



# Tech Term Cheat Sheet

## ADSL or Asymmetric Digital Subscriber Line

Commonly called DSL. Technology and equipment that allow high-speed communication across standard copper telephone wires. This can include video signals. ADSL can transmit at high rates of speed both upstream and downstream, depending on line distance. "Asymmetric" refers to the fact that ADSL is designed to deliver more speed downstream (from the central office to the customer) than upstream (the other way around).

## Backbone

A backbone network connects smaller networks, and backbones exist at all levels from local to national. Backbones can be deployed across many buildings (such as in a campus setting or across cities or states) or within a single building.

## Bandwidth

Also called capacity; the volume of data that an Internet connection can handle over a given unit of time. The data is usually measured in bits per second (bps).

## Bit

The smallest possible unit of information, usually expressed as a simple binary choice: yes or no, on or off, one or zero. In a digital system, all information is expressed as simply very large strings of ones and zeros.

## Bits Per Second or bps

In data communications, "bits per second" is a common measure of data transfer. It is used to show how many bits of information are traveling through the transmission per second. (see also kbps and mbps).



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## Broadband

"Broadband" is a general term referring to high speed communication, whichever medium -- fiber, wire, cable, or wireless -- is used to provide it. Precisely what speed constitutes broadband is constantly changing as technological capability, applications, and user demands evolve.

## Bundled Service

Using multiple services provided by a single company. One advantage (or disadvantage, depending on perspective) of bundled service is that there is usually only one bill and one place to go for customer service regardless of how many services are ordered.

## Cable Modem

Though it serves the same purpose as a dial-up modem, a cable modem is different in many ways. The biggest differences are that a cable modem is much faster and does not use a phone number to connect. A cable modem connects to a digital cable television line. Computers equipped with a cable modem have a continuous or "always on" connection to the Internet. Instead of connecting to a serial port like a dial-up modem, a cable modem connects to a standard Ethernet port with a much faster rate of data transfer.

## Central Office or CO

A telecommunications term used to refer to the physical location of the local telephone company's building where home and business subscriber lines are connected to the rest of the network. For the purposes of Internet access, the central office switching equipment receives data transmission from a customer's location and then sends those transmissions to the Internet over telephone companies' or third party networks.

## Connection Speed

The speed of a data communications circuit. Some circuits are symmetrical -- they have the same bandwidth capacity going to and from the network. Asymmetrical systems differ in the bandwidth provisioned. That is, more bandwidth is typically available from the network to the end-user than from the end-user to the network.



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## Dial-up Access

Accessing the Internet using conventional voice telephone service. It requires the use of a modem to connect the computer to the telephone line. Dial-up speeds are up to 56 kilobits per second (kbps).

## Digital Subscriber Line or DSL

DSL is a technology developed to send high-speed transmissions over standard copper telephone wires. See also Asymmetric Digital Subscriber Line (ADSL).

## E-Rate

E-Rate is the commonly used name for the Schools and Libraries Program of the Universal Service Fund administered by the Universal Service Administrative Company under the direction of the Federal Communications Commission. The program provides discounts to assist schools and libraries in the United States and its territories with obtaining affordable telecommunications and information services.

## Ethernet

A common method for connecting computers and equipment in a single location. Ethernet connects computers, printers, workstations, servers, etc. within a building to a hub or router which allows devices to communicate.

## Fiber

Fiber is a glass-based transmission medium (as opposed to copper). The "electronics," which use lasers to transmit optical signals, are placed at opposite ends of the path. Fiber optics can have significantly larger capacities over longer distances than copper-based electrical signals, which translates to much higher bandwidth.

## Fiber Ring

A fiber ring is a circular pattern of localized fiber optic cables used to transmit data and information at very high speeds over a short distance within a specific region.



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## Hub

A central location on a network that joins remote workstations or remote locations together. At the center of a Local Area Network (LAN), the hub connects network devices, including computers, printers, and servers. In a Wide Area Network (WAN), a hub can also refer to a central location.

## Internet Service Provider or ISP

A vendor providing access to the Internet.

## Intranet

A private network accessible only by the organization's members, employees, or others with authorization.

