

# **INTERNET, EMAIL AND WWW**

# Internet

## What is the Internet?

refers to a global inter-connection of computers and computer networks to facilitate global information transfer. It is an interconnection of computers throughout the world, using ordinary telecommunication lines and modems.

The internet is a global system of interconnected computer networks that use the standard internet protocol suite (TCP/IP) to link networking devices worldwide.

The internet is a network of networks that consists of millions of private, public, academic, business, and government networks, of local to global scope, that are connected by wide range of wired and wireless networking technologies

# Network

- ▶ A network is defined as a group of two or more computer systems linked together eg through LAN
  - ▶ The other names for the Internet:
    - The Net.
    - Information Superhighway.
    - Cyber space.
    - ▶

# Internet: Key Developments

- ▶ 1961, Leonard Kleinrock in his research paper introduced the concept of packet switching.
- ▶ In 1968, DARPA funded a research project to develop what is known as the ARPANET.
- ▶ In 1974, Vincent Cerf and Bob Kahn developed communications protocol called TCP and ARPANET morphed in the Internet.
- ▶ 1989, Internet was first commercialized.

# Definition of a protocol

- ▶ A **Protocol** - a set of rules and standards that computers use to communicate with each other over a Network.

# Features of the Internet.

- ▶ The Internet is a collection of networks; it is not owned or controlled by any single organization, and it has no formal management organization. However, there is an **Internet Society** that co-ordinates and sets standards for its use.

# Features of the Internet.

- ▶ Networks are connected by **Gateways** that effectively remove barriers so that one type of network can “talk” to a different type of network.
- ▶ To join the Internet, an existing network will only be required to pay a small registration fee and agree to certain standards based on TCP/IP.
- ▶ Networks that join the Internet must agree to move each other’s traffic (data) at no charge to the others, just as it is the case with mail delivered through the International Postal system. This is why all the data appear to move at the cost of a local telephone call, making the **Net** a very cheap communication media.

# Functions of the internet.

## 1.Communication.

- ▶ Many people all over the world use the Internet to communicate with each other.
- ▶ Internet communication capabilities include; E-mail, Usenet Newsgroups, Chatting and Telnet. You can send e-mails to your friends anywhere in the world, chat with your friends, send instant messages, etc.



# Functions of the internet.

## 2.Information retrieval.

The Internet is a library. Thousands of books, magazines, newspapers and encyclopedias can be read on the Internet.

## 3.Easy-to-use offerings of information and products.

- ▶ You can find information for your school assignments, buy books online, check what the weather is like anywhere in the world, and much more.

# Internet services

## Electronic Mail (E-mail).

- ▶ An **E-mail** is a system that enables sending & receiving of messages electronically through computers.
- ▶ **Conference services.**
- ▶ **Conferencing on the Web** can be defined as the dynamic exchange of all kinds of information - text, graphics, audio, video, etc
- ▶ **Chatting.**
- ▶ **Internet Relay Chat (IRC)** is a chatting system on the Internet that allows a large no. of people from various locations of the world who are on the computer to chat (i.e., simultaneously hold live and interactive electronic conversations) among themselves.

# Internet services

## ► Information retrieval.

The Internet is a voluntarily decentralized network with no central listing of participants or sites.

The **World Wide Web** is a global (an international) system of connected Web pages containing information such as, text, pictures, sound and video. The WWW is *hypertext based* (i.e., it is able to access text and graphical data formatted for easy search, retrieval and display).

# Internet services

## ► Downloading of Programs.

- There are thousands of programs available on the Internet. These programs include; Word processors, Spreadsheets, Electronic cards, etc.
- Therefore, look for the latest software over the Internet, e.g., you can get the latest Anti-virus software, and in addition, retrieve a free trial issue.

## ► Entertainment.

There are hundreds of simple games available on the Internet. These include; Chess, Football, etc. The Internet also allows you review current Movies and hear Television theme songs.

## ► Online Shopping.

You can order goods and services on the Internet without leaving your desk. E.g., you can view a catalogue of a certain clothes shop over the Internet and fill in an online Order form.

