INTERNET

- This is an International/global interconnection of computer networks.
- It is described as a network of networks; it is a global network where all LANs(both big and small) worldwide are interlinked. These networks connect together in many different ways to form the single entity that we know as the **Internet**. In fact, the very name comes from this idea of interconnected networks.

History of the Internet

- The Internet was originally developed in the late 1960'sby the US government department of defense to improve secure communication between its military computers and enhance the sharing of information and collaboration on military and scientific projects in four locations; universities of California, Los Angeles, Santa Barbara, Utah and Stanford research institute.
- This internet was known as ARPANET (Advanced Research Projects agency Network).

THE INTERNET ADDRESS(IP address)

- Because the Internet is a global network of computers each computer connected to the Internet **must** have a unique address.
- An IP address is a 32-bit code made up of four numbers(octets) separated by dots example; 234.233.32.123 (Internet addresses are in the form **nnn.nnn.nnn.nnn** where **nnn** must be a number from 0 – 255)

IP address

But computers communicate in binary form. So an IP is represented as follows

- **11011000.00011011.00111101.10001001**
- The four numbers in an IP address are called **octets**, because they each have eight positions when viewed in binary form. If you add all the positions together, you get 32, which is why IP addresses are considered 32-bit numbers.

IP address

- Since each of the eight positions can have two different states (1 or zero), the total number of possible combinations per octet is 2^8 or 256. So each octet can contain any value between zero and 255. The octets are split into two sections: **Net** and **Host**. The Net section always contains the first octet. It is used to identify the network that a computer belongs to. Host (sometimes referred to as **Node**) identifies the actual computer on the network. The Host section always contains the last octet.

Domain name

- A domain name is one that represents an IP address of a computer on the network. It identifies the organisation or group on the internet.

  An example; www.bbc.co.uk
- It is separated into four parts just like the IP address. A user normally finds it easier to use a domain name instead of an IP address to access the internet, but the internet protocol only understands IP addresses so the domain name must be translated(resolved) into an IP address by the **DNS** server (domain name system)

Domain name

- **Domain Name System** (DNS), maps text names to IP addresses automatically.
- **WWW** indicates the host server
- **bbc** is the name of the organisation(second level domain). All domain names are registered with a central agency called ICANN to ensure uniqueness.

  Co indicates that it is a company. This part of the name is referred to as the **top or high level** domain name which indicates the type of the organisation.

Top level domain names

A top-level domain or domain name (TLD), is the last part of an Internet domain name, that is, the group of letters that follow the final or last dot of a domain name.
Note that the top level domain can be separated into second level domains for example,
.co.uk or . sc.ug

Second level domain (SLD)

The second-level domain is the readable part of the domain name. . It typically refers to the organization or entity associated with the IP address. For example, in www.cnn.com "cnn" is a second-level domain.

WWW. makes up the third level part of the domain name (third level domain)

Commonly used Top level domain names

- **.com** indicates that the organisation is a commercial one ie business
- **.gov** indicates that it is for a government department
- **.ac** is for an academic organisation
- **.org** is for a non commercial or non business organisation
- **.sch** is for a school organisation
- **.net** is for a company that provides internet services

Domain name

- **.uk** which is the last part of the domain name indicates that the web site is based in the UK.
- Each country has been asigned a two letter code
- Such as;
- **.au** for Australia
- **.de** for German(Deutschland)
- **.it** for Italy
- **.es** for Spain (espania)
- **.ug** for Uganda

Uniform resource locator (URL)

- A URL is the full address used to find files or web pages on the internet. For example
- http://www.awebsite.co.uk/index.html

PARTS OF A URL

- The protocol being used, which could be http or ftp
- The domain name which is the location that contains the file of web page
- A pathname to the file needed
- URLs don't contain capital letters or spaces, but contains dots and forward slashes
- Forward slashes specify the path to the location of the file needed.

URL structure

Protocol domain name filename/page

http://www.gayazahs.ac.ug/history.html

Hypertext transfer protocol (HTTP)

- HTTP is the set of rules that govern how the multimedia files are transmitted over the Internet. The content of the WWW contains text, sound, video so HTTP ensures that they are all transmitted as a webpage in a common format.

