

13. Glossary

Note: The letters q.v. after a term indicate that a separate entry can be found in the glossary for that term.

Analogue

A connection is said to be analogue if it makes use of continuously variable signals. Regular telephone lines are analogue.

ADSL

Asymmetric Digital Subscriber Line. A form of DSL (q.v.) in which the bandwidth available for downstream connection is significantly larger than for upstream connection.

Asymmetric connection

An Internet connection where the inbound bandwidth to your computer is more than the outbound bandwidth. This is efficient, because for web browsing the web request (a click on a hyperlink, for example, that goes out) consumes far less bandwidth than the resulting web page that appears in your browser

Authentication

Identifying a user as having access rights to a computer system by letting him supply a valid username and password

Bandwidth

The amount of data that can be sent through a connection. Usually measured in bits per second (bps). A full A4 page of English text is about 16,000 bits. (*See also Data rate.*)

Burst Excess (BE)

The bandwidth that a network gets from a shared system over and above its CIR (q.v.). The amount of BE a network gets depends on how much the other customers of an ISP (q.v.) are using at that moment. If none of them are using any bandwidth, the full BE will be available.

Cache

An area of memory or disk space holding recently accessed data for quick retrieval.

CD-ROM

Compact Disk-Read Only Memory. A storage medium for digital data, CD-ROMs can hold up to 650 MB.

Committed Information Rate (CIR)

The guaranteed amount of bandwidth that a network should get. (*See also Burst Excess.*)

Data rate

The capacity of network connections is measured in Kbps (Kilobits per second) or Mbps (Megabits per second). This is an international convention. The data rate (of a file download, for example) is measured in Kilobytes per second. All other computer data sizes use bytes as the basic unit. File sizes, for example, are measured in Kilobytes or Megabytes. There are 8 bits in a byte, 1024 bytes in a Kilobyte, and 1024 Kilobytes in a Megabyte.

Digital

A connection is digital if it makes use of distinct signals that indicate either 0 or 1. All digital data consists of many 0's and 1's that are combined to make up any kind of data. Even graphics and voice calls can be transmitted in this way.

DNS (Domain Name Service)

While computers use TCP/IP addresses to communicate, humans prefer names like www.google.com. So if someone wants to connect to the server at www.google.com, the domain name service matches that name with a TCP/IP address to enable the connection to take place.

Downlink

The link from the Internet. When users click on a hyperlink, this click is transmitted to the Internet via the uplink. The Web page that consequently loads in the browser is transmitted from the Internet via the downlink.

DSL

Digital Subscriber Line. DSL is a set of protocols for high-speed data communication over existing copper telephone lines by utilizing unused frequencies. DSL can allow voice and high-speed data to be sent simultaneously over the same line. Because the service is 'always available', end-users don't need to dial in or wait for call set-up.

Ethernet

The standard protocol for communication on a LAN. When connecting to the Internet, Ethernet is used to communicate with the router. The router communicates with other routers via Ethernet or other protocols.

Firewall

Software that either protects a whole network, or sometimes just a single computer from unauthorised access from a network such as the Internet.

Free Software

Free software is software that can be freely used, modified, and redistributed with only one restriction: any redistributed version of the software must be distributed with the original terms of free use, modification, and distribution. Free software may be packaged and distributed for a fee; the "free" refers to the ability to reuse it, modified or unmodified, as part of another software package. As part of the ability to modify, users of free software may also have access to and study the source code. (See also **Open Source**)

FTP

File Transfer protocol. Used for transferring files between computers via the Internet.

HTTP

HyperText Transfer Protocol. A protocol for the exchange of HTML documents (Web pages), as well as other things.

HTTPS

HyperText Transmission Protocol, Secure. Used for exchanging secure HTML documents (Web pages), for example for on-line shopping or banking, where credit card information might be used.

ICT

Information and Communications Technology. Telephone lines, mobile phones, computers, networks and the Internet.

Internet

The worldwide network of networks based on the TCP/IP protocol. The Internet is not an online service and has no real central 'hub'. Rather, it is a collection of millions of networks, online services, and single-user components.

Internet Exchange Point (IXP)

A place where the networks of different ISPs are connected to permit the exchange of Internet traffic. Large academic or governmental networks typically also connect to IXPs. (See also **Peering**.)

Intranet

Internal systems, based on Internet technology, designed to connect the members of a specific closed-user group. An Intranet is a private Internet: a private network, usually a LAN or WAN, that enables the use of Internet-based applications in a secure and private environment. As on the public Internet, Intranets can host Web servers, FTP servers, and any other IP-based services.

IMAP

Internet Message Access Protocol. A mail server protocol that allows you to store all your messages and any changes to them on the server and/or on your computer's hard disk

Internet backbone

The fast, high bandwidth part of the Internet that connects the economically more powerful countries. It is not a precise term, but indicates the fibre connected part of the Internet where bandwidth is not a major issue.

IP Address

A number such as 216.239.51.100 that is used to address a networked device or computer on the Internet. IP addresses are necessary for routers to carry network traffic to their intended destination.

IRC

Internet Relay Chat. A system that enables participants from all over the world to communicate with each other in real time via the Internet. It is normally used for discussions between people with similar interests.

ISO image

The complete contents of a CD-ROM, packed into one file. CD-writer software can be used to create the image and to write the image on to a blank CD.

ISP

Internet Service Provider. A company that provides a connection to the Internet.

Janet (Joint Academic Network)

A network connecting UK academic institutions with each other and the Internet.

Javascript

A programming or scripting language that adds logic (such as calculations) to a web page.

