

Building Online Communication – Training session @ VOICE
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INTRODUCTION TO THE WEB

How Web Servers Work (Adapted from Webopedia.com¹)

Typically, users visit a Web site by either clicking on a **hyperlink** that brings them to that site or typing the site's **URL** directly into the **address bar** of a browser. But how does the same site appear on anyone's computer anywhere in the world and often on many computers at the same time?

Let's use Voicebd.org as an example. You decide to visit voicebd.org by typing its URL -- `http://www.voicebd.org` -- into your Web browser. Through an Internet connection, your browser initiates a connection to the Web server that is storing the voicebd files by first converting the **domain name** into an **IP address (through a domain name service)** and then locating the server that is storing the information for that IP address (also see Understanding IP Addressing).

The Web server stores all of the files necessary to display voicebd.org's pages on your computer -- typically all the individual pages that comprise the entirety of a Web site, any images/graphic files and any scripts that make dynamic elements of the site function.

Once contact has been made, the browser requests the data from the Web **server**, and using HTTP, the server delivers the data back to your browser. The browser in turn converts, or formats, the computer languages that the files are made up of into what you see displayed in your browser. In the same way the server can send the files to many client computers at the same time, allowing multiple clients to view the same page simultaneously.

Analogy: client in a restaurant/server in a kitchen

Glossary

URL - Stands for Uniform Resource Locator, a global address for any page on the web

IP address - a numeric address that uniquely identifies any device or computer that communicates over the Internet. Example: `125.34.105.3`

domain name - a name that identifies one or more IP addresses. Because domain names are alphabetic, they're easier to remember.

Every domain name has a suffix that indicates which top level domain (TLD) it belongs to. There are only a limited number of such domains. For example:

`.gov` - Government agencies `.edu` - Educational institution `.org` - Organizations (nonprofit)

`.com` - commercial business `.net` - Network organizations `.ca` - Canada `.bd` - Bangladesh

DNS - Every time you use a domain name a DNS (Domain Name System) service must translate the name into the corresponding IP address. The DNS system is, in fact, its own network. If one DNS server doesn't know how to translate a particular domain name, it asks another one, and so on, until the correct IP address is returned.

protocol - An agreed-upon set of rules or format governing the transmission data between two devices.

HTTP - Short for HyperText Transfer Protocol, the underlying protocol used by the World Wide Web. HTTP defines how messages are formatted and transmitted, and what actions Web servers and browsers should take in response to various commands. For example, when you enter a URL in your browser, this actually sends an HTTP command to the Web server directing it to fetch and transmit the requested Web page.

¹ <http://www.webopedia.com/DidYouKnow/Internet/2003/HowWebServersWork.asp>

The other main standard that controls how the World Wide Web works is **HTML**, which covers how Web pages are formatted and displayed.

FTP - Short for File Transfer Protocol, the protocol for exchanging files over the Internet. FTP works in the same way as HTTP for transferring Web pages from a server to a user's browser and SMTP for transferring electronic mail across the Internet in that, like these technologies, FTP uses the Internet's TCP/IP protocols to enable data transfer.

FTP is most commonly used to download a file from a server using the Internet or to upload a file to a server (e.g., uploading a Web page file to a server)

The Difference Between FTP and HTTP

File Transfer Protocol, or FTP, is a protocol used to upload files from a workstation to a FTP server or download files from a FTP server to a workstation. It is the way that files get transferred from one device to another in order for the files to be available on the Internet. When ftp appears in a URL it means that the user is connecting to a file server and not a Web server and that some form of file transfer is going to take place. Most FTP servers require the user to log on to the server in order to transfer files.

In contrast, Hyper Text Transfer Protocol, or HTTP, is a protocol used to transfer files from a Web server onto a browser in order to view a Web page that is on the Internet. Unlike FTP, where entire files are transferred from one device to another and copied into memory, HTTP only transfers the contents of a web page into a browser for viewing. FTP is a two-way system as files are transferred back and forth between server and workstation. HTTP is a one-way system as files are transported only from the server onto the workstation's browser. When http appears in a URL it means that the user is connecting to a Web server and not a file server. The files are transferred but not downloaded, therefore not copied into the memory of the receiving device.

The Difference between Static websites and Dynamic websites

As the name implies, a static website is one that is composed of a number of interlinked, static pages that tends to remain relatively unchanged over a period of time. The various pages may be stylistically uniform, but in essence, each page is actually a separate document created and arranged by a person in a certain pre-determined way and uploaded to the server. To make any changes, the whole page must be edited, then re-uploaded to replace the old page.

A dynamic website, on the other hand, is a website that is constantly changing. It has a more sophisticated way of managing and displaying web pages, perhaps via a **Content Management System (CMS)**, that will change depending on the content available on the server and/or the content requested by the user. Essentially, a dynamic website will search for and arrange raw content in a way prescribed by a script or program stored on the server and run by the browser. Before the browser sends a request to the server to view the dynamic website's content, the website may not actually exist in that form as such!

A static website is a much simpler and more primitive way of arranging content on a website. It may be suitable for small personal websites, but sites that have a large amount of content (and therefore webpages) will quickly become unruly and hard to manage. Let's say you have 100 articles up in a static website and you want to change the order in which they are displayed from oldest first to newest first. It would take a lot of work changing all those pages! However, this type of change is very easy to implement in a dynamic page. For this reason, dynamic pages are much better suited to handle content that is updated frequently, like blogs or news sites, for example, or sites handling queries to large databases, like an on-line library catalogue. However, constructing a dynamic site is a little more complicated than constructing a static site and would require more advanced skills and knowledge.