BACHELOR OF COMPUTER APPLICATIONS

SEMESTER *5*

DCA3101

WEB DESIGN

Unit 1

Introduction to Internet

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1. INTRODUCTION

Today the Internet is everywhere, it is growing rapidly worldwide. Using the Internet, we can connect ourselves to anywhere. In this unit, we would begin with an introduction to the Internet, history of Internet. We would also discuss about connection types, the components of Internet, Internet Service Providers and Domain Name System (DNS), Internet,Internet. At the end we will explain about the Routers and connecting Internet using dialup networking.Internet.

1.1 Objectives:

After studying this unit, you should be able to:

- *Explain the meaning and history of Internet.*
- *Describe how to get connected to Internet.*
- *Define and list most commonly used connection types.*
- *Explain the types of dial up networking*

2. INTERNET

Connecting all systems in world called Internet. It is a network of networks that consists of millions of private, public, academic, business and government networks, of local to global scope, that are linked by a broad array of electronic, wireless and optical networking technologies. There is no single definition that holds good, but certain definitions are generally agreed upon because the Internet is a different thing to different people. We can give the following few expressions in this context.

- Internet links are computer networks all over the world so that users can share resources and communicate with each other.
- It is the name for a vast, worldwide system consisting of people, information, and computers.
- It is a network of networks that spans the globe.
- It is an ocean of information.
- It is a set of computers communicating over fiber optics, phone lines, satellite links and other media.
- It is a gold mine of professionals from all fields sharing information about their work.
- It is a worldwide interconnected system of thousands of computer networks, each network in turn linking thousands of computers together.
- The Internet is also what we call a distributed system; there is no central archive.
- The Internet thrives and develops as its many users find new ways to create, display and retrieve the information that constitutes the Internet.

2.1 Advantages

Some of the benefits of the Internet include the following:

- Always accessible: You can use it whenever you want. There is no requirement to await availability.
- Online Services: We can accomplish a variety of tasks via the Internet, such as purchasing tickets, buying online, and transferring money.

- Wide range of information: using a search engine, we can look up any term and discover a website with information about it.

2.2 Disadvantages

Internet downsides include the following:

- Virus attack: Computers connected to the Internet are more vulnerable to assault, which results in data loss.
- Spam: Emails with unwanted or pointless social or commercial content are considered spam. These include viruses and will slow down the machine.
- Dissemination of false information: Information occasionally put online is not accurate. It spreads quickly, which causes issues and misunderstandings.

2.3 Applications

The programmes are server-based programmes. Among them are:

- The World Wide Web, which is the largest collection of websites with information.
- Electronic mail: this convenient method allows you to send and receive messages from one computer to another computer worldwide.
- E-commerce: the online purchase and sale of goods
- Video conferencing: it enables in-person communication with several individuals located in various places.

2.4 History of the Internet

The Internet was the result of some visionary thinking by people in the early 1960s, which saw great potential value in allowing computers to share information on research and development in scientific and military fields.

J.C.R. Licklider of MIT, first proposed a global network of computers in

1962, and moved over to the Defense Advanced Research Projects Agency (DARPA) in late 1962 to head the work to develop it. Roberts moved over to DARPA in 1966 and developed

his plan for ARPANET. The first networking protocol used on the ARPANET was the Network Control Program. In 1983, it was replaced with the TCP/IP protocol invented by Robert Kahn, Vinton Cerf, and others, which quickly became the most widely used network protocol in the world.

In 1990, the ARPANET was retired and transferred to the NSFNET. The NSFNET was soon connected to the CSNET, which linked Universities around North America, and then to the EUnet, which connected research facilities in Europe. Thanks in part to the NSF's enlightened management, and fueled by the popularity of the web, the use of the Internet exploded after 1990, causing the US Government to transfer management to independent organizations starting in 1995.

SELF-ASSESSMENT QUESTIONS - 1

1. _____ is a network of networks that spans the globe.
2. In _____ year, the ARPANET was retired and transferred to the NSFNET.

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Internet providers. You can, for instance, choose one of the big commercial online service providers. The primary business of an ISP is hooking people to the Internet by giving an Internet account to subscribers and providing them with two different kinds of access: shell access and SLP/PPP access. Most ISPs offer both kinds of access, some offer both with a single account and others require that you choose one or the other. Once you register, your provider will give you a username (called a user id password, and a phone number to dial). To establish the Internet connection, you have your communications program dial the

number. You then log in using your particular user ID and password. At present it is VSNL (Videsh Sanchar Nigam Limited) which is dominating the Internet scene in India through its GIAS (Gateway Internet Access Service). The other service providers in India are MTNL (Mahanagar Telephone Nigam Limited), Mantra on-line and Satyam on-lie. Due to the new options in BSNL where the user needs to register from the telephone number and no separate account, the number of users has increased. In this case whatever the usage of the person the individual has to pay

Choosing an ISP

The privatization of Internet Service Providers (ISPs) is set to give a further fillip to the Internet boom. Central to the success of any service is the price criterion. You will be amazed to find out how a service offered at a premium could in effect be cheaper, considering the add-on facilities that are offered along with the core service. Do not forget that apart from the Internet connection, the ISP gives you an international contact address, that is, your e-mail address. It is because of this e-mail address that you must be discerning while choosing your ISP. The e-mail address provided by the ISP would be all over your business and it will not be easy for you to change your service provider if you wish to change your address. You will have to live with the ISP as well as the e-mail address.

