audio and or visual materials.

E-Registration – The internet provides users with facilities for online registration for examinations like WAEC, NECO and JAMB.

Entertainment: The internet kills boredom and enhances leisure by providing its users with latest entertainment in form of movies, games, news and many more.

Communication: This is one of the key benefit of the internet. The internet provides many means by which users can communicate with friends, families, colleagues and lots more through email, chat messengers, Facebook, WhatsApp and many more.

5. **E-banking:** The internet can be used as a tool to carry out transactions with banks irrespective of user's location.

E-commerce: Internet is also a tool for electronic commerce. It allows users to buy and sell their goods and services online regardless of their location.

Online publication: Magazines and newspapers publishers around the world are now making their publications available on the internet.

ELECTRONIC MAIL

Definition: Electronic mail, most commonly abbreviated email or e-mail, is a method of exchanging digital messages from one source (author) to many destinations (recipients) through the internet

Electronic mail services

Send/receive mails: This is one of the major services rendered by an email. The user is able to send files in form of messages, pictures, movies software etc.

Chat: Email provides its users with chat services such as Yahoo messenger, Google talk MSN messenger and so on. With the e-mail address, the users are able to access the chat services to add friends in order to chat with them.

Creating Email Account

Creating an email account enables one to have an email address which can be used to send and receive mails to and from friends and loved ones. Some websites offering free e-mail services are Yahoo, Hotmail, AOL, Gmail (Google mail) etc.

Steps involved in creating an email account with yahoo.

To create a free account with Yahoo mail, follow the steps below –

Open an internet browser of your choice (Internet explorer, Firefox etc and type www.yahoo.com in the address bar.

On the Yahoo web page, click on sign up

Fill in your personal data.

Type the proposed e-mail address you want to use.

Click on check availability

If it has been used by someone, the computer will suggest another e-mail address for you. Select from the options offered to you.

Type your password and retype your password to confirm.

Type the code shown in the registration window.

Click on create my account, unless yahoo brings you back to the new account signup form to correct some information you entered, you will see the screen confirming that your new yahoo email address has been created and is ready for use.

Click on continue button, and you will be redirected to yahoo homepage. You can always know if you are logged your yahoo account when you see yahoo welcome you with a greeting *Hi!* Followed by your first name e.g *Hi Nnalue*.

To access your email just click on the mail link on the left hand side of the homepage.

Steps Involved in Opening Mail Box

To open the yahoo mail box, the username and the password are required. Follow the steps below:

Open an internet browser already installed e.g Internet explorer and type www.yahoo.com in the address bar on the web page, click on sign in.

On the windows that is displayed, type the username feature of the e-mail address that was created previously inside the Yahoo! ID textbox.

Inside the password textbox, type the password of the email address.

Click the sign in button to navigate to your yahoo home page.

To view you mail, click on mail at the right hand side of the yahoo home page. The yahoo mail box will pop up.

An **Email Address:** An email address is a unique address used to identify the email box of its users. Two or more users cannot have the same address e.g celelovesyou@hotmail.com.

Features in an email address

i. **The username:** This is the first part of an email address. It is followed by the @ sign. It is the name of the person that makes use of the email account.

ii. **The @ (at) sign:** The sign is used to **link** the username and the website that owns it.

The name of the website: This is usually the name of the website that owns the services like Yahoo, Google, AOL HiITPlc, Zenith Bank etc

The website extension: The website is registered in a domain with an extension. The extension is determined by the type of entity that owns the website. For example, a commercial entity will have website with “.com” extension.



Some website extensions include the country code of the entity examples are .gh(Ghana), .za(SouthAfrica), .ng(Nigeria) etc

Differences between Email and Website

A website is a collection of the pages that are related to an entity. It is identified by its name while an email address is a service in the internet that is registered in a website.

Chatting

Chatting is the process of simultaneous communication between internet users through instant messages that are not stored.

Steps involved in chatting with yahoo messenger.

To log into chat environment with the yahoo ID and password created previously, do the following:

Double-click on the yahoo messenger shortcut icon on the desktop.

Type you Yahoo ID inside the yahoo ID textbox.

Type your password inside the password textbox

Click sing in. The chat window is displayed.