Requirements for Internet connection

- Host computer
- Communication hardware such as Modem and router.
- Communication Software such as a Web browser and internet protocols
- Communication media such as VSAT, wireless antenna.
- Internet Service provider(ISP)

Internet Service providers

- This is a company which provides access of their client networks to the Internet at a fee for the connection.
- There are many ISPs on the market in Uganda to choose from such as AFSAT, UTL, MTN etc.
- One of the key factors in choosing an ISP is the price that they charge. The common connection methods provided by ISPs are; Dial-up and Leased line or Cable modem.

What to consider before choosing an ISP

- • Your Internet service needs. Suppose all you need to do is check e-mail and read web pages, a dial-up connection may be enough. But most people also want to download music, television shows, or watch videos. For these, you will need a faster connection with broadband access, such as a digital subscriber line (DSL), a cable model, or satellite.

- • Available technology. In case you intend to hire a dial-up service, you need to consider the availability of a local phone number or toll-free number for access., This would help to reduce cost of acquiring totally new technology or equipment. You also need to consider the Technology offered by the ISP. Some technologies are older and less efficient than others. The ISP should be able to offer the latest and most efficient technology.

- • Additional services offered. You need to consider what additional services the ISP can offers on top of providing Internet access. For example, free e-mail and website hosting.
- • Technical support. What kinds of support services can the ISP provide. Are there any additional charges for support?
- • The terms of service. You need to consider the terms of services offered by the ISP and determine whether they meet your expectations or not, for example, is there a limit to the number of hours per month you can use the service or is there a limit to the amount of download or upload per month?, does this fit well within your needs?

Internet connection technologies

Dial-up (DUN)

- This is a connection method where the client must request for a connection to the ISP server each time he wishes to access the Internet. This method requires the use of a MODEM and a telephone line and the fee depends on the amount of time spend on-line.
- Dial-up networking with WindowsXP

Leased line

- This is where there is a permanent connection between the user and the ISP at a fixed fee. This connection normally uses DSL technology
- DSL stands for Digital subscriber line. **DSL** or **xDSL**, is a family of technologies that provide digital data transmission over the wires of a local telephone network via a DSL adaptor. DSL Equipment.docx
- DSL family includes ADSL and ISDN, SDSL, HDSL and others.

Integrated Services digital network (ISDN)

- ISDN is a method of creating high speed data transmission using a telephone system in Digital form by using an ISDN adapter at either end to send and receive the data in digital form instead of using a modem. There is no need to modulate and demodulate data.

Asymmetric Digital Subscriber line (ADSL)

- ADSL provides high speed transmission using the standard telephone network in digital form with ADSL adaptor at either end, but splitting the frequencies on the telephone line into three channels of different bandwidth (asymmetric), the bandwidth for each channel is set according to how much data will be transmitted through it for example one channel is set to send and receive voice data for telephone conversations, one channel is set to upload to the internet and the third one to download form the Internet.

Asymmetric Digital Subscriber line (ADSL)

- Different Bandwidths are allocated to each channel depending on the volume of data; the channel for downloading is the largest. it is possible to adjust the Bandwidth of the three channels according to the data that is being transmitted.

Cable modem

- A **cable modem** is a type of modem that provides access to a data signal sent over the cable television infrastructure. Cable modems are primarily used to deliver broadband Internet access, taking advantage of unused bandwidth on a cable television network.

how cable modem works

Broadband Internet access

- Broadband Internet access, often shortened to just broadband, is high-speed Internet access. In some countries such as USA, TV cable companies install a single cable to provide both cable TV and Internet services to customers. A special cable box is needed to split the signal for the television and the PC. These cables are two-way, an improvement over the one-way cables used solely for cable TV.

BANDWIDTH

- Bandwidth is the amount of Data (bits) that can be transmitted along a communication channel in a given time (per second) . It relates to the range of frequencies that are available on the cable (medium) that can be used to carry data. The larger the range of frequencies the greater the amount of data that can be transmitted.
- Bandwidth is measured in bits per second or bps.

Example 32 bps.

- This simply expresses how many binary digits can be transmitted in one second.

BIT RATE

Bit rate is the speed at which a particular transmission is taking place. It is also measured in bps and represents the actual speed of transfer of data.