User ID – Telephone Ratio: The first thing you must keep in mind while zeroing in on your ISP is the user-to-line ratio it commands. That is, how many users are using or are expected to use one single telephone line. Ascertaining this, however, is not easy as the numbers of subscribers are growing every day. Nevertheless, even the current user-to-line ratio will give you an idea about the standards the ISP has set for itself. This factor is very critical because it determines the ease of usage whether you would be able

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3. CONNECTION TYPES

The most common way to connect to the Internet used to be through a cable modem. Even in rural areas, dialup connections are used as a quick way to connect Internet.

3.1 Modems

A modem is a hardware device for linking a computer through the telephone lines to the Internet. Modems convert digital data (electronic signal representing binary numbers) to analog data (signals that have many variations) so that the data can travel over the telephone lines. After the analog signal arrives, the modem on the receiving end converts the analog data back into digital data that computers can understand. Modem stands for modulator/demodulator.

Data transmission rates for Internet dialup modem are measured in kilobits per seconds (KBPS).

Table 1.1: Describes the different speeds at which modem operates.

Modem	Connection speed	Description
Internal	56kbps	The modem plugged into motherboard of the computer, in other words it's inside the computer.
External	56kbps	The modem is attached to your computer through a serial, parallel or USB port. An external modem is separate from your computer.

3.2 Dialup Connection

In a Dialup connection, services connect to the Internet using a phone line. It is set up between two or more communication devices, and the Public Switched Telephone Network (PSTN) is used to connect to the Internet.

- Advantages
  a. Less Expensive
  b. Everyone may readily access it anywhere.
  c. Setup is quite simple.

- **Disadvantages**
  a. It transfers data slowly.
  b. It is less dependable.
  c. It travels slowly.
  d. It is unable to regulate the connection's quality.

3.3 Broadband Connection

It is a fast connection that enables simultaneous use of the Internet and the phone. This allows for the transfer of data in many different formats by telephone, satellite, and cable.

- **Advantages**
  a. For downloading large files, films, games, and music, it offers a faster speed.
  b. Compared to dialup, it is quicker.
  c. Compared to dial-up connections, it is more dependable.
  d. While surfing the Internet, there are no interruptions.
- **Disadvantages**
  a. Its more costly.
  b. Security risks and problems exist.
  c. In isolated and rural locations, it is not accessible.

Broadband Connection Types

There are four different kinds of broadband connections, each with a unique method and rate of data delivery.

- DSL (Digital Subscriber Line):Data is sent via the conventional copper phone lines in a DSL connection (Digital Subscriber Line). With a DSL connection, your distance from the switching station affects how quickly you can access the Internet. The Internet will operate more slowly the more away you are.
- Cable: In a cable broadband connection, the same coaxial lines that transport audio and video to a television also transfer data. Depending on how many people are using the Internet there, the speed varies by location and area.

- Sattelite:While slower than both DSL and cable broadband connections, satellite can effectively replace DSL in rural regions. Although the setup fee is greater, the monthly fees are equivalent to DSL and cable broadband connections.
- Fibre-Optic: it sends data over a fiber-optic cable. This is the fastest and most popular type of broadband connection since it is the quickest overall.

SELF-ASSESSMENT QUESTIONS - 2

3. Data transmission rates for Internet dialup modem are measured in_____ .

4. COMPONENTS OF INTERNET

Since Internet is a composite network of more than thousands of discrete networks, each having its own rules and procedures, there could be many different ways by which you can connect to the Internet. To use the Internet you need three things:

1. A Computer
2. Client programs to run on your computer (one client for each type of service you want to use).
3. A way to connect your computer to the Net so your clients can service your request.

SELF-ASSESSMENT QUESTIONS - 3

4. The privatization of Internet Service Providers (ISPs) is set to give a further fillip to the Internet boom. **(True/False)**
5. A is an application which provides a window to the Web _____ .
6. Host computer on the Internet has a unique number, called its _____.

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5. ROUTERS& DIAL UP NETWORKING

5.1 Routers

The Routers are network devices which transfer the data packets along networks by determining the path of networks. Routers determine the path to many networks such as electronic networks, transportation networks and telephone networks. Actually, routers are specialized computers that send messages speeding to their destinations along thousands of possible pathways. One of the tool a router uses to decide which path a packet should go is a routing table. A routing table contains a collection of information, comprising.