# Internet services

## ► File Transfer.

Data in the form of files can be transferred across the Internet from one site to another using the **File Transfer Protocol (FTP)**. FTP software is needed at both ends to handle the transfer. It is through FTP that the two pieces of software manage to ‘understand’ each other.

## ► A **Discussion group** is a collection of users who have joined together to discuss some topic.

There are many discussions on different topics including Cooking, Skydiving, Politics, Education, recreational, scientific research, etc.

# Internet services

- ▶ **Video Conferencing.**
- ▶ Video conferencing provides real-time transmission of video & audio signals to enable people in 2 or more locations to have a meeting.
- ▶ **Electronic Commerce.**
- ▶ Many people are actively using the Internet for Electronic Commerce (i.e., doing business on the Internet).
- ▶ There are 4 ways in which the Web can be used to support E-commerce;

**1.Electronic Store** is a Website that lists all the products or services a business wishes to sell, thus enabling customers to purchase them by using the Internet itself.

# Internet services

- ▶ **Electronic Marketing.**
- ▶ E-marketing sites focus on the products or services of one company with aim of increasing sales.
- ▶ **Information / Entertainment provider.**
- ▶ The Information/Entertainment provider supplies information (in form of text or graphics) or entertainment. These providers provide information from many sources with an aim of helping the users.
- ▶ **Customers Service sales.**

This provides a variety of information for customers after they have purchased a product or service - to allow customers access most commonly needed information 24 hrs a day.

# Electronic Mail (E-mail)

- ▶ Definition
- ▶ **Email**
- ▶ Electronic mail refers to the sending and receiving of electronic letters and documents on the Internet.
- ▶ **E-mail Software**
- ▶ E-mail Software falls under communication software that are designed to help the user to read and send individual text documents on the internet so long as the sender and receiver have an e-mail address.
- ▶ Like the normal postal address, an e-mail address directs the computers on the Internet on where to deliver the e-mail message. A typical e-mail address would look like this:





- ▶ **chemwex@yahoo.com**
- ▶ **chemwex** is the user name and is usually coined by the user during e-mail account registration.
- ▶ **@** is the symbol for “at” which actually separates the user name from the rest of the address.
- ▶ **yahoo. com** is the name of the host computer in the network i.e. the computer on which the e-mail account is hosted.
- ▶ The period **.** is read as dot and is used to separate different parts of the e-mail address.
- ▶ **com** identifies the type of institution offering a particular service(s) and is called the domain, meaning it is a commercial institution.

## Other common domains include:

- | ► Domain | Type                            |
|----------|---------------------------------|
| ► .edu   | Educational institution.        |
| ► .gov   | Government institution.         |
| ► .org   | Non-profit making organization. |
| ► .mil   | Military organization.          |
| ► .co    | Commercial institution          |
- Sometimes another two-letter extension is added after the domain name to show the country where the site is located e.g. in jsmith@yahoo.co.uk, .uk stands for United Kingdom. Other countries domain name include .ke (Kenya) .ug (Uganda, .tz (Tanzania), .jp (Japan), .au (Australia) etc.

# E-mail Facilities

## ► (i) Mails

### (a) Checking Mail

- In order to check mail the user has to open the e-mail account by providing the correct user name and password. In e-mail account, click the Inbox command to view a link list of all received mails.

### ► (b) Compose a mail

- Composing implies writing. To compose a message, click the compose command.

### (c) Send mail

- To send mail, type the correct e-mail address of the recipient in to: text box, type four letter then click send command.

### (d) Forward mail

- A received mail can be forwarded to another recipient. After reading click the Forward command and then provide the address of the recipient.

## **(ii) File Attachment**

- ▶ E-mail software enables a person to attach other files like pictures, music, movies Clips etc. to an email for sharing with others. Before sending. The source of attached files can be from the hard disk, floppy disk, flash disk or other storage devices.

## **(iii) On-line meeting**

- ▶ It's possible to hold on-line meeting with people by sending mails to them. E.g. On-line interviews may involve a person sending electronic mail composed of interview questions to a recipient who can read and answer back.

