
The Nuts and Bolts of the World Wide Web

This document was written to provide you with the following:

- A brief history of the Internet and the World Wide Web
- An explanation of how the Internet works
- An explanation of how Search Engines work
- The Internet Today
- A description of MedWired.com's goals and how they combine technological advancements and traditional service offerings.
- Definitions of common technical jargon and terms

Overview

The Internet has undoubtedly been one of the most fascinating developments of our time. It has had a profound impact on every aspect of our personal and professional lives – creating an efficient and effective method for communication, commerce, and collaboration. Through the breakdown of traditional space and time barriers, the Internet has given us limitless opportunities and un-ending potential as consumers, business people, and members of society.

Background

The Internet –

The Internet began as ARPAnet, a U.S. Department of Defense project designed to create a nationwide computer network that would continue to function even if a large portion of it were destroyed in a nuclear war or natural disaster. After its initial development, the network evolved and was used primarily by academic institutions, scientists, and the government for research and communications. The appeal of the Internet to these bodies was obvious, as it allowed disparate institutions to connect to each other's computing systems and databases, as well as share data via e-mail.

The nature of the Internet changed abruptly in 1992 when the U.S. government began pulling out of network management, and commercial entities offered Internet access to the general public for the first time. This change in focus marked the beginning of the Internet's astonishing expansion. Today, it has grown to become a maze of millions of interconnected computer networks across the

world – including both business and personal systems (see Figure 1a). It is important to understand that the Internet is a public collaboration. No one person, organization, or group of organizations owns it.



Figure 1a – The Internet Network in the U.S.

The World Wide Web –

The concept of the Web began immediately after World War II, when scientists were desperately seeking ways to organize and share their accumulated wartime research. In 1945, noted scientist Vannevar Bush published an essay in *Atlantic Monthly* titled “As We May Think,” which proposed a massive information index that people from all over the world could access and search. Although Bush's system was mechanical (and was never developed), his essay had a profound impact on many who would one day help design the Internet and the World Wide Web. For this reason, Vannevar Bush is often hailed as the theoretical father of the Web.

The Web was originally conceived as a way for physicists to share their research data. In 1989, Tim Berners-Lee led a team at Switzerland's European Particle Physics Laboratory (CERN) in developing the initial World Wide Web standards. Key among these was the use of hypertext, or "hot" portions of an online document that, when selected, take the user to a related, or "linked," document.

Since then, the Web has evolved far beyond its original intent and now includes diverse content with a variety of purposes. The Web is a true "information superhighway," allowing users across the world to access a wealth of information quickly and easily – right from the desktop.

Note: Although the terms ‘Internet’ and “The World Wide Web” are used synonymously, they are not the same thing. Simply put, the Internet is wires and routers – those things that connect computers. The Web is an organized approach to open information sharing.

How Does the Internet Work?

A computer network refers to a computer connected by telephone wires or other methods in order to communicate with other computers. So the Internet ("the net") is many of these computer networks connected together throughout the world.

The workhorses of the Internet are called "servers." These servers work 24:7, sending information back and forth over lines. People that request information from these hardworking machines are called "clients." When you are surfing the Internet, you are acting as a client requesting specific information from a server somewhere in the network.

All of the servers and clients talk to each other through a language called a protocol. For example, "http://" stands for "hypertext transfer protocol," which is how the World Wide Web works. There are other protocols for electronic mail, simple computer file transfers, and many more.

Information on the Web is sent from computer to computer using numerical addresses called IP addresses. The IP address tells each computer where the packet came from or where it needs to go. An IP address is a series of four numbers connected by dots. For example, MedWired.com's IP address is 208.36.115.245. If you were to type in this IP address, you will get MedWired.com's Web site (the same site that shows up when you type in www.medwired.com).

To make it easy for humans to figure out where things are going, most IP addresses also have a unique domain address. MedWired.com's domain name is medwired.com. The domain names are translated into IP addresses by servers called Domain Name Servers. Each server not only has its own domain name, but can also "host" other domains as well (our current hosting company, IMC Online, is an example of this). InterNIC (or Network Solutions) is the organization that controls the assignment of Internet addresses and domain names.

Clients can also request specific sections (called directories) of a domain. These sections are indicated by a "slash" or "/". Clients can even request specific file in that specific directory. The file name is usually the last piece of information after all of the slashes. The combination of the protocol (in this case, "http://") and the domain name and whatever directories that come after the domain name is called a "Uniform Resource Locator" or "URL". An example of a URL is <http://www.medwired.com/elite/index.html> (see Figure 1b).

When you type a URL into the location bar of your browser and hit the return key, the protocol part of the URL tells the servers on the Internet what kind of request you are sending, the domain part tells all the servers along the line where to rout the request. When the domain gets the request, it interprets the rest of the URL, finds the file you asked for (or creates one) and sends it to your IP address. Depending on how overworked the server is, how good your connection is, and how fast your computer is, you'll get the page. If it takes too long, chances are that the computer program you used will give up, resulting in an error.

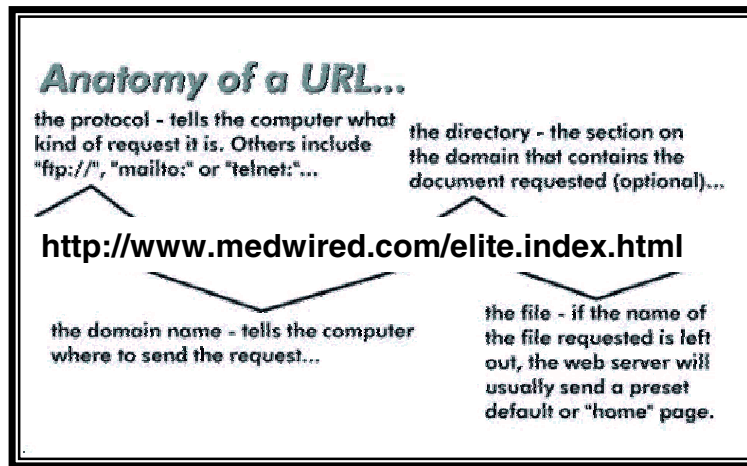


Figure 1b – The Anatomy of a URL...