Determinants of internet access speed.

- The amount of bandwidth allocated by ones ISP.
- Connection technology used ; telephone lines are much slower than newer technology such as ISDN and ADSL.
- The volume of traffic. the more the number of people logged on the internet the slower the internet speed.
- Adapter or modem speed used.
- The processing speed and amount of RAM of the host computer
- Type of data/files being downloaded or uploaded.

Communication software requirements for Internet access

- Web browser
- TCP/IP protocol
- HTTP

Web browsers

- A Web browser or Web client, is software designed to allow the user to access and view web pages on the Internet's World Wide Web. The browser is primarily designed to interpret hypertext Markup (HTML) language. HTML is a code in which web pages are written, therefore it requires a web browser which is specialised software that is able to retrieve and display text, and multi-media. Browsers interpret those pages and display them on your computer. Modern Web browsers are also referred to as internet suites because of their ability to display a variety of applications, programs,

- animations, and similar material created with other programming languages such as Java and ActiveX, scripting languages such as JavaScript, and techniques such as AJAX, and the like which have other file formats. A web browser is a software designed to allow one access and view web pages . Hypertext transfer protocol is used to transmit hypertext over the Internet.
- Commonly used web browsers include; internet explorer, Opera, AOL Mozilla ,Fire fox etc

HTTP

- Hypertext transfer protocol (HTTP) is used to transmit hypertext over the Internet. More about the World Wide Web is discussed later in the chapter. Web browsers also use Plug-in applications to display other content, such as videos and animations that the browser is unable to directly display; a plug-in such as Shockwave and Quick time, Adobe acrobat reader, flash player, Realtime player and DirectX, must be installed and configured to run on the computer. A plug in is a small application that installed to add special capability to a major application such as a web browser.

Functions of a Web browser

- • A web browser contacts a web server for the requested URL. The web server then looks for and locates the requested page, then sends the information to the web browser that has made the request.
- • The Web browser receives the information. The web browser uses the HTTP protocol over a network to communicate with and access information from the web server.
- • To display the results on the screen. The coding in the HTML files tells the browser how to display the text, graphics, links, and multimedia files.

Features of a web browser (Web browser Interface)

- • A menu bar that has items like file, edit, View, History, bookmarks or favourites, tools, help and others depending on the browser type and version.
- • A standard tool bar
- • An address bar to type in the desired Uniform Resource Locator (URL).
- • Navigation buttons to move forwards or backwards between pages and a home button to go to a start-up page.
- • A print button. This enables you to print a webpage or a section of it.

Common web browser error messages

You may request the browser to fetch and display a web page, but instead of doing that, it displays an error message or HTTP status code . Some of the browser error messages are;

• Request Timeout (error 408)

This is Error 408 message implies that the browser was "timed out" because the server was unable to process the browser request within the allotted timeframe. A server will only try to access and send the page for only a specified time before it gives up and supplies you with an error 408. This may necessitate refreshing the page.

• Internal Error (error 500)

This error comes about when the web form malfunctions.

• File Not Found (error 400)

This error indicates that the page you are trying to access cannot be found at the specified web server. The browser may have failed to properly load the page file, or the page does not exist anymore, or the server containing the page is currently down.

• Unable To Connect To Remote Host

This implies that the web browser is unable to connect to a remote host on which the page is hosted. This may mean that the server is down, or there is no Internet connection, or the web address was misspelt firstly, you may need to retype the web address into the URL bar or try accessing another website. If other pages work, then you need to close down your browser and restart it. If you are still not receiving the page, then you may need to troubleshoot the Internet connection.

Transmission Communication Protocol/ Internet Protocol (TCP/IP)

• This is a protocol suite made up of two protocols TCP and IP. TCP manages the transmission of data by breaking it up into packets allowing data to be transmitted more easily and quickly. It defines how to break the message into packets, provides routing information for message delivery, and reassembles the message at the receiving end. IP sends each packet by specifying the address of both the sending and receiving computers. It is often referred to as point-to-point because each connection is from one point to another point in the network.

Whereas there are other protocol suites like Novell Internet Packet Exchange/Sequenced Packet Exchange (IPX/SPX), and Apple AppleTalk, TCP/IP remains the most popularly used suite.

