# Network

**A network is a group of two or more**[**computer systems**](http://www.webopedia.com/TERM/C/computer_system.html)**linked together.**

**A computer network is a telecommunications network that allows**[**computers**](http://en.wikipedia.org/wiki/Computers)**to exchange data. The physical connection between networked computing devices is established using either** [**cable media**](http://en.wikipedia.org/wiki/Transmission_line)**or**[**wireless media**](http://en.wikipedia.org/wiki/Wireless_network)**. The best-known computer network is the**[**Internet**](http://en.wikipedia.org/wiki/Internet)**.**

**What is the Internet?**

The Internet is a worldwide telecommunications system that provides connectivity for millions of other, smaller networks; therefore, the **Internet is often referred to as a network of networks**. It allows computer users to communicate with each other across distance and computer platforms.

The Internet began in 1969 as the U.S. Department of Defense's Advanced Research Project Agency (ARPA) to provide immediate communication within the Department in case of war. Computers were then installed at U.S. universities with defense related projects. As scholars began to go online, this network changed from military use to scientific use. As ARPAnet grew, administration of the system became distributed to a number of organizations, including the National Science Foundation (NSF). This shift of responsibility began the transformation of the science oriented ARPAnet into the commercially minded and funded Internet used by millions today.

**The Internet acts as a pipeline to transport electronic messages from one network to another network**. At the heart of most networks is a **server,** a fast computer with large amounts of memory and storage space. The server controls the communication of information between the devices attached to a network, such as computers, printers, or other servers.

An **Internet Service Provider (ISP)** allows the user access to the Internet through their server. Many teachers use a connection through a local university as their ISP because it is free. Other ISPs, such as America Online, telephone companies, or cable companies provide Internet access for their members. You can connect to the Internet through telephone lines, cable modems, cell phones and other mobile devices.

## HTTP - Hyper Text Transfer Protocol

HTTP takes care of the communication between a web server and a web browser.

HTTP is used for sending requests from a web client (a browser) to a web server, returning web content (web pages) from the server back to the client.

## HTTPS - Secure HTTP

HTTPS takes care of secure communication between a web server and a web browser.

HTTPS typically handles credit card transactions and other sensitive data.

**Need of HTTPS:**

Hypertext Transfer Protocol (HTTP) is a protocol for transmitting and receiving information across the Internet. HTTP serves as a request and response procedure that all agents on the Internet follow so that information can be rapidly, easily, and accurately disseminated between servers, which hold information, and clients, who are trying to access it. You normally use HTTP when you are browsing the web, its not secure, so someone can eavesdrop on the conversation between your computer and the web server. In many cases, clients may be exchanging confidential information with a server, which needs to be secured in order to prevent unauthorized access. For this reason, https, or secure http, was developed by Netscape Corporation to allow authorization and secured transactions.

**Where https should be used?**

HTTPS should be used in Banking Websites, Payment Gateway, Shopping Websites, Login Pages, Emails (Gmail offers HTTPS by default in Chrome browser) and Corporate Sector Websites. For example:

**PayPal:**[https://www.paypal.com](https://www.paypal.com/)  
**Google AdSense:** <https://www.google.com/adsense/>

**Online SBI :** https://www.onlinesbi.com/

**Beware of using Credit Card Numbers on Internet:**  If a website ever asks you to enter your credit card information, you should automatically look to see if the web address begins with https://. If it doesn't, there's no way you're going to enter sensitive information like a credit card number!

**What makes up the World Wide Web?**

The Internet is often confused with the World Wide Web. The misperception is that these two terms are synonymous. The Internet is the collection of the many different systems and **protocols**. The World Wide Web, developed in 1989, is actually one of those different protocols. As the name implies, it allows resources to be linked with great ease in an almost seamless fashion.

The World Wide Web contains a vast collection of linked multimedia pages that is ever-changing. However, there are several basic components of the Web that allow users to communicate with each other. Below you will find selected components and their descriptions.

**TCP/IP protocols**

In order for a computer to communicate on the Internet, a set of rules or protocols computers must follow to exchange messages was developed. The two most important protocols allowing computers to transmit data on the Internet are Transmission Control Protocol (TCP) and Internet Protocol (IP). With these protocols, virtually all computers can communicate with each other. For instance, if a user is running Windows on a PC, he or she can communicate with iPhones.

**Domain name system**

An Internet address has four fields with numbers that are separated by periods or dots. This type of address is known as an IP address. Rather than have the user remember long strings of numbers, the Domain Name System (DNS) was developed to translate the numerical addresses into words. For example, the address fcit.usf.edu is really 131.247.120.10.

**URLs**

Addresses for web sites are called URLs (Uniform Resource Locators). Most of them begin with http (HyperText Transfer Protocol), followed by a colon and two slashes. For example, the URL for the Florida Center for Instructional Technology is <http://fcit.usf.edu/>.

Some of the URL addresses include a directory path and a file name. Consequently, the addresses can become quite long. For example, the URL of a web page may be:   
<http://fcit.usf.edu/holocaust/default.htm>. In this example, "default.htm" is the name of the file which is in a directory named "holocaust" on the FCIT server at the University of South Florida.