LAN

Local Area Network. A short-distance network used to link a group of computers together within a building. LANs are typically limited to distances of less than 500 metres and provide low-cost, high-bandwidth networking capabilities within a small geographical area.

Latency

On satellite networks, the signal has to travel a long way (35 000 km) to the satellite, and then back again. This delay is called latency. It can also be experienced in a fibre connection halfway around the world, but is particularly high and unavoidable with satellite connections.

LEARN network

Lanka Academic and Research Network. A network in Sri Lanka that connects academic institutions such as universities to each other and to the Internet.

Link speed

See **Data rate**

Long fat pipe network

A network connection that has relatively high bandwidth, but high latency, such as a satellite network. The design of TCP/IP (especially earlier implementations), interprets long delays as congestion, and therefore if it takes long to receive an acknowledgement packet, the sender reduced the rate of sending data. This is the wrong approach for a "long fat pipe network" that is not congested, and causes lower throughput than is possible.

Mailing list

A way of distributing information via email on a topic of mutual interest to all who are subscribed. A mailing list can either consist of messages sent by a single entity (for example an announcement list), or all subscribers may participate by sending their own views or questions.

Mirror

In order to save bandwidth, large software download facilities are often recreated or mirrored on servers in other countries in order to save international bandwidth.

Operating system

The low-level software that handles the interface to peripheral hardware, schedules tasks, allocates storage, and presents a default interface to the user when no application program is running. Examples include Windows, Unix, Mac OS and NetWare.

Open proxies

Proxy servers that will accept connections from anywhere, and are therefore abused by individuals to make sure their activities on the Internet cannot be traced.

Open relay hosts

Mail servers that will accept connections from anywhere, and are therefore abused by commercial interests on the Internet to distribute spam.

Open Source

In general, open source refers to any program whose source code is made available for use or modification as users or other developers see fit. (Historically, the makers of proprietary software have generally not made source code available.) Open source software is usually developed as a public collaboration and made freely available. (See also **Free Software**)

Packet

Any data (such as an e-mail) that is to be transmitted over a network, is divided into parts, each of which becomes a packet. The packet also contains the necessary addressing information to get it to its destination.

PDF

Portable Document Format. A document format for which free reader software exists for any operating system. An author can distribute a PDF with the knowledge that the recipient should be able to read the document without having to pay for any software. Another reason for distributing a document in PDF format is that the recipient cannot modify the document.

Peer-to-Peer Networking (P2P)

On the Internet, peer-to-peer is a type of transient Internet network that allows a group of computer users with the same networking program to connect with each other and directly access files from one another's hard drives. Napster and Gnutella are examples of this kind of peer-to-peer software. Corporations are looking at the advantages of using P2P as a way for employees to share files without the expense involved in maintaining a centralized server and as a way for businesses to exchange information with each other directly.

Peering

When two or more organizations, companies or ISPs that have their own connections to the Internet create network links between them, it is a peering arrangement. The purpose is to keep traffic between them direct and local, rather than have it routed via third parties.

POP

Post Office Protocol. Makes available client-server e-mail messaging. Messages sent to you are

stored on servers at your Internet service provider until you connect and retrieve them. When you use POP to access your e-mail, your messages are downloaded to your computer and removed from the mail server when you retrieve them.

Postscript

A printing language that can also be used to create PostScript documents. As a document format it is similar to PDF in that it is used for the same reasons – universal reader software and the reader cannot modify the document.

Proxy server

A server used for caching previously accessed Web pages and files to prevent them from being retrieved from the Internet multiple times. (*See also Cache.*)

Router

A device which forwards packets between networks.

Script

A simple program creatable by users that performs a simple task, such as to download certain files every morning at 2 a.m.

Serial port

A connector at the back of the computer for attaching external devices.

Server

A computer that handles requests for data, e-mail, file transfers and other network services from other computers (clients).

Spam

Unsolicited commercial e-mail.

Split DNS or "split horizon"

Using different pointers on internal and external DNS servers in order to present a different view of the organization's domain to the inside and outside worlds. For example, if a university uses an ISP, then all users of that ISP including the campus users will be directed to an address on the campus network, while the rest of the world is directed to a server on the Internet backbone in Europe.

Spyware

A small program that gets installed without the user's knowledge, and that send details about your browsing habits to the company that benefits from this knowledge.

TCP/IP

Transmission Control Protocol/Internet Protocol. The basic communication language or protocol of the Internet. It can also be used as a communication protocol in intranets (q.v.).

Unix

An operating system. There are many versions, distributions and makes of Unix. The most well known are Sun Solaris, Linux, IBM AIX, and BSD. Some are free, while others are very expensive.

Uplink

The link to the Internet, which is sometimes smaller than the downlink. When a user clicks on a hyperlink, this click is transmitted to the Internet via the uplink. The web page that consequently loads in his browser is transmitted from the Internet via the downlink. Communication from the local computer to the Internet goes through the uplink and communication from the Internet to the local computer goes through the downlink.

UPS

Uninterruptible power supply. A device with a strong battery that supplies power to a server or other equipment, and keeps doing so for a short while if the power fails. Modern UPSs connect to the computer's serial port and provide information such as the battery time remaining, allowing the computer to be shut down gracefully before complete loss of power.

Virus

A malicious computer program that replicates itself to other programs.

VSAT

Very Small Aperture Terminal. An earth station, used for the reliable transmission of data, video, or voice via geo-stationary satellite, with a relatively small dish-antenna (often 2.4m or 3.8m in diameter).

WAN

Wide Area Network. Two or more local area networks (see LAN) joined together over any geographical distance.

Worm

A kind of computer virus that only replicates itself. It does not really harm a computer, but the cumulative effect of its replication can use up vast amounts of bandwidth.