Thanks to the "HT" part of HTTP, almost anyone can navigate the realms of cyberspace through the World Wide Web. The form of hypertext used on the World Wide Web is called "HTML" which stands for HyperText Markup Language.

What makes hypertext "hyper" is its ability to offer built-in links to other sections of the same document or other documents on the same site. An example of this is when you are on the home page of a site, you click on a hot link, and are taken to another page in that site.

When hypertext is combined with the worldwide Internet through the HTTP protocol, links can not only branch off to sections of the same document, but by clicking selected areas of a WWW hypertext document, you are sent across the Internet via HTTP to one server after another.

When you request a page from somewhere on the World Wide Web, your request travels through the Internet "infrastructure." After traveling through your phone line or other path and then through the

telephone company central office (or your enterprise's proxy and firewall servers), your Web page request travels successively through the following:

- Your Internet service provider (ISP) server
- The regional network your ISP is connected to
- If necessary, through one of the four major network access points (NAPs) in the U.S.
- Then through the national commercial backbone
- And then once again through the NAP, regional network, and ISP at the other end

How do Computers Talk over the Internet?

TCP/IP (which stands for Transmission Control Protocol/Internet Protocol) is the name of a family of more than 100 data communications protocols used to organize computers into networks. The computers that make up the Internet talk to each other in the language of TCP/IP protocols. Any computer that can talk the language of TCP/IP can be a direct part of the Internet. (That's part of the reason why there is such a wide variety of computers on the Net.)

TCP/IP specifies an addressing scheme for computers on the Internet. TCP/IP sets the rules for how data should move between computers and programs on the network. Its protocols are rules that computers must follow in order to move different types of information from place to place. Some of the protocols that make up TCP/IP are the File Transfer Protocol (FTP), the Telnet protocol, and the Simple Mail Transfer Protocol (SMTP).

TCP/IP was developed to interconnect systems on ARPANET, PRNET (a packet radio network), and SATNET (a packet-based satellite network). Although all these networks are now defunct, TCP/IP lives.

Messages sent over TCP/IP are called *packets*. Each packet of information sent over the Internet can be thought of as a letter. TCP/IP puts each letter in an envelope, addresses the envelope with To and From information, and sends the letter on its way. These packets are designed to be small—usually 1500 bytes or so. Most things you send and receive on the Internet (e-mail messages, Usenet postings, files and whatnot) are longer than the maximum packet size, so TCP/IP breaks the message up into packet-sized chunks, addresses each packet, and sends them on their way. Once at their destination, TCP/IP reassembles the packets into one coherent message.

Note: Actually, TCP and IP are two separate protocols that can work in unison. IP moves packets to their destination, whereas TCP checks their integrity and puts them back in their proper order.

Actually getting your message from its source to its destination is fairly painless to understand. The Internet is a *store and forward network*, meaning that those packets can be sent to (and stored on) any number of computers on their way to their destination. If there is a direct network link between two sites—that is, a physical cable linking the two computers—the packets can zip right over, (kind of like a non-stop flight). Most of the time, though, there isn't a direct link. So, the sending computer sends the packets to one that's a little closer to the destination. That machine moves the packets further down the line, and so on, until the packets reach their goal. It's not uncommon for a cross-country message to make 20 or 30 hops. Most of the time, this all happens very, very quickly. Open a Telnet connection from California to New York or Finland and (on a good day) you'll hardly notice any delay at all.

How Do Search Engines Work?

Search Engines are used to find specific information on the Internet. The term “search engine” is generically used to describe both true search engines and directories. The difference between a true search engine and a directory is how listings are compiled; however, these differences are not apparent to the end user who is conducting a search.

When a client's Web site is complete, MedWired.com registers their site with the top five Search Engines—Hot Bot, Alta Vista, Excite, Web Crawler, Lycos, and the top directory—Yahoo.

A typical search on any of the Search Engines will produce thousands of matches. With over 300 million Web sites on the Internet today (and more coming online every minute), you can see why it is difficult to have a practice listed in the top ten results of a search—even if it is a very targeted or specific search.

Ranking on the first two pages of search results—or Search Engine Optimization—is a true science. Many companies pay large sums of money to get their listing to appear in the top 10% (first couple of pages), and it takes a full time effort to keep that ranking. Many e-commerce companies pay for search engine optimization because their sales revenues depend on Internet traffic. It is less common for non e-commerce sites to pay to rank at the top.

So, what does this mean for our physician practices? It is possible for many of their prospects or current patients to find them through a Search Engine, but the best way for the physician practice to drive traffic to their site is to proactively market the Web site and the content they have provided in it. Basic steps would include putting their Web address on all printed materials, including it in their voicemail/phone recordings, and placing links to their Web sites on partner vendor sites. More aggressive marketing would include public relations efforts (TV, radio, and print), direct mail campaigns, advertising, and promotional materials.

MedWired.com will make marketing suggestions to our clients based on their current status and resource availability so that they can market their Web site efficiently and effectively and increase traffic, patient satisfaction, and site value.

The Internet Today

The art of estimating how many are online throughout the world is an inexact one at best. Surveys abound, using all sorts of measurement parameters. However, from observing many of the published surveys over the last two years, here is an "educated guess" as to how many are online worldwide as of March 2000.

World Total	304.36 million
Africa	2.58 million
Asia/Pacific	68.9 million
Europe	83.35 million
Middle East	1.90 million
Canada & USA	136.86 million
South America	10.74 million

Other surveys show that there are over 300 million Web sites posted to the Internet today (this number varies depending on the source).

Terminology

Along with technological advancement and the advent of the Internet and World Wide Web came a number of new words and technical jargon. Some of these words have become common terminology, while others cause confusion and are sometimes used incorrectly. From applet to the World Wide Web, we have provided a limited glossary to help define these terms and clear up any confusion surrounding their meaning and usage (see Appendix A – Glossary of Internet Terms).

MedWired.com's Place in Internet History

Just as many companies have embraced computer technology and the opportunities created by the Internet and the World Wide Web, MedWired.com's has built a business model around Internet functionality and related service offerings.

Dr. Thomas Hazy, MedWired.com's founder and CEO, saw the Internet as not only a resource for physician practices, but also a tool to rebuild the doctor-patient relationship while helping to automate both front and back office procedures. The goal? Improving the healthcare industry for everyone involved using current technology and future capabilities.

