

# Introducing Web Browsers and Webservers

CS174

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# Outline

- The Internet
- Web Browsers
- Web Servers

# The Internet


- The internet began as ARPANET in 1969.
- The internet uses **TCP/IP** (Transmission Control Protocol/ Internet Protocol) to allow one computer to communicate with another.
- An IP address of a machine is a 32 bit number. (Four bytes).
- Routing computers use each of these bytes to figure out where to send message packets.
- Organizations are assigned blocks of IP address which they in turn use to assign an individual IP to a computer.
- For example, a small organization might have the addresses from 192.57.126.0 to 192.57.126.255.
- Several protocols run on top of TCP/IP such as telnet (allows you to log in to a machine over the internet) and FTP (allows you to transfer files over the internet).

# Domain Names

- To try to make computer addresses more meaningful, computers can be given text names such as:

peano.mynetwork.org

domain of increasing scope



- The whole name above is called a **fully qualified domain name**.
- The conversion from domain names to IP addresses is done by having your computer contact a domain name server (DNS) which has a conversion table.

# The World Wide Web

- For this semester, the protocol on top of TCP/IP we will be interested in is called HTTP (Hypertext Transfer Protocol).
- It is used to retrieve from servers hypertext documents (one's with links and images. i.e., HTML) over the internet.
- It was first proposed in 1989 by a group including Tim Berners Lee at CERN.
- The World Wide Web is the collection of servers and clients that use this protocol.

# Web Browsers

- Are clients used to request hypertext documents from HTTP servers.
- The first browser developed by Berners-Lee was called WWW.
- The first widely used browser was NCSA Mosaic.
- It served as the basis for the first commercial browser Netscape.
- The most common modern browsers are: Internet Explorer, Firefox, Safari, and Opera.
- The site [evolt.org](http://evolt.org) has executables for almost every browsers that has ever existed.
- Today, even most cell phones have browsers which support W3C compliant HTML and Javascript/ECMAScript.
- As a web programmer will code to standards not any particular browser. Those who use document.all will be shot.

# Web Servers

- The two most common servers of web documents are Apache (~70%) and IIS (~20%) (Microsoft Internet Information Server.)
- As Apache is free, I expect you to have it downloaded and installed by the time the first homework is due.
- There are two main variants of Apache: 1.3.x and 2.x. It should not matter which you use for this course.
- Mac's ship with 1.3.x ; Linux usually comes with 2.x. You can install either flavour on a PC.

# Web Server Operation

- In a typical exchange between a browser and a web server, the browser telnets into port 80 of the web server and makes a GET request for a particular document.
- A web server has two sets of directories, the root of one of these is called the *document root* of the server. The web server looks in this directory to try to find the file to service the clients request.
- The root of the other directory the server uses is called the *server root*. Under it is stored the server and its support software.
- To initiate an exchange as above, the user typically supplies the browser with the protocol, say http; the machine, say peano.mynetwork.org; and the path to the file /index.html in one string http://peano.mynetwork.org/index.html called a **URL**.