Unit 1:- Networking

Introduction

❑ The simplest definition of the Internet is that it is the largest computer network in the world.

❑ But technically speaking, the Internet is actually a network of many smaller networks that exists all over the world.

❑ This chapter shall introduce some newer and more useful features of the Internet along with Internet history, addressing, websites etc.

> **Definition**
>
> A **computer network** is a group of interconnected computers so as to facilitate sharing of resources and enhanced communication.

What is Network?

✓ A *computer network* is a collection of computers connected together for sharing information and hardware, software resources. A network can be formed with wired or wirelessly.

✓ Computer network facilitates the sharing of hardware & software resources among different users working on different computers.

✓ These shared resources can be data files, any application software and hardware devices like printer, modems etc.

✓ Interconnected computers from the computer networks.

Internet

Introduction

- ✓ Internet is computer-based worldwide information network.

- ✓ It provides many services to make our work easier.

- ✓ Internet is one of the best technologies used in the present world pf computers.

- ✓ It has brought the entire world at your home.

- ✓ Internet is a network of millions of computers, which are connected to each other & their number in growing day by day.

History of the Internet

- ✓ Internet were introduce in 1969, when US. Department of Defense sponsored a project name ARPANET (stands for Advanced Research Project Agency Network).

The original ARPANET was shut down in 1990, & the government funding for NSFnet discontinued in 1995.

But the commercial Internet services came into picture, which are still running the Internet.

What is Internet?

The word Internet can be split into two words that is '**Inter**' that means **inside** or **within** & '**net**' which means **mesh.**

> **Definition**
>
> **Internet** is a computer based works wide communications network, which is composed of large number of smaller interconnected networks.

More formally, the internet may be defined as follows:

The Internet is a network of computer, spread all over the world, that allows users to share information & to communicative with each other

> ❖ A computer that isn't connected to a network is known as a Stand-Alone Computer.
> ❖ A computer connected to a network is known as A Workstation or a Node or a Host.

Uses of Internet

i) <u>**Access to information:**</u>   On internet we can find information regarding anything, either personal, professional or study related problem. We can read newspaper online, read a book, check the latest movie

reviews, order for flowers, and get latest information on the latest software.

ii) **International Communications:** Over half of the world's nations have sites on Internet. Even more have access to e-mail gateways to exchange electronic with Internet sites. We can communicate with friends & colleagues anywhere in the world.

iii**) Research:** With every major university in the USA & Europe connected to internet, we can find information that will help us in our research.

iv) Education

v) Fun

Advantage of Internet

❖ Greater access to information reduces research times.

❖ Global reach enables one to connect to anyone on the Internet.

❖ Easy communication with other people.

❖ Publishing documents on the Internet save papers.

❖ Useful communication links.

Disadvantage of Internet

❖ Cyber frauds may take place involving Credit/Debit card numbers and Details.

❖ Computer viruses get downloaded and spread across machines connected to networks & have detrimental effects.

❖ Much of the information isn't checked & may be incorrected or irrelevant.

❖ Too much time spent on the Internet could result in a lack of face-to-face interaction with others & a loss of social skills.

❖ Going on-line runs the risk of malicious hackers or viruses being able to damage your computer.

WWW (World Wide Web)

From the late 1960s to the early 1990s, the Internet was a communication and research tool used almost exclusively for academic & military purposes.

Before WWW, Internet was mainly used for obtaining textual information.

It was developed in 1989 by **Tim Berners- Le in Switzerland.**

The protocol used in the exchange is called Hyper Text Transfer Protocol (HTTP). Web page are written in simple markup language called Hyper Text Markup Language (HTML).

Hypertext concept was given by **Ted Nelson, 1965**.

Meaning of WWW

The World Wide Web is a collection of documents stored on the computers around the world.

These documents are available on the Internet and may contain a wide variety of resources such as text, graphics, multimedia etc.

Definition

The World Wide Web (WWW) is a set of *programs, standards, & protocols* that allows the multimedia & hypertext files to be created, displayed & linked on the Internet.

History of WWW

Present day WWW has its official birth date as April 30, 1993. In the following table, we are giving a brief history of WWW.

1989	**On March 12, Tim Berners- Lee**, a British scientist working at CERN in Switzerland, submits a proposal for a "distributed information system" to allow researchers to deal with huge amounts of information. This is the genesis of the *World Wide Web*.
1990	*On December 20, world's first website goes live at **Info.cern.ch.** The first web page is http://info.cern.ch/hypertext/WWW/TheProject.html*
1991	On August 6, The *World Wide Web* is launched publicly as Berners-Lee publishes Details of the project on the Internet.
1993	On April 30, CERN releases the World Wide Web source code and announces it will be available free of charge. It also releases a basic browser along with a library of code.

Difference between WWW & Internet

A large part of the Internet is the 'world wide web' (WWW). This is made up of website that have one or more web pages.

But the Internet isn't just the web pages that you use every day.

It is also consist of:

- ❖ **Forums** where people can seek help and advice about a topic.

- ❖ **Research databases** used by universities and large companies.

- ❖ **E-mail** & **Instant Messaging** (IM) system.

It is really important to understand that the Internet is not the same as WWW. The internet is to the World Wide Web as Europe is to Germany. One is the container, the other one is an item within the container.

> Note: While Internet is a collecting of computers or networking devices connected together; WWW is a collection of documents, linked via special links called hyperlinks. WWW forms a large part of Internet but is not the Internet.

Internet Terminology

Before we proceed further, it will be good if we briefly talk about Internet terminology. In the following lines, we are introducing some basic terms related to Internet.

Client: Any computer on the networks that requests services from another computer on the Internet.

Server: Any computer that receives requests from client computers, processes & sends the output. Web servers respond to web related request. There can be other types of servers to handle different type of requests/actions.

Webpage: Any digital page/document hosted on Internet (i.e., accessible via Internet.)

Website: A collection of interconnected webpages, designed with a certain goal in mind.

Web portal: A website or service that offers a broad array of resources such as e-mail, forums, and search engines among others, e.g., sites like MSN, Yahoo, India times etc.

Web Browser: A program or software on a client computer that retrieves information from the web. Examples are: *Internet Explorer, Google chrome, Mozilla Firefox, Netscape, Mosaic, Opera, Safari, and Lynx* etc.

URL: *Uniform Resource Locator.* It is the unique address of a web page on Internet.

Blog: Short for Web log, a blog is a web page that serves as a publicly accessible personal journal for an individual. A *blog* is frequently updated online personal journal or diary.

Blogger: The author of a blog is called blogger. A blogger is the one who regularly writes and updates entries in his/her blog.

Blogging: The action of writing blog is called blogging.

Newsgroup: *Newsgroups* are Internet discussion forums where groups of users with common interests gather to discuss on a common topic of interest.

E-mail: Short for electronic mail, *email* refers to messages distributes by electronic means from one computer user to one or more recipients via a network mostly Internet.