MedWired.com combines technological advancements with traditional business processes to improve relationships and the managed care system. Just as MedWired.com seeks to build strong relationships with its clients and business partners, we urge physicians and medical professionals to develop the same relationship with their patients and health care consumers.

And what better tool to do that than the Internet?

<expand here>

Taken from various sources on the Internet including www.fuzzylu.com, www.vonl.com, www.centerspan.org, www.wa.gov, <http://muttley.ucdavis.edu>, and others.

Appendix A – Glossary of Terms

Below is a glossary of common Internet and technical terms used at MedWired.com and in the Internet arena. If you are looking for a term that is not listed here, please refer to any of the many reference books in the office or search the World Wide Web.

Applet

A small *Java* program that can be embedded in an *HTML* page. Applets differ from full-fledged *Java* applications in that they are not allowed to access certain resources on the local computer, such as files and serial devices (modems, printers, etc.), and are prohibited from communicating with most other computers across a network. The current rule is that an applet can only make an Internet connection to the computer from which the applet was sent.

See Also: [HTML](#) , [Java](#)

ARPANet

(Advanced Research Projects Agency Network) – The precursor to the *Internet*. Developed in the late 60's and early 70's by the US Department of Defense as an experiment in wide-area-networking that would survive a nuclear war.

See Also: [Internet](#)

ASCII

(American Standard Code for Information Interchange) – This is the de facto world-wide standard for the code numbers used by computers to represent all the upper and lower-case Latin letters, numbers, punctuation, etc. There are 128 standard ASCII codes each of which can be represented by a 7 digit binary number: 0000000 through 1111111.

Backbone

A high-speed line or series of connections that forms a major pathway within a network. The term is relative as a backbone in a small *network* will likely be much smaller than many non-backbone lines in a large network.

See Also: [Network](#)

Bandwidth

How much data you can send through a connection. Usually measured in bits-per-second. A full page of English text is about 16,000 bits. A fast modem can move about 15,000 bits in one second. Full-motion full-screen video would require roughly 10,000,000 bits-per-second, depending on compression.

See Also: [Bps](#) , [Bit](#) , [T-1](#)

Baud

In common usage the baud rate of a *modem* is how many *bits* it can send or receive per second. Technically, baud is the number of times per second that the carrier signal shifts value - for example a 1200 bit-per-second modem actually runs at 300 baud, but it moves 4 bits per baud (4 x 300 = 1200 bits per second).

See Also: [Bit](#) , [Modem](#)

BBS

(Bulletin Board System) – A computerized meeting and announcement system that allows people to carry on discussions, upload and download files, and make announcements without the people being connected to the computer at the same time. There are many thousands (millions?) of BBS's around the world, most are very small, running on a single IBM clone PC with 1 or 2 phone lines. Some are very large and the line between a BBS and a system like CompuServe gets crossed at some point, but it is not clearly drawn.

Binhex

(BINary HEXadecimal) – A method for converting non-text files (non-ASCII) into ASCII. This is needed because Internet e-mail can only handle ASCII.

See Also: [ASCII](#) , [MIME](#) , [UUENCODE](#)

Bit

(Binary DigIT) – A single digit number in base-2, in other words, either a 1 or a zero. The smallest unit of computerized data. *Bandwidth* is usually measured in bits-per-second.

See Also: [Bandwidth](#) , [Bps](#) , [Byte](#) , [Kilobyte](#) , [Megabyte](#)

Bps

(Bits-Per-Second) – A measurement of how fast data is moved from one place to another. A 28.8 *modem* can move 28,800 bits per second.

See Also: [Bandwidth](#) , [Bit](#)

Browser

A *Client* program (software) that is used to look at various kinds of Internet resources. Examples include Netscape Navigator and Microsoft Explorer.

See Also: [Client](#) , [URL](#) , [WWW](#) , [Netscape](#) , [Mosaic](#) , [Home Page \(or Homepage\)](#)

Byte

A set of Bits that represent a single character. Usually there are 8 Bits in a Byte, sometimes more, depending on how the measurement is being made.

See Also: [Bit](#)

Cache

Browsers such as Netscape and Microsoft Internet Explorer hold copies of recently visited web files, both HTML and binary files, in disk memory. This disk memory space is called the cache. It offers the advantage of much quicker loading when files are stored on disk than when they must be transferred from the web. The disadvantage is that it will sometimes show you an old version of a file from your disk when a newer one is available on the web. Some large Internet service providers also cache frequently visited sites and feed them to you from their own cache when you try to visit them.

You can set the size of the cache to meet the needs of your own system and the speed of your connection. You can also set how often your system will check back to see if there is a newer version. There is a definite trade-off between faster load times and the risk of seeing outdated material.

Usually, you can check for a newer version by using the Refresh or Reload selections in your browser. If something looks out of date, always try the Refresh or Reload before trying other things.

Sometimes files in cache can become corrupted and cause problems for your browser. When you have problems diagnosing freeze-ups where they didn't occur before, one of the easy solutions to try is to delete your cache and see if it solves the problems.

Cascading Style Sheets (CSS)

Cascading Style Sheets is a technique built into version 4.0 browsers that support styles for pages. For example, you can set up styles for fonts and page layouts that will apply automatically to pages developed under a particular style you develop. This technique holds great promise for the future, but the present version 4.0 browsers from Netscape and Microsoft are quite different in their implementation, and what works with one is not likely to work for the other.

Certificate Authority

An issuer of *Security Certificates* used in SSL connections.

See Also: [Security Certificate](#) , [SSL](#)

CGI

(Common Gateway Interface) – A set of rules that describe how a *Web Server* communicates with another piece of software on the same machine, and how the other piece of software (the “CGI program”) talks to the web server. Any piece of software can be a CGI program if it handles input and output according to the CGI standard.

Usually a CGI program is a small program that takes data from a web server and does something with it, like putting the content of a form into an e-mail message, or turning the data into a database query.

You can often see that a CGI program is being used by seeing “cgi-bin” in a URL, but not always.

See Also: [cgi-bin](#) , [Web](#)

cgi-bin

The most common name of a directory on a web server in which *CGI* programs are stored. The “bin” part of “cgi-bin” is a shorthand version of “binary”, because once upon a time, most programs were referred to as “binaries”. In real life, most programs found in cgi-bin directories are text files – scripts that are executed by binaries located elsewhere on the same machine.