## **(iv) Telephone messages**

- ▶ Wireless Access Protocol (WAP) makes it possible to send e-mail to a mobile handset and a mobile message to e-mail account.

## **(v) Contact Management**

- ▶ Most mails programs allow the user to develop an address book, which holds contact information like e-mail address of different people.

# Importance of services provided on the Internet.

- ▶ **As a research tool**

To learn about new developments or products, competitors, market news and customer opinions.

- ▶ **As an advertising / trading tool**

To help in selling goods or delivering information through the Web pages to customers on a 24-hour basis.

- ▶ **As a communication tool:** To support communication with customers, suppliers or staff through Electronic mail (e-mail).

- ▶ **As an Entertainment channel:**

- ▶ Most of the Games, Movies, and Television theme songs are available for free on the Internet. In addition, you can have live, interactive conversations with people around the world including celebrities.

# Users of the Internet.

- ▶ Researchers can get information.
- ▶ Writers and Scientists use the Internet to compile, compare and analyze their work.
- ▶ Individuals use the Internet for their work or to communicate with each other.
- ▶ People with the same interests can share ideas.
- ▶ Large organizations use the Internet to communicate with each other, and also to keep in touch with subordinate (subsidiary) companies or their suppliers.
- ▶ Students can communicate and gather information.
- ▶ Business people can advertise, communicate and sell their goods.
- ▶ Sales people use the Internet to keep in touch with their home offices.
- ▶ Buyers can do their shopping online.

# Internet Connection

- ▶ There are two principles ways of connecting to the internet, namely dial-up and direct connection.
- ▶ **Dial-up connection**

Access internet on per -use basis and use a modem. Users gain internet access when they contact an ISP, and the ISP transfer them to the internet.

Direct connection provide continuous “always on”, access to the internet. This method is convenient and fast, because permanent network connections are generally capable of handling high bandwidth. E.g. Local Area Network (LAN) connection.

# CONNECTING (LOGGING ON) TO THE INTERNET.

- ▶ **Log On** -To identify yourself & gain access to a computer. To log on, type a user name & a password.
- ▶ **Facilities Needed.**

To use the Internet, you must have access to it. In order to get connected to the Internet and access the World wide Web, you will require the following facilities:



# Connecting (logging on) to the internet.

1. A Computer.

2. Web browsers are application programs that are used to retrieve Web pages from the Internet onto your Personal Computer.

3. Telephone lines.

4. Modem (Modulator/Demodulator).

- ▶ On the Internet, computers exchange information through **Telephone lines**. Therefore, to use the Internet, you need a Modem & a Telephone line.

# Connecting (logging on) to the internet.

- ▶ A **Modem** is a device that enables you to connect to the Internet, and access information.
- ▶ As a Transmitting modem, it translates computer information (which is in digital form) into analogue form (the form that can transmit over telephone lines). This process is called **Modulation**.
- ▶ As a Receiving modem, it translates the information back into digital form (a form that your computer can understand); a process called **Demodulation**.

## 5. Internet Service Provider (ISP).

- ▶ When connecting to the Internet using a modem, you need to sign up with an **Internet Service Provider (ISP)**.

# Selecting an Internet Service providers

**Internet services providers (ISP)** are organizations that provides individuals and businesses with access to the Internet dial up connections as well as broadband services.

**Ease of use**

**Support-** customer support services.

**Cost-** What are the set-up costs

**Services-** at the minimum, provide e-mail and internet access.

**Preformation** -Asking people who have an account with services provider.

**Privacy-**Do they have a solid privacy policy ? For filtering undesired content.

# Examples of ISP in Kenya

- ▶ Africa Online
- ▶ NairobiNet
- ▶ Wananchi
- ▶ KenyaWeb
- ▶ KENET
- ▶ Access Kenya

# Internet software

- ▶ **Web Browser's-** lets one view the text, pictures, animations, videos. Examples internet explorer, Firefox etc.
- ▶ **E-mail programs-** sending and receiving email examples outlook.