What is available on the Internet

- The world wide web.
- Search
- Communication boards.
- Portals
- Telnet
- E-mail
- Internet relay chat (IRQ)
- Usenet
- Video conferencing
- File transfer.
- Wikis and blogs
- Discussion
- Podcasts.
- Mailing lists

World Wide Web

- The world wide web (WWW or W3)

This is the global collection of **web sites** and **web pages** which are **hyperlinked**. they may contain text, graphics, sound and video. There are virtually no regulations regarding the content of the WWW, so any one with appropriate software and hardware can create a web site on any topic. Consequently there are millions and millions of pages of information covering every conceivable topic.

- A website is an Internet location that contains hyperlinked documents known as web pages hosted on a web server.
- Web pages are HTML documents.
- Hyper links are built-in links to other related documents, allowing users to quickly navigate from one document to another when clicked.

Search engines

- A search engine is a software that allows one to search for web pages on the WWW by typing in a search query relating to the topic that one is searching for.
- For example, you might specify that you want to search for information about "Polar Bears", in which case the search engine would return all the URL's it knows about that has information about Polar Bears.

How search engines work

- Search engines work in different ways to try and produce the best results in terms of coverage and relevance.
- Common approaches include;
- Keyword search. this is where web

"crawlers" or "Spiders(robots)" search for every reference to the keyword in the pages it searches and presents a list of web pages that contain the keyword

How search engines work

- When the user keys in the search query in the search text box and presses ok button, the search engine invokes a program that queries its database (a collection of all the web pages it has access to).
- The results are returned to the user as a number of possible URL's. Often, these will be ranked in priority or success rate, with higher values meaning more likely to contain the information you request (what it really means is that it contains more occurrences of the key words you were searching for compared to other documents).

How search engines work

- A search engine uses programs called 'spiders' or 'web robots' that search every page available then extracts all words from the content of the page and stores these words in a large database.

PORTALS

- A portal is a web site offering lots of different services like search, e-mail, online shopping and others. Examples Yahoo, MSN, AOL etc.
- More examples?

Terminal emulation

- This is an Internet resource/service that allows remote access to computers connected on the internet. This means that using one computer, one can access another computer and all the information and resources on that computer as if one was sitting at that computer.

File transfer

- Internet enables transfer of files between computers by use of FTP. FTP sites contain books, articles, software games images sound multimedia etc all of which can be transferred with or without the use of special download software.

File transfer protocol (FTP)

- FTP is another set of rules governing the transfer of files on the internet for example when uploading files onto a website or downloading software.
- Addresses for ftp servers start with ftp:// instead of http:// for example "ftp://ftp.microsoft.com"

E-mail

- E-mail or electronic mail is primarily text-based electronic message that is sent from one computer or other ICT devices to others. In order to send or receive an e-mail, one must have a computer connected to the Internet, E-mail software, and an e-mail account.
- When mail is received on a computer system, it is usually stored in an electronic mailbox for the recipient to read later.
- Messages can be replied to or forwarded with speed and ease.

E-mail software (e-mail client)

- E-mail software is an application software which allows individuals to create e-mail accounts and be able create, send or receive e-mail using SMTP and POP.
- Examples Microsoft outlook express, Hotmail, Yahoo.com

Mail servers

- A mail server is a computer on the Internet that operates like the traditional post office. The mail server receives incoming messages and delivers outgoing messages. It allocates a certain amount of storage space to hold mail to registered users. The area of storage allocation is your mail box. You can receive your mail by supplying your username and password through the mail client. This is necessary to protect your mail from unauthorised access.

Features of an E-mail software

- Email address. All email software require the user to have an email address, username and password which are unique to ensure security of the users emails.
- An email address has two parts separated with the @ sign for example yourname@yahoo.co.uk
- The first part of the of the address is the e-mail name made up of the username of the email account while the second/last part indicates who provides the email facility.