See Also: [CGI](#)

Client

A software program that is used to contact and obtain data from a *Server* software program on another computer, often across a great distance. Each *Client* program is designed to work with one or more specific kinds of *Server* programs, and each *Server* requires a specific kind of *Client*. A *Web Browser* is a specific kind of *Client*.

See Also: [Browser](#) , [Server](#)

co-location

Most often used to refer to having a *server* that belongs to one person or group physically located on an *Internet*-connected *network* that belongs to another person or group. Usually this is done because the server owner wants their machine to be on a high-speed Internet connection and/or they do not want the security risks or costs of having the server on their own network.

See Also: [Internet](#) , [Server](#) , [Network](#)

Cookie

The most common meaning of “Cookie” on the Internet refers to a piece of information sent by a *Web Server* to a *Web Browser* that the Browser software is expected to save and to send back to the Server whenever the browser makes additional requests from the Server.

Depending on the type of Cookie used, and the Browser’s settings, the Browser may accept or not accept the Cookie, and may save the Cookie for either a short time or a long time.

Cookies might contain information such as login or registration information, online “shopping cart” information, user preferences, etc.

When a Server receives a request from a Browser that includes a Cookie, the Server is able to use the information stored in the Cookie. For example, the Server might customize what is sent back to the user, or keep a log of particular user’s requests.

Cookies are usually set to expire after a predetermined amount of time and are usually saved in memory until the Browser software is closed down, at which time they may be saved to disk if their “expire time” has not been reached.

Cookies **do not** read your hard drive and send your life story to the CIA, but they can be used to gather more information about a user than would be possible without them.

See Also: [Browser](#) , [Server](#)

Cyberspace

Term originated by author William Gibson in his novel *Neuromancer* the word Cyberspace is currently used to describe the whole range of information resources available through computer networks.

DSL

(Digital Subscriber Line) – A method for moving data over regular phone lines. A DSL circuit is much faster than a regular phone connection, and the wires coming into the subscriber’s premises are the same (copper) wires used for regular phone service. A DSL circuit must be configured to connect two specific locations, similar to a leased line.

A commonly discussed configuration of DSL allows downloads at speeds of up to 1.544 megabits (not megabytes) per second, and uploads at speeds of 128 kilobits per second. This arrangement is called ADSL: “Asymmetric” Digital Subscriber Line.

Another common configuration is symmetrical: 384 Kilobits per second in both directions.

In theory ADSL allows download speeds of up to 9 megabits per second and upload speeds of up to 640 kilobits per second.

DSL is now a popular alternative to *Leased Lines* and *ISDN*, being faster than ISDN and less costly than traditional Leased Lines.

See Also: [bit](#) , [bps](#) , [ISDN](#) , [Leased Line](#)

Domain Name

The unique name that identifies an Internet site. Domain Names always have 2 or more parts, separated by dots. The part on the left is the most specific, and the part on the right is the most general. A given machine may have more than one Domain Name but a given Domain Name points to only one machine.

Usually, all of the machines on a given *Network* will have the same thing as the right-hand portion of their Domain Names. It is also possible for a Domain Name to exist but not be connected to an actual machine. This is often done so that a group or business can have an Internet e-mail address without having to establish a real Internet site. In these cases, some real Internet machine must handle the mail on behalf of the listed Domain Name.

See Also: [IP Number](#)

E-mail

(Electronic Mail) – Messages, usually text, sent from one person to another via computer. E-mail can also be sent automatically to a large number of addresses (*Mailing List*).

See Also: [Listserv@](#) , [Maillist](#)

Ethernet

A very common method of networking computers in a *LAN*. Ethernet will handle about 10,000,000 bits-per-second and can be used with almost any kind of computer.

See Also: [Bandwidth](#) , [LAN](#)

FAQ

(Frequently Asked Questions) – FAQs are documents that list and answer the most common questions on a particular subject. There are hundreds of FAQs on subjects as diverse as Pet Grooming and Cryptography. FAQs are usually written by people who have tired of answering the same question over and over.

FDDI

(Fiber Distributed Data Interface) – A standard for transmitting data on optical fiber cables at a rate of around 100,000,000 bits-per-second (10 times as fast as *Ethernet*, about twice as fast as *T-3*).

See Also: [Bandwidth](#) , [Ethernet](#) , [T-1](#) , [T-3](#)

Finger

An Internet software tool for locating people on other Internet sites. Finger is also sometimes used to give access to non-personal information, but the most common use is to see if a person has an account at a particular Internet site. Many sites do not allow incoming Finger requests, but many do.

Fire Wall

A combination of hardware and software that separates a *LAN* into two or more parts for security purposes.

See Also: [Network](#) , [LAN](#)

Flame

Originally, flame meant to carry forth in a passionate manner in the spirit of honorable debate. Flames most often involved the use of flowery language and flaming well was an art form. More recently flame has come to refer to any kind of derogatory comment no matter how witless or crude.

See Also: [Flame War](#)

Flame War

When an online discussion degenerates into a series of personal attacks against the debaters, rather than discussion of their positions. A heated exchange.

See Also: [Flame](#)

FTP

(File Transfer Protocol) -- A very common method of moving files between two Internet sites. FTP is a special way to *login* to another Internet site for the purposes of retrieving and/or sending files. There are many Internet sites that have established publicly accessible repositories of material that can be obtained using FTP, by logging in using the account name anonymous, thus these sites are called anonymous ftp servers.

Gateway

The technical meaning is a hardware or software set-up that translates between two dissimilar protocols, for example Prodigy has a gateway that translates between its internal, proprietary e-mail format and Internet e-mail format. Another, sloppier meaning of gateway is to describe any mechanism for providing access to another system, e.g. AOL might be called a gateway to the Internet.

GIF

(Graphic Interchange Format) -- A common format for image files, especially suitable for images containing large areas of the same color. GIF format files of simple images are often smaller than the same file would be if stored in *JPEG* format, but GIF format does not store photographic images as well as JPEG.

See Also: [JPEG](#)

Gigabyte

1000 or 1024 *Megabytes*, depending on who is measuring.

