Ancient History

Idea behind the Internet:

Development of Information Theory in the late 1940s began to discuss information as a commodity and drained it from its semantic content.

Information gained a new existence as malleable electronic encoding which led to the breaking up of continuous messages into smaller discrete packages of information. The machine language or binary language... 11111011000 = 2008

<joke>
There are 10 kinds of people...
...those who understand binary and those who don't.
</joke>

Idea behind the Internet:

Secondly, the conceptualization of data arranged as webs rather than the branchings of a tree.

This line of thinking helped Ted Nelson invent Hypertext in 1969 - rather than organizing information in a linear hierarchy, hypertext allows information to be organized by relatedness so that it can be arranged in multiple ways at the same time. Hypertext frees information into a non-linear or digital format.

Hypertext Markup Language is a universal language for computers. It is a document-layout and hyperlink-specification language. It's purpose is to define the structure and appearance of documents to be delivered quickly and easily over a network for rendering on the client side. HTML tells the browser how to display the contents of the document and files it refers to, be it graphic, ASCII, multimedia...

HTML enables hyperlinks, connecting your documents with others on your or someone else's computer/server.

Internet Defined: A collection of networks using Internet Protocol (IP) that cooperate to form a seamless network for their collective users, plus odd connections or gateways to other networks to transfer electronic mail.

1970s: ARPAnet = U.S. Defense Department network, experimental network designed to support military research, that is, how to build networks able to survive partial outages (such as in the form of war).

Invention of IP: to send a message on ARPAnet, the computer stored its data in a type of envelope, an IP packet and addressed it correctly. Any other computer, regardless of platform, could read IP and thus receive the data. The network acted as a funnel for information flow, but at this point, individual computers were responsible for information flow rather than the network itself.

This was important because each computer network operated differently, and had to agree on a common set of rules for communication...known as protocol.

1980s: LAN's (local area networks) were created within businesses, government and educational institutions. Demand for connections to ARPAnet rose.

Late 1980s: NSF (National Science Foundation) created 5 super computer centers to facilitate network demands based on IP technology. Centers connected at 56,000 bits/sec phone lines (2 pages 30 seconds). Regional networks were created by chaining schools from one to the next with a super computer center at one end.

1987 Entire system upgraded to continue to add colleges and universities nationwide. Birth of IAB, Internet Architecture Board (http://www.iab.org/)responsible for creating standards which allow computers from different vendors to communicate.

ASCII based applications for Internet previous to the WWW: Email (pine), Telnet, FTP...

(ASCII = American Standard Code for Information Exchange. Computer only understand numbers, so each character has been given and associates ASCII code, which can be stored and transmitted.)

March 1989: Tim Berners-Lee at CERn proposed a hypertext system to unite researchers in high energy physics community. This system was to provide consistent user interface, ability to incorporate a wide range of technologies and document types, universal readership crossing platform boundaries.

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1992: WWW browser made available to public via ftp

1993: development of MOSAIC

1993-1994: every 6 months, tenfold increase of users and servers

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The Internet is a network of connected computers. No company owns the Internet; it's a cooperative effort governed by a system of standards and rules. The point of it all is to share information.

Email software and File Transfer Protocols are for example two means of sharing information.

The World Wide Web is just another way information can be shared. It is a subset of the information on the Internet with its own protocol.

The World Wide Web Consortium (W3C) develops interoperable technologies (specifications, guidelines, software, and tools) to lead the Web to its full potential. http://www.w3.org/

The formal name for linked text is Hypertext, and the technical term for the way the Web transfers information is the Hypertext Transfer Protocol, or HTTP for short.

Serving up your information

The computers that make up the Internet are called "servers" because they "serve up" users requests. More accurately, the server is the software program that allows the computer to communicate with other computers.

The role of the server software is to wait for a request for information, then retrieve and send that information back as soon as possible.

Serving up your information

Each server is assigned a unique number (its IP address) and a corresponding name (its domain or host name), such as moore.edu.

The number and name are used to identify that particular server on the Internet, so you can connect to the right information.

Serving up your information

With all those web pages on all those servers, how would you ever find the one you're looking for?

Each document has its won special address called a URL (Uniform Resource Locator). A complete URL is generally made up of four components:

Protocol   Domain Name   Path Name   File Name
http://www.robertcarlsen.net/classes/pda203/index.html