

Lecture Notes for Data Communications for CCA Programme

Lecture 7&8:

Concept of Internet

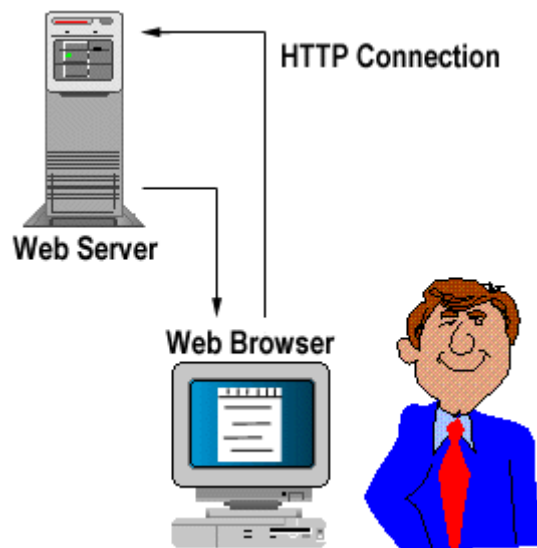
- What is the Internet?
 - The Internet is a global network of networks connecting millions of users worldwide via many computer networks using a **simple standard common addressing system** and **basic communications protocol** called TCP/IP.
 - This allows messages sent over the Internet to be broken into small pieces, called packets, which travel over many different routes between source and destination computers.
- Fortunately, nobody owns the Internet, there is no centralized control, and nobody can turn it off.
- Its evolution depends on rough consensus about technical proposals, and on running code.
- Engineering feed-back from real implementations is more important than any architectural principles.
- Clients and Servers
- Internet resources -- information and services -- are provided through host computers, known as servers.
- The **server** is the computer system that contains information such as electronic mail, database information, or text files.
- As a customer, or **client**, you access those resources via client programs (applications) which use TCP/IP to deliver the information to your screen in the appropriate format for your computer.
- One important kind of client program is called a **browser**, which is used to search through information provided by a specific type of server.
- A browser helps you view and navigate through information on the Internet.
- Today's most popular browsers?

Client/Server Operation

- A client/server system works something like this:
 - A big hunk of computer (called a server) sits in some office somewhere with a bunch of files that people might want access to. This computer runs a software package (uh...also called a server unfortunately) that listens all day long to requests over the wires.

Lecture Notes for Data Communications for CCA Programme

- Typically, these requests will be in some language and some format that the computer understands, but in English sound something like, "hello software package running on a big hunk of computer, please give me the file called "mydocument.txt" that is located in the directory "/usr/people/myname".
- The "server software" will then access the server hardware, find the requested file, send it back over the wires to the "client" who requested it, and then wait for another request from the same or another client.
- Usually, the "client" is actually a software program, like Netscape Navigator, that is being operated by a person who is the one who really wants to see the file. The client software however, deals with all the underlying client/server protocol stuff and then displays the document (that usually means interpreting HTML, but we'll get there in just a bit) to the human user.
- The whole process looks something like the figure below:



Hypertext Documents

The WWW makes extensive use of **hypertext documents** which contain

- Multimedia data such as text, images, sounds, video clips etc.
- Links to other documents (situated anywhere on the web).

HTTP

- The client/server protocol used to exchange hypertext documents is called HTTP (HyperText Transport Protocol). The main thing you need to know is that HTTP is a language spoken between your web browser (client software) and a web server (server software) so that they can communicate with each other and exchange files.

Lecture Notes for Data Communications for CCA Programme

- HTTP is a "request-response" type protocol that specifies that a client will open a connection to a server then send a request using a very specific format. The server will then respond and close the connection.

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References

1. Data Communications and Networking by Behrouz A. Forouzan, McGraw-Hill Forouzan Networking Series
2. http://staff.um.edu.mt/mros1/www/basic_web_concepts.html