# Internet domain

- ▶ Most of the Internet domain end with designations indicating the type of site or geographical location
- ▶ **Com-** Commercial
- ▶ **Gov.** - Government
- ▶ **Net-** network center
- ▶ **Edu-**education
- ▶ **Org-**Organization

# The World Wide Web (www).

- ▶ The World Wide Web is also known as the **Web**, **WWW** or **W3**.
- ▶ The Web is an Internet application (software) that uses the Internet as its network.
- ▶ **World Wide Web** is the graphical, multimedia portion of the Internet.
- ▶ WWW is a system of hyperlinked documents that can be accessed via the internet using a Web browser.
- ▶ Each Web page may contain links to other pages using hypertext.
- ▶ The Web is a part of the Internet. It is comprised of millions of Web pages. This huge collection of documents is stored on computers, called **Hosts**, around the world.
- ▶ The documents may contain text, pictures, sound, small programs or forms to be completed by a user.

# WWW: Key developments

- ▶ Tim Berners Lee wrote the original proposal of WWW in 1989.
- ▶ 1993: Marc Andreessen and colleagues at University of Illinois create Mosaic, the first Web browser opening the world with software that is easy to use.
- ▶ In 1994, The World Wide Web Consortium (W3C) was founded at the MIT in collaboration with CERN, where the web originated.
- ▶ The World Wide Web Consortium (W3C) is an international community where Member organizations, technical experts and public work together to develop Web standards.



# Web pages.

- ▶ **Web pages** are documents published by organizations and individuals who are interested in putting themselves on the Web. Web pages can include text, pictures, sound and video.
- ▶ **Web page** is a location on the WWW, usually a Web site.
- ▶ The Web pages can also be found on company Intranets.

# Intranets and Extranets.

- ▶ **What is an Intranet?**
- ▶ An **Intranet** is an internal corporate network used in organizations to enable the sharing of documents among coworkers. It supports users inside one organization (usually on a LAN).

# Intranet

- ▶ **Intranet** - A private network within an organization. It can connect all types of computers within an organization.
- ▶ Intranet has a private Web Server, which can be made available to the entire organization, individual department or to specific departmental workgroups.
- ▶ An Intranet uses the infrastructure and standards of the Internet and can be connected to the Internet.
- ▶ **Note.** Intranet applications are usually combined with the normal Web application of other organizations, but are hidden from those outside the organization.

# Extranet

- ▶ An Extranet works in much the same manner as an Intranet, but provides information to selected users outside the organization.
- ▶ E.g., a certain university can have an Internet library containing millions of articles, but only make it available to staff and students at colleges and universities within the country.
- ▶ access the library, you must provide a password when you connect to the Internet site.

# Web Site.

A collection of Web pages belonging to an organization or individual. These organizations or individuals maintain the Website.

- ▶ **Web site** - A group of related Web pages.
- ▶ A **Web site** is a screen or a collection of screens that provide information in text or graphical form that can be viewed by Internet users by activating the appropriate icon or commands.

# Web Browsers (Web browsing software).

- ▶ A **Web browser** is a program that lets the user browse through information on (or surf) the Web.
- ▶ Information on the Web is structured into pages. Each page has a specific address that is used to locate and access information on that page.
- ▶ A WWW browser program enables the user to either search for data by name or by specifying locations known as **Uniform Resource Location (URL)**.

# Comparison of Internet & WWW

Internet	WWW
<ol style="list-style-type: none"><li>1. Internet is a massive network of networks, a networking infrastructure.</li><li>2. It connects millions of computers together globally using TCP/IP protocol suite.</li><li>3. Internet was developed first.</li><li>4. It is a network in which any computer can communicate with any other computer as long as they are both connected to the Internet.</li></ol>	<ol style="list-style-type: none"><li>1. The world Wide Web is a way of accessing information over the Internet. It is an information sharing model that is built on top of the internet.</li><li>2. The World Wide Web is a middleware that uses the HTTP protocol to transmit data.</li><li>3. WWW was developed later and uses the Internet infrastructure.</li><li>4. WWW is distributed system that consists of layers of software, applications, services and web pages.</li></ol>