See Also: [Byte](#) , [Megabyte](#)

Gopher

A widely successful method of making menus of material available over the Internet. Gopher is a *Client* and *Server* style program, which requires that the user have a Gopher *Client* program. Although Gopher spread rapidly across the globe in only a couple of years, it has been largely supplanted by Hypertext, also known as *WWW (World Wide Web)*. There are still thousands of Gopher Servers on the Internet and we can expect they will remain for a while.

See Also: [Client](#) , [Server](#) , [WWW](#) , [Hypertext](#)

hit

As used in reference to the World Wide Web, "hit" means a single request from a web browser for a single item from a web server; thus in order for a web browser to display a page

that contains 3 graphics, 4 “hits” would occur at the server: 1 for the *HTML* page, and one for each of the 3 graphics.

“hits” are often used as a very rough measure of load on a server, e.g. “Our server has been getting 300,000 hits per month.” Because each “hit” can represent anything from a request for a tiny document (or even a request for a missing document) all the way to a request that requires some significant extra processing (such as a complex search request), the actual load on a machine from 1 hit is almost impossible to define.

Home Page (or Homepage)

Several meanings. Originally, the *web* page that your *browser* is set to use when it starts up. The more common meaning refers to the main web page for a business, organization, person or simply the main page out of a collection of web pages, e.g. “Check out so-and-so’s new Home Page.”

Another sloppier use of the term refers to practically any web page as a “homepage,” e.g. “That web site has 65 homepages and none of them are interesting.”

See Also: [Browser](#) , [Web](#)

Host

Any computer on a *network* that is a repository for services available to other computers on the *network*. It is quite common to have one host machine provide several services, such as *WWW* and *USENET*.

See Also: [Node](#) , [Network](#)

HTML

(HyperText Markup Language) – The coding language used to create *Hypertext* documents for use on the *World Wide Web*. HTML looks a lot like old-fashioned typesetting code, where you surround a block of text with codes that indicate how it should appear, additionally, in HTML you can specify that a block of text, or a word, is linked to another file on the Internet. HTML files are meant to be viewed using a *World Wide Web Client* Program, such as *Netscape* or *Mosaic*.

See Also: [Client](#) , [Server](#) , [WWW](#)

HTTP

(HyperText Transfer Protocol) – The protocol for moving *hypertext* files across the *Internet*. Requires a HTTP *client* program on one end, and an HTTP *server* program on the other end. HTTP is the most important protocol used in the *World Wide Web* (*WWW*).

See Also: [Client](#) , [Server](#) , [WWW](#)

Hypertext

Generally, any text that contains links to other documents - words or phrases in the document that can be chosen by a reader and which cause another document to be retrieved and displayed.

Internet

(Upper case I) The vast collection of inter-connected networks that all use the TCP/IP protocols and that evolved from the *ARPANET* of the late 60's and early 70's. The Internet now (July 1995) connects roughly 60,000 independent networks into a vast global *Internet*.

See Also: [Internet](#)

Internet

(Lower case i) Any time you connect 2 or more *networks* together, you have an Internet - as in inter-national or inter-state.

See Also: [Internet](#) , [Network](#)

Intranet

A private *network* inside a company or organization that uses the same kinds of software that you would find on the public *Internet*, but that is only for internal use.

As the Internet has become more popular many of the tools used on the Internet are being used in private networks, for example, many companies have web servers that are available only to employees.

Note that an Intranet may not actually be an [Internet](#) -- it may simply be a [network](#).

See Also: [Internet](#) , [Internet](#) , [Network](#)

IP Number

(Internet Protocol Number) -- Sometimes called a dotted quad. A unique number consisting of 4 parts separated by dots, e.g. 165.113.245.2.

Every machine that is on the Internet has a unique IP number - if a machine does not have an IP number, it is not really on the Internet. Most machines also have one or more *Domain Names* that are easier for people to remember.

See Also: [Domain Name](#) , [Internet](#) , [TCP/IP](#)

IRC

(Internet Relay Chat) -- Basically a huge multi-user live chat facility. There are a number of major IRC *servers* around the world which are linked to each other. Anyone can create a channel and anything that anyone types in a given channel is seen by all others in the channel. Private channels can (and are) created for multi-person conference calls.

ISDN

(Integrated Services Digital Network) – Basically a way to move more data over existing regular phone lines. ISDN is rapidly becoming available to much of the USA and in most markets it is priced very comparably to standard analog phone circuits. It can provide speeds of roughly 128,000 bits-per-second over regular phone lines. In practice, most people will be limited to 56,000 or 64,000 bits-per-second.

ISP

(Internet Service Provider) – An institution that provides access to the Internet in some form, usually for money.

See Also: [Internet](#)

Java

Java is a network-oriented programming language invented by Sun Microsystems that is specifically designed for writing programs that can be safely downloaded to your computer through the Internet and immediately run without fear of viruses or other harm to your computer or files. Using small Java programs (called "*Applets*"), Web pages can include functions such as animations, calculators, and other fancy tricks.

We can expect to see a huge variety of features added to the Web using Java, since you can write a Java program to do almost anything a regular computer program can do, and then include that Java program in a Web page.

See Also: [Applet](#)

JavaScript

JavaScript is a programming language that is mostly used in web pages, usually to add features that make the web page more interactive. When JavaScript is included in an *HTML* file it relies upon the browser to interpret the JavaScript. When JavaScript is combined with *Cascading Style Sheets* (CSS), and later versions of HTML (4.0 and later) the result is often called *DHTML*.

JavaScript was invented by *Netscape* and was going to be called "LiveScript", but the name was changed to JavaScript to cash in on the popularity of *Java*. JavaScript and Java are two different programming languages.

See Also: [HTML](#), [Java](#)

JDK

(Java Development Kit) – A software development package from Sun Microsystems that implements the basic set of tools needed to write, test and debug *Java* applications and *applets*

See Also: [Applet](#) , [Java](#)

JPEG

(Joint Photographic Experts Group) – JPEG is most commonly mentioned as a format for image files. JPEG format is preferred to the *GIF* format for photographic images as opposed to line art or simple logo art.

See Also: [GIF](#)

Kilobyte

A thousand bytes. Actually, usually 1024 (2^{10}) bytes.

See Also: [Byte](#) , [Bit](#)

LAN

(Local Area Network) – A computer network limited to the immediate area, usually the same building or floor of a building.