**Top-level domain names include:**

|  |  |
| --- | --- |
| .com | Commercial |
| .edu | Educational |
| .gov | US Government |
| .int | Organization |
| .mil | US Military |
| .net | Networking Providers |
|  |  |
| .org | Non-profit Organization |

**Domain name country codes include, but are not limited to:**

|  |  |
| --- | --- |
| .au | Australia |
| .de | Germany |
| .fr | France |
| .nl | Netherlands |
| .uk | United Kingdom |
| .us | United States |



**Why do I need a browser?**

Once you have an account with an Internet service provider, you can access the Web through a browser, such as Safari or Microsoft Internet Explorer. The browser is the application responsible for allowing a user's computer to read and display web documents.

**Hypertext Markup Language (HTML) is the language used to write web pages**. A browser takes the HTML and translates it into the content you see on the screen. You will note your cursor turns into a pointing finger over some images or text on the page. This indicates a link to additional information and it can be either a link to additional web pages, email, newsgroups, audio, video, or any number of other exciting files.

For example, if you were to click on [Florida Department of Education](http://www.fldoe.org) your browser would link to the Florida Department of Education home page and that web page would open in your screen.



**How do I navigate on the Web?**

Your browser is equipped with many useful features to assist you in navigating through the Web. Some of these features are:

Menu bar   
The menu bar, located at the very top of the screen, can be accessed using the mouse. When you hold down the mouse button over an item in the main menu, a sub menu is "pulled down" that has a variety of options. Actions that are in black can be performed, while actions that cannot be performed will be in gray or lightened. The submenus provide keyboard shortcuts for many common actions, allowing you to implement the functions faster than using the mouse.

Tool bar   
The tool bar is located at the top of the browser; it contains navigational buttons for the Web. Basic functions of these buttons include:

|  |  |
| --- | --- |
| **Command** | **Function** |
| Home | Opens or returns to starting page |
| Back | Takes you to the previous page |
| Forward | Takes you to the next page |
| Print | Prints current page |
| Stop | Stops loading a page |
| Reload | Refresh/redisplays current page |
| Search | Accesses search engine |

Location bar   
The location bar, below the tool bar, is a box labeled "Location," "GoTo," or "Address." You can type in a site's address, and press the Return or Enter key to open the site.

Status bar   
The status bar is located at the very bottom of the browser window. You can watch the progress of a web page download to determine if the host computer has been contacted and text and images are being downloaded.

Scroll bar   
The scroll bar is the vertical bar located on the right of the browser window. You can scroll up and down a web page by placing the cursor on the slider control and holding down the mouse button.

**What are static and dynamic Web pages?**

Web pages can be either static or dynamic. "Static" means unchanged or constant, while "dynamic" means changing or lively. Therefore, static [Web pages](http://pc.net/glossary/definition/webpage) contain the same prebuilt content each time the page is loaded, while the content of dynamic Web pages can be generated on-the-fly.

Standard [HTML](http://pc.net/glossary/definition/html) pages are static Web pages. They contain HTML code, which defines the structure and content of the Web page. Each time an HTML page is loaded, it looks the same. The only way the content of an HTML page will change is if the Web developer updates and publishes the file.

Other types of Web pages, such as [PHP](http://pc.net/glossary/definition/php), [ASP](http://pc.net/glossary/definition/asp), and [JSP](http://pc.net/glossary/definition/jsp) pages are dynamic Web pages. These pages contain "server-side" code, which allows the [server](http://pc.net/glossary/definition/server) to generate unique content each time the page is loaded. For example, the server may display the current time and date on the Web page. It may also output a unique response based on a Web form the user filled out. Many dynamic pages use server-side code to access [database](http://pc.net/glossary/definition/database) information, which enables the page's content to be generated from information stored in the database. [Websites](http://pc.net/glossary/definition/website) that generate Web pages from database information are often called database-driven websites.You can often tell if a page is static or dynamic simply by looking at the page's [file extension](http://pc.net/glossary/definition/fileextension) in the [URL](http://pc.net/glossary/definition/url), located in the address field of the Web browser. If it is ".htm" or ".html," the page is probably static. If the extension is ".php," ".asp," or ".jsp," the page is most likely dynamic. While not all dynamic Web pages contain dynamic content, most have at least some content that is generated on-the-fly.

**Study the following Links:**

1. http://en.wikipedia.org/wiki/Website
2. http://en.wikipedia.org/wiki/World\_Wide\_Web
3. http://en.wikipedia.org/wiki/Web\_page
4. <https://en.wikipedia.org/wiki/Web_server>
5. <http://www.robertz.com/WebDesign/DynamicAndStaticWeb.htm>
6. http://www.theonestopwebsiteshop.com/web-design/dynamic-vs-static.htm

**Exercise:**

**PRACTICAL-1**

**AIM:-To study about basics of internet programming.**

**Note: --** **Prepare a short summary for basics of internet programming.**

In Summary, Following terms should be cover & Prepare based on given format.

Network, Internet & Its Applications, Intranet, ISP, WWW, URL, HTTP & HTTPS, IP Address, Domain Name, Browser, Webpage, Web server, Website (Static & Dynamic Website with examples).