VARIOUS SEARCH FOR BROWSING

Education search for any questions

www.excite.com

www.wsu.edu

www.searchcareer.com

www.history.org

www.google.com

Text Message

www.sendmsnow.com

www.textamerican.com

Medical

www.edu.goo

www.healthanswer.com

Job site

www.job.com

www.salary.com

www.jobsite.com

Book site

www.amazon.com

www.library.com

Sports site

www.und.com

www.sports.com

www.manchesterunited.com

News sites/information

www.cnn.com

www.journeypass.com

www.finecaneast.com

www.americaneast.com

Health site

www.askmen.com

www.lifezone.com

Examination body

www.waecnigeria.org

www.waecdirect.org

www.neco.gov.ng

School site

www.smbssonline.com

www.cormariaegirlsonline.com

NETWORKING

A computer network often simply referred to as a network, is a collection of computers and devices interconnected by communication channels that facilitates communications among users and allows users to share resources and information.

Network exists for one major reason: to share information and resources.

Types of networks

The types of networks covered here are

- Ethernet
- Token ring
- Arcnet

Ethernet – This is a bus topology LAN network system. Ethernet LANS use coaxial or twisted pair cables to connect computer system. Data travels over Ethernet inside protocol units called **frames**. Ethernet networks can be only extended to link entire schools or office building.

2. **Token ring:** Token ring Local Area Network (LAN) technology is a ring topography network. It uses a special three-byte frame called a token that travels around the ring. Physically, when implemented, the computers are connected through cables to a “HUB”. It is the hub that manages the network in a ring topology manner. Token ring uses ring topology whereby the data is sent from one machine to the next and so on around the ring until it ends up back where it started.

Arcnet: (An acronym from Attached Resources Computer Network) is a star topology. It was the first widely available networking system for microcomputers and became popular in the year 1980s for office. Arcnet was developed by principal development engineer **John Murphy** at Datapoint Corporation in 1976 and announced in 1977.

COMPUTER NETWORK

DEFINITION:
A computer network is defined as the interconnection of two or more computers.
Networks are a system of computers, software and hardware that are all connected to help them work together.

APPLICATIONS

- Sharing of resources in a system
- Sharing of programs, software and data files
- Communication between computers in a local network
- Transfer of data and information over a wide area network
- Sharing of information over geographically wide areas

NETWORK TOPOLOGY

In computer networking, topology refers to the layout of connected devices. It is the arrangement of workstations (Computer in a network) in a network.

TYPES OF NETWORK TOPOLOGY

Network topologies are categorized into the following basic types:

Star topology

Bus topology

Ring topology

1. **Star topology:** In star network, the network devices are connected to a central point like a STAR. It consists of one Central Switch, hub or computer which acts as a conduit to transmit messages. This consists of a central node, to which all other nodes are connected; this central node provides a common connection point for all nodes through a hub. Thus once the hub fails, the whole network is grounded but if any other network devices fails, the network will be operating without the failed devices.

Advantages of a star topology

Easy to install and wire.

No disruptions to the network when connecting or removing device.

Easy to detect faults and to remove parts.

Disadvantages of a star topology

Requires more cable length than a linear topology.

If the hub, switch or concentrator

More expensive than linear bus topologies because of the cost of the hubs etc

Bus topology

A bus network topology is a network architecture in which a set of clients are connected via a shared communications line called a bus (cable).

A device wanting to communicate with another device on the network sends a broadcast message onto the wire that all other devices see, but only the intended recipient actually accepts and processes the message.

Bus networks work best with a limited number of devices but if the backbone cable fails, the entire networks fail. Also if any of the devices are down, the network fails. An example of bus network topology is the Ethernet.

Advantages of bus topology

It is easy to connect a computer or peripheral to a linear bus.

It requires less cable length than a star topology.