See Also: [Ethernet](#)

Leased Line

Refers to a phone line that is rented for exclusive 24-hour, 7 -days-a-week use from your location to another location. The highest speed data connections require a leased line.

See Also: [T-1](#) , [T-3](#), [DSL](#)

Listserv®

The most common kind of *maillist*, "Listserv" is a registered trademark of L-Soft international, Inc. Listservs originated on *BITNET* but they are now common on the *Internet*.

See Also: [BITNET](#) , [E-mail](#) , [Maillist](#)

Login

Noun or a verb. Noun: The account name used to gain access to a computer system. Not a secret (contrast with *Password*).

Verb: The act of entering into a computer system, e.g. *Login to the WELL and then go to the GBN conference.*

See Also: [Password](#)

Maillist

(or Mailing List) A (usually automated) system that allows people to send *e-mail* to one address, whereupon their message is copied and sent to all of the other subscribers to the maillist. In this way, people who have many different kinds of e-mail access can participate in discussions together.

Megabyte

A million *bytes*. Actually, technically, 1024 *kilobytes*.

See Also: [Byte](#) , [Bit](#) , [Kilobyte](#)

MIME

(Multipurpose Internet Mail Extensions) -- The standard for attaching non-text files to standard Internet mail messages. Non-text files include graphics, spreadsheets, formatted word-processor documents, sound files, etc.

An email program is said to be MIME Compliant if it can both send and receive files using the MIME standard.

When non-text files are sent using the MIME standard they are converted (encoded) into text - although the resulting text is not really readable.

Generally speaking the MIME standard is a way of specifying both the type of file being sent (e.g. a Quicktime™ video file), and the method that should be used to turn it back into its original form.

Besides email software, the MIME standard is also universally used by Web Servers to identify the files they are sending to Web Clients, in this way new file formats can be accommodated simply by updating the Browsers' list of pairs of MIME-Types and appropriate software for handling each type.

See Also: [Browser](#) , [Client](#) , [Server](#) , [Binhex](#) , [UUENCODE](#)

Mirror

Generally speaking, "to mirror" is to maintain an exact copy of something. Probably the most common use of the term on the Internet refers to "mirror sites" which are *web* sites, or *FTP* sites that maintain exact copies of material originated at another location, usually in order to provide more widespread access to the resource.

Another common use of the term "mirror" refers to an arrangement where information is written to more than one hard disk simultaneously, so that if one disk fails, the computer keeps on working without losing anything.

See Also: [FTP](#) , [Web](#)

Modem

(MOdulator, DEModulator) -- A device that you connect to your computer and to a phone line, that allows the computer to talk to other computers through the phone system. Basically, modems do for computers what a telephone does for humans.

MOO

(Mud, Object Oriented) – One of several kinds of multi-user role-playing environments, so far only text-based.

See Also: [MUD](#) , [MUSE](#)

Mosaic

The first *WWW browser* that was available for the Macintosh, Windows, and UNIX all with the same interface. Mosaic really started the popularity of the Web. The source-code to Mosaic has been licensed by several companies and there are several other pieces of software as good or better than Mosaic, most notably, Netscape.

See Also: [Browser](#) , [Client](#) , [WWW](#)

MUD

(Multi-User Dungeon or Dimension) – A (usually text-based) multi-user simulation environment. Some are purely for fun and flirting, others are used for serious software development, or education purposes and all that lies in between. A significant feature of most MUDs is that users can create things that stay after they leave and which other users can interact with in their absence, thus allowing a world to be built gradually and collectively.

See Also: [MOO](#) , [MUSE](#)

MUSE

(Multi-User Simulated Environment) – One kind of MUD - usually with little or no violence.

See Also: [MOO](#) , [MUD](#)

Netiquette

The etiquette on the *Internet*.

See Also: [Internet](#)

Netizen

Derived from the term citizen, referring to a citizen of the *Internet*, or someone who uses networked resources. The term connotes civic responsibility and participation.

See Also: [Internet](#)

Netscape

A *WWW Browser* and the name of a company. The Netscape (tm) browser was originally based on the *Mosaic* program developed at the National Center for Supercomputing Applications (NCSA).

Netscape has grown in features rapidly and is widely recognized as the best and most popular web browser. Netscape corporation also produces web server software.

Netscape provided major improvements in speed and interface over other browsers, and has also engendered debate by creating new elements for the *HTML* language used by Web pages – but the Netscape extensions to HTML are not universally supported.

The main author of Netscape, Mark Andreessen, was hired away from the NCSA by Jim Clark, and they founded a company called Mosaic Communications and soon changed the name to Netscape Communications Corporation.

See Also: [Browser](#) , [Mosaic](#) , [Server](#) , [WWW](#)

Network

Any time you connect 2 or more computers together so that they can share resources, you have a computer network. Connect 2 or more networks together and you have an *Internet*.

See Also: [Internet](#) , [Internet](#) , [Intranet](#)

Newsgroup

The name for discussion groups on *USENET*.

See Also: [USENET](#)

NIC

(Networked Information Center) – Generally, any office that handles information for a network. The most famous of these on the Internet is the InterNIC, which is where new domain names are registered.

Another definition: NIC also refers to Network Interface Card which plugs into a computer and adapts the network interface to the appropriate standard. ISA, PCI, and PCMCIA cards are all examples of NICs.

NNTP

(Network News Transport Protocol) – The protocol used by *client* and *server* software to carry *USENET* postings back and forth over a *TCP/IP network*. If you are using any of the more common software such as *Netscape*, *Nuntius*, *Internet Explorer*, etc. to participate in *newsgroups* then you are benefiting from an NNTP connection.

See Also: [Newsgroup](#) , [TCP/IP](#) , [USENET](#)

Node

Any single computer connected to a *network*.

See Also: [Network](#) , [Internet](#) , [Internet](#)

Packet Switching

The method used to move data around on the *Internet*. In packet switching, all the data coming out of a machine is broken up into chunks, each chunk has the address of where it

came from and where it is going. This enables chunks of data from many different sources to co-mingle on the same lines, and be sorted and directed to different routes by special machines along the way. This way many people can use the same lines at the same time.