Features of an E-mail software

- From : indicates the address of the one sending the message
- To: This is where the address of the mail recipient is typed
- Cc: (carbon copy)This is where other addresses to receive copies of the same message are indicated in addition to the main recepient.
- Bcc: (blind carbon copy)this enables copies of the e-mail message to be sent to a third party without acknowledging/showing any other recipients(if any)

Features of an E-mail software

- Subject: refers to the theme/topic of the email. It is where the theme of the message is indicated.
- Compose: This is where one types the actual message.
- Attachments: an attachment is the added file or files that are sent with the message. Such files are usually too large to be sent as a simple message.

  Such files are known as MIME(multimedia internet mail extension) attachments.
- One advantage of this is that large files are conveniently sent.

Features of an E-mail software

- Address book: is an area that stores email addresses for future use or mailing lists
- Inbox: this where all incoming messages are stored and can be viewed, it shows the name of the sender of he message, the date it was sent and the subject of the message.
- Outbox/sent messages: Stores copies of any messages that have been sent at stated dates. This is useful for future reference.

Handling ones mails

- Inserting an attachment/file to your message. To insert and attachment, click on insert file attachment or attach file, then browse the hard disk or any other disks to find the file you want. Repeat the operation as many times as you need.
- Adding new contacts in your address book.
- Filtering messages received to avoind spam in your mail box.
- Sending messages.

Sending an Email to Multiple Recipients - Cc: and Bcc:

- Use Cc and Bcc to send an email to more than one person easily and fast
- "Cc" is short for *"carbon copy".* Enables one to send the same e-mail to two (or more) people without the task of having to write it more than once.
- The message you compose is sent to the person in the **To:** field, but a copy of exactly the same message is also sent to all the addresses listed in the **Cc:** field.

The Shortcomings of Cc:

- All recipient of the message get to know the email addresses of all the persons that received your message. This is usually not desirable. Nobody likes their email address exposed in public.
- Full Cc: fields also don't look all that good. They can become quite long and grow big on the screen. There will be lots of email addresses and little message text.

BCC

- The long version of "Bcc" is *"blind carbon copy".*
- The Bcc: field helps you deal with the problems created by Cc: a copy of the message goes to every single email address appearing in the Bcc: field. The difference is that neither the Bcc: field itself nor the email addresses in it appear in any of the copies .The only recipient address that will be visible to all recipients is the one in the To: field. So, to keep maximum anonymity you can put your own address in the To: field and use Bcc: exclusively to address your message.

Cc: and Bcc: Netiquette

- Bcc: is a nice and powerful tool. But you still should limit its use to cases when it is clear that the message was sent to multiple recipients whose addresses are protected using Bcc:. You could mention the other recipients at the end of the email by name, but not by email address.
- In any case, Bcc: is not a spying device. How would you feel when a message addressed to you might also have reached a number of other people, but you did not know?

What to consider when using email

- Email can be junk mail. so avoid unnecessary proliferation of messages.
- Email takes up computer space, so delete messages you no longer need.
- The integrity of an email message cannot be guaranteed. If a received message seems out of character for the sender, double-check before taking it seriously.

What to consider when using e-mail

- Email should not be considered private. Confidential information should not be sent by email.
- Take care opening attachments. treat any attachment you receive with suspicion unless you expect.

Benefits of using email

- Its quick; e mail takes seconds to send compared to snail mail.
- It's cheap. Compared to posting or faxing messages
- The same message can easily be sent to many recipients at once by use of a mailing list.
- Messages can be replied to or forwarded with speed and ease because the software automatically inputs the address of the sender.
- Other files can be sent as attachments which has increased the popularity of email in business.

Benefits of using email

- it is convenient because a message can be sent anywhere in the world without having to leave one's desk.
- E-mail can be used by businessmen to sent advertisements to potential customers.
- It is possible to send multimedia content as e-mail.
- The sender is informed in case the email is not send so that is able to find other ways of delivering the message.
- A copy of the message is kept

Disadvantages of e-mail

- The sender and receiver both need internet access and e-mail accounts-most people in Uganda do not have access to e-mail.
- The hardware needed is expensive
- Email will not be delivered if there is a small error in the address.
- Some people are not keen on checking their mail boxes. So an urgent message may not be read in time.

Disadvantages of e-mail

- There is a large volume of unsolicited e-mail known as 'spam' that tends to fill up mailboxes.
- E-mail tends to take peoples valuable time at the expense of work or study.
- Parcels cannot be delivered via e-mail which limits its usability.
- Most viruses are spread via email.
- The privacy of an email message cannot be guaranteed. So confidential messages ought not sent via e-mail.