Disadvantages of a bus topology

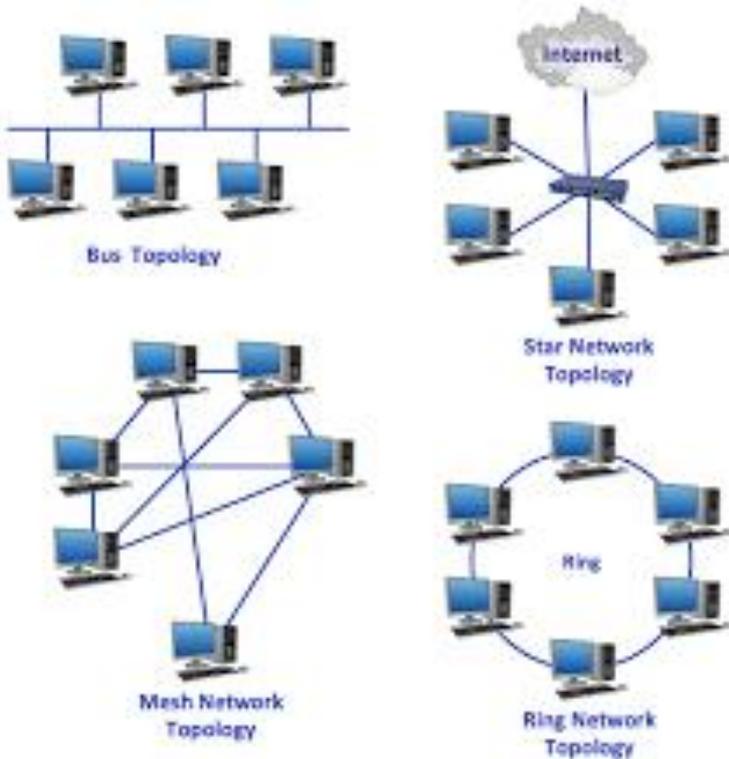
Entire network shuts down if there is a break in the main cable.

Terminators are required at both ends of the backbone cable.

Difficult to identify the problem.

Ring topology

In a ring topology, all the network devices are connected together in a ring form. That is every device has exactly two neighbours for communication processes. All messages travel through a ring in the same direction (either clockwise or counterclockwise). A failure in any cable or device breaks the loop and can shut down the entire network.



NETWORK DEVICES

The network devices are the nodes of the network. They are devices that aid connection and communication. The common network devices are:

The hub

The Network Interface Card (NIC)

The switch

The router

The MODEM.

The hub: A hub is a device that connects all the other devices in a star network together. Every device in the network connect directly to the hub through a single cable.

MODEM: Modem is an acronym for modulator/demodulator, it is device that can convert a digital data to an analog data and vice versa.

Switches: A switch is a device that channels incoming data from any of network device to the specific device that is the destination of the data. Unlike the hub, the switch is intelligent because it does not broadcast but channels the data to the specific destination.

Router: A router is a network device that connects two or more dissimilar networks together. For example, a router can connect a ring network with a star network, a wireless network and a cable network, LAN with a WAN etc.

Network interface card (NIC): This is also known as a network interface controller, network adapter, LAN adapter. It is a computer hardware component that connects a computer network.

Benefits of Computer Networking

It helps to enhance connectivity: Networks connect and link unlimited number of computers. This in turn connect the people using those computers.

2. Networking helps in sharing of hardware resources: Networks helps in sharing of different kinds of hardware devices. For example, a single printer can be shared by many staff in an office. This saves lot of cost.

Eases out management of data: Networking provides the advantages of centralization of data from all the use systems to one system where it can be managed in an easy and better way.

Internet: The internet is a network that connects different people in different parts of the world.

It allows people to communicate and share resources across the globe.

5. Saving of data: This helps to save a lot of time and energy. It also facilitates the use of applications like database that are based on ability of many individuals to access and to access and to share exactly the same data.

Networking promoted games – Many internet games are being played by players all over the world using common server.

INTRODUCTION TO WORLD WIDE WEB (WWW)

The world wide web, abbreviated as www or W3 and commonly known as the web is a system of interlinked hypertext documents accessed via the internet.

With a web browser, one can view web pages that may contain text, images, video and other multimedia and navigate between them via hyperlinks

BRIEF HISTORY OF WWW

Using concepts from earlier hypertext systems, English engineer and computer scientist Sir Tim Berners-Lee, now the director of the World Wide Web consortium, wrote a proposal in March 1989 for what would eventually become the World Wide Web.

SCERN in Geneva, Switzerland, Berner-Lee and Belgian computer scientist Robert Cailliau proposed and access information of various kinds as a web of browse at will, and publicly introduced the project in December.

The World Wide Web was developed to be a pool of human knowledge, and human culture, which would allow collaborators in remote sites to share their ideas and all aspects of a common project.