Password

A code used to gain access to a locked system. Good passwords contain letters and non-letters and are not simple combinations such as *virtue7*. A good password might be:

Hot\$1-6

See Also: [Login](#)

Plug-in

A (usually small) piece of software that adds features to a larger piece of software. Common examples are plug-ins for the Netscape® *browser* and *web server*. Adobe Photoshop® also uses plug-ins.

The idea behind plug-in's is that a small piece of software is loaded into memory by the larger program, adding a new feature, and that users need only install the few plug-ins that they need, out of a much larger pool of possibilities. Plug-ins are usually created by people other than the publishers of the software the plug-in works with.

POP

(Point of Presence, also Post Office Protocol) – Two commonly used meanings: Point of Presence and Post Office Protocol. A Point of Presence usually means a city or location where a network can be connected to, often with dial up phone lines. So if an Internet company says they will soon have a POP in Belgrade, it means that they will soon have a local phone number in Belgrade and/or a place where leased lines can connect to their network. A second meaning, Post Office Protocol refers to the way e-mail software such as Eudora gets mail from a mail server. When you obtain a SLIP, PPP, or shell account you almost always get a POP account with it, and it is this POP account that you tell your e-mail software to use to get your mail.

See Also: [SLIP](#) , [PPP](#)

Port

3 meanings. First and most generally, a place where information goes into or out of a computer, or both. E.g. the serial port on a personal computer is where a *modem* would be connected.

On the Internet port often refers to a number that is part of a *URL*, appearing after a colon (:) right after the *domain name*. Every service on an Internet *server* listens on a particular port number on that server. Most services have standard port numbers, e.g. Web servers normally listen on port 80. Services can also listen on non-standard ports, in which case the port number must be specified in a URL when accessing the server, so you might see a URL of _____ the _____ form:

`gopher://peg.cwis.uci.edu:7000/`

shows a gopher server running on a non-standard port (the standard gopher port is 70). Finally, port also refers to translating a piece of software to bring it from one type of computer system to another, e.g. to translate a Windows program so that it will run on a Macintosh.

See Also: [Domain Name](#) , [Server](#) , [URL](#)

Portal

Usually used as a marketing term to describe a Web site that is or is intended to be the first place people see when using the Web. Typically a "Portal site" has a catalog of web sites, a search engine, or both. A Portal site may also offer email and other services to entice people to use that site as their main "point of entry" (hence "portal") to the Web.

Posting

A single message entered into a network communications system.

E.g. A single message posted to a *newsgroup* or message board.

See Also: [Newsgroup](#)

PPP

(Point to Point Protocol) -- Most well known as a protocol that allows a computer to use a regular telephone line and a *modem* to make *TCP/IP* connections and thus be really and truly on the *Internet*.

See Also: [IP Number](#) , [Internet](#) , [SLIP](#) , [TCP/IP](#)

PSTN

(Public Switched Telephone Network) -- The regular old-fashioned telephone system.

RFC

(Request For Comments) -- The name of the result and the process for creating a standard on the *Internet*. New standards are proposed and published on line, as a Request For Comments. The Internet Engineering Task Force is a consensus-building body that facilitates discussion, and eventually a new standard is established, but the reference number/name for the standard retains the acronym RFC, e.g. the official standard for *e-mail* is RFC 822.

Router

A special-purpose computer (or software package) that handles the connection between 2 or more *networks*. Routers spend all their time looking at the destination addresses of the *packets* passing through them and deciding which route to send them on.

See Also: [Network](#) , [Packet Switching](#)

Security Certificate

A chunk of information (often stored as a text file) that is used by the SSL protocol to establish a secure connection.

Security Certificates contain information about who it belongs to, who it was issued by, a unique serial number or other unique identification, valid dates, and an encrypted “fingerprint” that can be used to verify the contents of the certificate.

In order for an SSL connection to be created both sides must have a valid Security Certificate.

See Also: [Certificate Authority](#) , [SSL](#)

Server

A computer, or a software package, that provides a specific kind of service to *client* software running on other computers. The term can refer to a particular piece of software, such as a *WWW* server, or to the machine on which the software is running, e.g. Our mail server is down today, that’s why e-mail isn’t getting out. A single server machine could have several different server software packages running on it, thus providing many different servers to *clients* on the *network*.

See Also: [Client](#) , [Network](#)

SLIP

(Serial Line Internet Protocol) – A standard for using a regular telephone line (a serial line) and a *modem* to connect a computer as a real *Internet* site. SLIP is gradually being replaced by *PPP*.

See Also: [Internet](#) , [PPP](#)

SMDS

(Switched Multimegabit Data Service) – A new standard for very high-speed data transfer.

SMTP

(Simple Mail Transfer Protocol) – The main protocol used to send electronic mail on the Internet.

SMTP consists of a set of rules for how a program sending mail and a program receiving mail should interact.

Almost all Internet email is sent and received by *clients* and *servers* using SMTP, thus if one wanted to set up an email server on the Internet one would look for email server software that supports SMTP.

See Also: [Client](#) , [Server](#)

SNMP

(Simple Network Management Protocol) – A set of standards for communication with devices connected to a TCP/IP *network*. Examples of these devices include *routers*, hubs, and switches.

A device is said to be “SNMP compatible” if it can be monitored and/or controlled using SNMP messages. SNMP messages are known as “PDU’s” - Protocol Data Units.

Devices that are SNMP compatible contain SNMP “agent” software to receive, send, and act upon SNMP messages.

Software for managing devices via SNMP are available for every kind of commonly used computer and are often bundled along with the device they are designed to manage. Some SNMP software is designed to handle a wide variety of devices.

See Also: [Network](#) , [Router](#)

Spam (or Spamming)

An inappropriate attempt to use a *mailing list*, or *USENET* or other networked communications facility as if it was a broadcast medium (which it is not) by sending the same message to a large number of people who didn’t ask for it. The term probably comes from a famous Monty Python skit which featured the word spam repeated over and over. The term may also have come from someone’s low opinion of the food product with the same name, which is generally perceived as a generic content-free waste of resources. (Spam is a registered trademark of Hormel Corporation, for its processed meat product.)

E.g. Mary spammed 50 USENET groups by posting the same message to each.