1. Information on which connections leads to particular group of address.
2. Priorities for connections to be used.
3. Rules for handling both routine and special cases of traffic

Information in routing tables can be static or dynamic. A routing table can be simple as a few lines in the smallest routers, but can grow to considerable size and complexity in the very large routers that handle the substance of Internet message. As the number of networks attached to one another grows, the routing table for handling traffic among them grows, and the processing power of the router is increased.

5.2 Connecting To Internet Using Dialup Networking

To access the Internet via a phone line, the concept is: Connect your computer to the telephone system using either a regular phone line (with a modem) or an ISDN (Integrated Services Digital Networks) line (which requires special equipment). To start work, you run a communication program to dial the phone and establish a connection with a remote Internet host. Once the connection is established, you log into the server by typing your username and password. At this point, there are three possible types of dial-up connections:

a) Shell account access
b) TCP/IP account access
c) Dial-up or on-demand TCP/IP link through your LAN

a. **Conventional Dial-up Shell Account:** With this type of account, you do your work on the remote computer. You establish an interactive session with another computer which is an Internet host. Your desktop assumes the role of an ASCII terminal. With shell access, your provider's computer is considered a part of the Internet, but your computer is not. The only program that runs on your computer is the terminal emulator. When you connect to your provider, you type commands to its system, which tell it what functions you want to do. The program on your provider's computer that receives and acts on the commands is known as a shell. The shell and the programs it run for you send back to your computer some text that is displayed on the screen. A terminal emulator only supports a text-based interface, not a graphical interface. You are usually limited to running one client at a time.
b. **Protocol dial-up (TCP/IP Account):** A protocol dialup account lets your computer behave like it is connected directly to another computer on the Internet – when it is really connected over a phone line whenever you dialup and it enables you to run software, such as a graphical Web browser like Microsoft Internet Explorer or Netscape Navigator, that functions in your computer's native environment instead of forcing you to deal with plain text programs like the text only browser Lynx and UNIX. This means when you have a protocol dialup (TCP/IP) account, during the time you are connected your computer is a full-fledged Internet host. The client programs you use as many clients as you want at the sametime. For example, you could start four programs – a web client, a gopher client, a mail client, and switch back and forth from one to the other. This type of connection is also known as TCP/IP type of account, and it uses the TCP/IP protocol to perform data transfer on the Internet.

PPP and SLIP: The family of Internet protocols is called TCP/IP. The connection protocol with ISP's server is known as PPP (Point to Point Protocol), which is used in Indian context, although there are other connection types such as SLIP or CSLIP which are available from other Internet Service Providers in the world. But to your satisfaction you can be sure that PPP is the most recent and advanced connection protocol. The job of IP is to move the raw data from one place to another. Thus, the protocol developed to support TCP/IP over a serial cable was called SERIAL LINE IP or SLIP. SLIP dates to the early 1980s and was designed to

be a simple, but not very powerful method of connecting two IP devices over a serial cable. PPP is more powerful, more dependable, more flexible, and is a lot easier to configure when you need to get it up and running on a new system.

c. **Dial-Up or On-Demand TCP/IP link through your LAN:** A dial-up link from your LAN is the intermediate step between individual dial-up and a dedicated high-speed link. It is therefore somewhat like dial-up and somewhat like having a direct link. The main difference between this type of connection and the one to your individual computer is that the TCP/IP software runs on the LAN server, and your connection is to the server. A TCP/IP connection through a LAN, either on a dial-up connection or a direct connection, is the most common type of IP connection, much more common than a personal dial-up IP connection.

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6. SUMMARY

- Internet is a worldwide interconnected system of thousands of computer networks, each network in turn linking thousands of computers together.
- An Internet Service Provider (ISP) is an organization or business offering public access to the Internet. It is your gateway, to the Net.
- The domain name system (DNS) is the way that Internet domain names are located and translated into Internet Protocol addresses.
- A domain name is a meaningful and easy-to-remember handle for an Internet address.
- A protocol dialup account lets your computer behave like it is connected directly to another computer on the Internet.
- Routers are network devices which transfer the data packets along networks by determining the path of networks.
- Every computer that is on the Internet has its own unique address. On the Internet, the word ADDRESS refers to an IP address.

7. TERMINAL QUESTIONS

1. Define the term Internet and explain briefly history of Internet?
2. Explain the Domain Name System and DNS servers?
3. Describe the three possible types of dial-up connections?
4. Briefly explain the various Broad Band connections?

8. ANSWERS

Self Assessment Questions

1. Internet 2. 1990
2. Kilobits per second(KPBS)
3. True
4. Browser
5. IP address

Terminal Questions

1. Connecting all system in world called Internet. There is no single definition holds good, but certain definition are generally agreed upon because Internet is a different thing to different people. For more details refer section 1.2.
2. A domain name is a way by which a company can uniquely identify itself on the Internet. To understand the DNS and the way it is used, we need to understand the Internet naming structure. For more details refer section 1.4.2
3. To access the Internet via dialup connection, three possible types of dial-up connections available. For more details refer section 1.5.2.
4. The appropriate broadband Internet connection and its Types.For more details refer section 1.3.3

9. REFERENCES

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