Unit 1: Networking
Detailed Explanation-Notes

Internet

The internet is an interconnection between several computers of different types belonging to various networks all over the world.

History of Internet

In 1969, the Department of Defence (DOD) of the United States of America developed a network of four computers called ARPANET (Advanced Research Project Agency Network). Later the military allowed universities to join the network for sharing the hardware and software resources. The network grew bigger and bigger and gave birth to the present-day Internet.

Internet Related Terminology

World Wide Web (WWW)

The Internet is an inter-connection of computer networks, whereas WWW is a collection of digital pages to access information over the internet. WWW is an information system of interlinked hypertext documents that are accessed via the internet.

Web Servers

Web server is a computer that stores web sites on the Internet and deliver web pages to the viewers on request.

Web Clients

Any computer on the network that requests services from another computer is called web client.

WebPages

The WWW comprises a large collection of documents called WebPages. A webpage is what you see in your browser when you are on Internet. You may see text, photos, images, diagrams, links, advertisements and more on any page you view on Internet.

Several WebPages on a related topic make a website.

Website

A website is a collection of one or more related WebPages, images, videos hosted on a web server.

Homepage

It is the first page of a website.

Web Browsers

It is a Software application to open any website. Browsers display WebPages. The most popular web browsers include- Google chrome, Mozilla Firefox, Internet Explorer, Safari.

Blog

A blog is a modern online writer's column.

Newsgroup

A newsgroup is an online discussion forum. The message is posted on a bulletin board where anyone can read it and respond to it. This allows a discussion to take place among several people.

HTML

Hypertext Markup Language (HTML) is the standard markup language for creating web pages and web applications.

Web Address/URL (Uniform Resource Locator)

It is an internet address of a website, file or document in the general format http://www.address/directories/filename. Every computer connected to the internet has its unique web address, without which it cannot be reached by other computers.

The website of Microsoft has an address or URL called http://www.microsoft.com

URLs consist of three parts to address a page or file:

The protocol (set of rules for communications) is the portion ending in //: Most web pages use the protocol http:// or https://

The host or top-level domain which ends in .com, .net, .edu, .org

The filename or page name itself

IP (Internet Protocol)

An IP address is a unique number that identifies computers on the Internet. No two computers can have the same IP address. E.g. 212.58.251.195.

Domain Name

It is a way to identify and locate computers connected to the internet.

Top-Level domain name

.com --- Commercial entities

.edu—Educational institutions

.net—Organizations directly involved in the internet operations such as network

.org- Miscellaneous organizations

.gov—Government organization

Country codes—A two letter abbreviation for particular country e.g. "in" for India

DNS (Domain Name System)

It is a collection of databases that contain the information about domain names and their corresponding IP address.

E-mail address

The general format of an e-mail address is username@domain. For example : abc@gmail.com An address consists of two parts. The first part before the @ symbol identifies the name of a mailbox. This is often the username of the recipient. The second part after the @ symbol is the domain name.

Downloading and Uploading Files from a Remote Site

Downloading is a broad term that describes transferring something you find on internet or WWW to your computer or other device. Commonly downloading is associated with songs, movies, and music and software files. The larger the file you are copying, the longer the download takes to transfer to your computer.

Uploading is a process of moving digital files such as photos or documents from your computer to a central server so that someone else can retrieve them or to a website so others can see them. For example- uploading photos on social network such as facebook from your computer.

Internet Protocols:

TCP/IP

Transmission Control Protocol/Internet protocol (TCP/IP) is a suite of a communication protocols used to interconnect network devices on the internet. TCP/IP can also be used as a communications protocol in a private network.

TCP/IP is a set of rules (protocols) governing communications among all computers on the internet. More specifically, TCP/IP dictates how information should be packaged, sent and received, as well as how to get to its destination.

SMTP

Simple Mail Transfer Protocol (SMTP). This is an e-mail protocol for sending email messages across the Internet. Most of the internet systems use SMTP as a method to transfer mail from one user to another. SMTP is a push protocol and is used to send the mail.

POP3

Post Office Protocol 3(POP3) is the most recent version of a standard protocol for receiving e-mail. POP3 is a client/Server protocol in which e-mail is received and held for you by your internet server.

HTTP

Hypertext Transfer Protocol (HTTP), the data communication standard of web pages. When a web page has this prefix, the links, text and the pictures should work properly in your web browser.

HTTPS

Hypertext Transfer Protocol Secure (HTTPS). This indicates that the webpage has a special layer of encryption added to hide your personal information and passwords from others. Whenever you login to your online bank account or a shopping site there you enter credit card information into, look for "https" in the URL for security.

Remote Login

Remote Login is a UNIX command that allows an authorized user to login to other UNIX machines (hosts) on a network and to interact as if the user were physically at the host computer. Once logged in to the host, the user can do anything that the host has given permission for, such as read, edit or delete files.

File Transfer Protocols

FTP

File Transfer Protocol (FTP) is the standard network protocol used for the transfer of computer files between a client and server on a computer network or for uploading and downloading files on remote server. **Uploading** is the process of transferring files from your computer to a server on the Internet. **Downloading** is the process of transferring files from a server on the Internet to your computer.

SSH

SSH also known as Secure Shell or Secure Socket Shell, is a remote administration protocol that allows user to control and modify their remote servers/ Computers over the Internet.

SFTP

Secure File Transfer Protocol (SFTP) is a secure version of File Transfer Protocol (FTP) which facilitates data access and data transfer over a Secure Shell (SSH) data stream. It is a part of SSH Protocol

SCP

Secure Copy (SCP) allows files to be copied to, from, or between different hosts. It uses SSH for data transfer and provides the same authentication and same level of security as SSH.

TELNET

Telnet is a user command and an underlying TCL/IP protocol for accessing remote computers. Through Telnet, an administrator or another user can access someone else's computer remotely.