Mailing lists

- This is an e-mailing facility which distributes the same messages to the electronic mailboxes of all subscribers to the mailing list. The automated list manager assembles all the messages and sends them to the subscribers which enables email discussion among the subscribers of a particular mailing list. One can subscribe to or unsubscribe from a mailing list.

Mailing lists

- To find mailing lists, use your web browser to visit;
- http://www.liszt.com
- http://www.paml.net

Internet Relay Chat (IRC)

- IRC is a text based communication system that allows you to enter 'virtual chat rooms'. Within these rooms one sends and receives instant messages to and from anyone else in the same chat room. Each room has a different name which usually indicates the nature of the chat room.
- IRC is provided by commercial businesses that have their own servers. All one needs is an appropriate software to access the a chat room.

Instant messaging (IM service)

- This is a one-to-one chat service as opposed to group chat offered by IRC. An instant messaging software which must be installed on the computer allows the user to build a list of ones Net-connected friends from which one selects who to chat with at a particular time in case they are on-line.

Video Conferencing

- This is a facility that links at least two computers together with digital video cameras. Its purpose is to allow people to talk to and see each other at the same time through their computer.
- In order to do this, one needs a web cam connected to the computer and a piece of software supplied with the camera that enables one to establish the connections and view the person at the other end through the camera.

Online-shopping and Banking

- All major banks and retailers/businesses have websites where online transactions and purchases can be made. E-commerce or e-business is the term used to refer to businesses operated over the Internet.
- Example of virtual shops;
- http://www.shopsonthenet.co.uk
- http://www.ukshops.co.uk/enter.shtml
- http://bookshop.co.uk
- http://www.amazon.com

Merits of e-commerce

- Overheads are reduced as there is no need for retail premises that is shops
- Businesses can attract new customers through the Internet who might not have come into their shops.
- The number of employees is reduced which reduces costs.
- Customers have access to information all the time increasing the chances of making sales
- There is no need to handle money because payment is done through electronic fund transfer(EFT)

- Businesses are able to collect information about their customers(market research) that they wouldn't be able to do normally.
- It reduces travel time and costs for the customers since they do not need to visit the shops
- Prices are reduced as the business can offer lower prices due to lower overheads.
- The customer is able to sample the products on-line, for example view movie clips or listen to music before buying.

Disadvantages of on-line businesses

- Many businesses have to run traditional retail businesses alongside their Internet operation which increases cost.
- Sales may be reduced if customers are unable to try products before they can buy.
- The web may be hacked leading to loss of money fraudulently by businesses.
- Conmen can easily trick unsuspecting customers leading to loss of money when they get access to customer's credit card numbers.

USE OF WIKIS

- A Wiki is a website that allows the easy creation and editing of any number of interlinked web pages via a web browser using a simplified markup language or a WYSIWYG text editor. Wikis are typically powered by wiki software and are often used to create collaborative websites, to power community websites, for personal note taking, in corporate intranets, and in knowledge management systems. Wikis are typically collaborative or discussion websites. One of the best-known wikis is Wikipedia.

BLOGS

a blog is a web site, where you write content or commentary on an ongoing basis. Usually maintained by an individual with regular entries of commentary, descriptions of events, or other material such as graphics or video. Entries are commonly displayed in reverse-chronological order. The new content shows up at the top, so your visitors can read what's new. Then they comment on it or link to it or email you. or not.

PODCASTS

- A **podcast** is a collection of digital media files which is distributed over the Internet, often using syndication feeds(**Web syndication** is a form of syndication in which a section of a website is made available for other sites to use. This could be simply by licensing the content so that other people can use it; however, in general, *web syndication* refers to making web feeds available from a site in order to provide other people with a summary of the website's recently added content (for example, the latest news or forum posts).