See Also: [Maillist](#) , [USENET](#)

SQL

(Structured Query Language) – A specialized programming language for sending queries to databases. Most industrial-strength and many smaller database applications can be addressed using SQL. Each specific application will have its own version of SQL implementing features unique to that application, but all SQL-capable databases support a common subset of SQL.

SSL

(Secure Sockets Layer) – A protocol designed by Netscape Communications to enable encrypted, authenticated communications across the Internet.

SSL used mostly (but not exclusively) in communications between web *browsers* and web *servers*. *URL*’s that begin with “https” indicate that an SSL connection will be used.

SSL provides 3 important things: Privacy, Authentication, and Message Integrity.

In an SSL connection each side of the connection must have a *Security Certificate*, which each side's software sends to the other. Each side then encrypts what it sends using information from both its own and the other side's Certificate, ensuring that only the intended recipient can de-crypt it, and that the other side can be sure the data came from the place it claims to have come from, and that the message has not been tampered with.

See Also: [Browser](#) , [Server](#) , [Security Certificate](#) , [URL](#)

Sysop

(System Operator) – Anyone responsible for the physical operations of a computer system or network resource. A System Administrator decides how often backups and maintenance should be performed and the System Operator performs those tasks.

T-1

A *leased-line* connection capable of carrying data at 1,544,000 *bits*-per-second. At maximum theoretical capacity, a T-1 line could move a *megabyte* in less than 10 seconds. That is still not fast enough for full-screen, full-motion video, for which you need at least 10,000,000 bits-per-second. T-1 is the fastest speed commonly used to connect *networks* to the *Internet*.

See Also: [Bandwidth](#) , [Bit](#) , [Byte](#) , [Ethernet](#) , [T-3](#)

T-3

A *leased-line* connection capable of carrying data at 44,736,000 bits-per-second. This is more than enough to do full-screen, full-motion video.

See Also: [Bandwidth](#) , [Bit](#) , [Byte](#) , [Ethernet](#) , [T-1](#)

TCP/IP

(Transmission Control Protocol/Internet Protocol) – This is the suite of protocols that defines the *Internet*. Originally designed for the *UNIX* operating system, TCP/IP software is now available for every major kind of computer operating system. To be truly on the *Internet*, your computer must have TCP/IP software.

See Also: [IP Number](#) , [Internet](#) , [UNIX](#)

Telnet

The command and program used to *login* from one *Internet* site to another. The telnet command/program gets you to the login: prompt of another *host*.

Terabyte

1000 *gigabytes*.

See Also: [Byte](#) , [Kilobyte](#)

Terminal

A device that allows you to send commands to a computer somewhere else. At a minimum, this usually means a keyboard and a display screen and some simple circuitry. Usually you will use terminal software in a personal computer - the software pretends to be (emulates) a physical terminal and allows you to type commands to a computer somewhere else.

Terminal Server

A special purpose computer that has places to plug in many *modems* on one side, and a connection to a *LAN* or *host* machine on the other side. Thus the terminal server does the work of answering the calls and passes the connections on to the appropriate *node*. Most terminal servers can provide *PPP* or *SLIP* services if connected to the *Internet*.

See Also: [LAN](#) , [Modem](#) , [Host](#) , [Node](#) , [PPP](#) , [SLIP](#)

UDP

(User Datagram Protocol) -- One of the protocols for data transfer that is part of the *TCP/IP* suite of protocols. UDP is a "stateless" protocol in that UDP makes no provision for acknowledgement of packets received.

See Also: [TCP/IP](#)

UNIX

A computer operating system (the basic software running on a computer, underneath things like word processors and spreadsheets). UNIX is designed to be used by many people at the same time (it is multi-user) and has *TCP/IP* built-in. It is the most common operating system for *servers* on the *Internet*.

URL

(Uniform Resource Locator) -- The standard way to give the address of any resource on the Internet that is part of the World Wide Web (WWW).

The most common way to use a URL is to enter into a WWW browser program, such as Netscape, or Lynx.

See Also: [Browser](#) , [WWW](#)

USENET

A world-wide system of discussion groups, with comments passed among hundreds of thousands of machines. Not all USENET machines are on the *Internet*, maybe half. USENET is completely decentralized, with over 10,000 discussion areas, called *newsgroups*.

See Also: [Newsgroup](#)

UUENCODE

(Unix to Unix Encoding) -- A method for converting files from *Binary* to *ASCII* (text) so that they can be sent across the Internet via *e-mail*.

See Also: [Binhex](#) , [MIME](#)

Veronica

(Very Easy Rodent Oriented Net-wide Index to Computerized Archives) – Developed at the University of Nevada, Veronica is a constantly updated database of the names of almost every menu item on thousands of *gopher* servers. The Veronica database can be searched from most major *gopher* menus.

See Also: [Gopher](#)

VPN

(Virtual Private Network) – Usually refers to a *network* in which some of the parts are connected using the public *Internet*, but the data sent across the Internet is encrypted, so the entire network is "virtually" private.

A typical example would be a company network where there are two offices in different cities. Using the Internet the two offices merge their networks into one network, but encrypt traffic that uses the Internet link.

See Also: [Internet](#), [Network](#)

WAIS

(Wide Area Information Servers) – A commercial software package that allows the indexing of huge quantities of information, and then making those indices searchable across *networks* such as the *Internet*. A prominent feature of WAIS is that the search results are ranked (scored) according to how relevant the hits are, and that subsequent searches can find more stuff like that last batch and thus refine the search process.

WAN

(Wide Area Network) – Any *Internet* or *network* that covers an area larger than a single building or campus.

See Also: [Internet](#) , [Internet](#) , [LAN](#) , [Network](#)

Web

See: [WWW](#)

WWW

(World Wide Web) – Frequently used (incorrectly) when referring to "The Internet", WWW has two major meanings - First, loosely used: the whole constellation of resources that can be accessed using *Gopher*, *FTP*, *HTTP*, *telnet*, *USENET*, *WAIS* and some other tools. Second, the universe of hypertext servers (*HTTP servers*) which are the servers that allow text, graphics, sound files, etc. to be mixed together.

See Also: [Browser](#) , [FTP](#) , [Gopher](#) , [HTTP](#) , [Internet](#) , [Telnet](#) , [URL](#) , [WAIS](#)

Glossary courtesy of Matisse Enzer, <http://www.matisse.net/files/glossary.html>