- for playback on portable media players and personal computers. The term, like "radio", can refer either to the content itself or to the method by which it is syndicated; the latter is also termed **podcasting**. The host or author of a podcast is often called a **podcaster**.
- Webcasts. this is the delivery of live or delayed sound or video broadcasts over the internet using streaming media technology. The sound or video is captured by the conventional video or audio systems, then digtized and streamed . Eg News broadcast, Radio and TV programs

- Webinars.
- This is short for web based seminar. It refers to conducting a seminar or lecture via the internet using graphics, text and live sound, unlike web casting, the audience is able to interact with the presenter such as asking questions by sending an instant message.

Characteristics of the Internet

- Made up of numerous networks world wide.
- No organisation has a direct control over the Internet.
- It is dynamic ; ever changing.
- It offers very many services
- The Internet size and technology grow at a very fast rate.
- It is not owned by any single organization (has mo central control.

Use of the Internet as a learning tool

- Used to search for information using search engines and directories
- E-mail system is used in collaborative learning.
- Enables distance learning for those who are unable to attend collage/school physically.
- Discussions over educational chat rooms.
- Enables downloading of relevant documents.
- Using computer assisted assessments (CAA) for online exams.
-

- Use of electronic libraries and textbooks.
- Development of skills of research and communication by the students.
- Assignment are received, done and sent across the network by the students.
- Video conferencing is used to share views and ideas among students and teachers.

General services offered by the Internet

1. Access to different kinds of information
2. E-commerce
3. E- banking
4. Research
5. on-line training
6. Downloading or uploading files
7. Sending or receiving messages.
8. Real-time communication e.g. video conferencing
9. Access to sources of entertainment such as online games.

Advantages of the internet in schools.

- A lot of information is obtained which is not available in a single textbook.
- Updated or current information is obtained since internet is dynamic.
- Learning is fun and easy as internet is exciting due to the multimedia content used.
- It offers different sources of information hence a variety of opinions on a topic.
- It is a quick way of getting information where internet connection is good.

Advantages of the Internet

- It encourages group work through collaboration therefore sharing of information and experience among students and teachers.
- Related topics are easily accessed through hyperlinks.
- Students are able to attend virtual classes.
- Different skills such as typing, use of web browsers , problem solving, e-mail are developed through the use of the Internet.
- Instant or timely communication is done by use of the E-mail system.

Disadvantages of the Internet

- No Information control over the Internet such that all sorts of bad information is accessed.
- There is no privacy of information and information piracy is common.
- Indecent material is published on the Internet.
- Its not readily available to most people.
- It is expensive to access drains school resources.
- Time is lost where Internet speed is low due to poor links, hardware and congestion.
- Many students and teachers do not have adequate skills of accessing the Internet.

Disadvantages

- Some sites give outdated therefore misleading information because they are not regularly updated.
- Time wasting occurs when students easily stray into non essential materials.
- Many Internet sites have been commercialized therefore emphasize adverts and selling such that less free academic content is given.
- Computer viruses are easily spread over the Internet.

Disadvantages

- Difficult to obtain information relevant to a particular level of a student.
- It is possible to obtain contradictory information.

Intranets

- An Intranet is a private internal network of an organisation using internet protocols and accessible using a web browser. It contains information specific to that organisation and only accessible to authorised users within the organisation or members of the organisation. It is therefore closed to outsiders.
- It is hosted on the server of the organisation.
- Intranet is used to avail information to members of an organisation

Differences between an Intranet and Internet

- Intranet is private while Internet is public.
- Intranet has geographical boundaries while internet has no boundaries.
- Intranet only shares company information while Internet has all sorts of information
- Intranet is a single source information while Internet is a multisource information.
- Intranet is controlled by an organization while there is no control over the Internet.

Website publishing

Web publishing is the process involved in making information available on the World-Wide Web.

A website (or Web site) is a collection of related hyperlinked web pages hosted on a particular webServer on the World Wide Web.

- Each Web site may contain one or more web pages. Each site has a home page, this is the first document/page users see when they enter a site. The site might also contain additional documents and files which must be hyperlinked. Each site is owned and managed by an individual, company or organization.
- A Web page is a document, typically written in HTML, that is accessible via HTTP, a protocol that transfers information from the Web server to display in the user's Web browser.

- A Webpage contains hyperlinks to other pages or sites.
- A **hyperlink**, is a reference or navigation element in a document to another section of the same document or to another document that may be on a different website.
- Web pages are written in HTML (HyperText Markup Language)