## ISDN or Integrated Services Digital Network

Refers to a set of international standards designed as an enhancement to the analog public switched telephone network (PSTN). ISDN connections consist of ISDN modems that dial-up another ISDN modem across ISDN lines.

## Kilobits Per Second or kbps

A unit for expressing the speed of data transfer through a network in terms of thousands of bits per second.

## Local Area Network or LAN

A computer network that spans a relatively small area connecting computers, workstations, servers, printers and other peripherals. Most LANs are confined to a single building or group of buildings. However, one LAN can be connected to other LANs over any distance creating a Wide Area Network (WAN). Any media connection type from ordinary POTS lines, ISDN, DS1, DSL, satellite, microwave or fiber-based connections can be used in a WAN.

## Megabits Per Second or mbps

A unit for expressing the speed of data transfer through a network in terms of millions of bits per second.



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## Megabyte or MB

A unit for expressing the amount of physical storage on a storage device—a hard disk, for example.

## Microwave

The radio frequency used for communicating to and from satellites. Microwaves can also be used to transmit telephone, facsimile, video, and data in terrestrial systems.

## Modem

Short for modulator/demodulator. This is a device that connects a computer to a network. Modems work at different speeds; the faster the speed, the faster that information flows to (and from) your computer. A modem's speed is measured in bits per second, or bps.

## Network

A network links devices together, such as computers and telephones. LANs and WANs are examples of networks.

## Plain Old Telephone Service or POTS

Standard analog telephone service generally associated with making and receiving voice calls. The term is sometimes used in discussion of new telephone technologies in which the question of whether and how existing voice transmission for ordinary phone communication can be accommodated. For example, Asymmetric Digital Subscriber Line and Integrated Services Digital Network connections provide some part of their channels for "plain old telephone service" while providing most of their bandwidth for digital data transmission.

## Point of Presence or POP

Point Of Presence (POP) is a physical location where an Internet Service Provider aggregates the Internet packets from its customers before forwarding the packets to another location. Internet packets can pass through many POPs at various levels of the Internet (e.g., local, regional or national) before reaching a final destination, like a server or



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someone's laptop PC. A local ISP may have just one POP but national ISPs can have thousands.

## Public Switched Telephone Network or PSTN

Refers to the local and long distance telephone system. It can refer to only one company or a collection of local, long distance, and international telephone companies.

## Router

A hardware device that separates network segments allowing only certain IP addresses to cross boundaries. Routers are typically used to connect Local Area Network (LAN) segments to a Wide Area Network (WAN) connection.

## Satellite transmission

A type of transmission that sends a signal to a satellite in orbit. When the orbiting satellite receives the transmission it amplifies it and sends it back to earth. Satellite transmission can be used for high speed Internet access.

## T1

T1 (or sometimes written as T-1) is a common name for a DS1 transmission rate of 1.544 megabits per second (mbps).

## Telecom transmission rates

Traditional transmission rates build in the following order:

- DS0 is 64 kbps
- DS1 is 1.544 mbps (one DS1 can have 24 DS0)
- DS3 is 45 mbps (one DS3 can have 28 DS1)
- OC3 is 155 mbps (one OC3 can have 3 DS3)
- OC12 is 655 mbps (one OC12 can have 12 DS3)
- OC48 is 2,400 mbps (one OC48 can have 48 DS3)



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## Transmission Control Protocol/Internet Protocol or TCP/IP

Protocols that provide communications between connected networks and between diverse hardware architectures and different operating systems. These protocols allow us to communicate with others on the Internet or World Wide Web.

## Upstream/Downstream

There are two directions involved in delivering information over a single circuit. In a symmetrical connection, both upstream and downstream transmission speeds are the same. In an asymmetrical connection one direction can be greater than the other. Typically, the downstream side of the connection (from the network to the end user) is larger than the connection from the user to the network.

## Web 2.0

Generally attributed to Tim O'Reilly, O'Reilly Media, in 2004, Web 2.0 Web sites allow users to do more than just retrieve information. Web 2.0 applications and Web sites are interactive; they encourage users to create and add content to them. Traditional Web sites limit users to viewing and the content can only be modified by the site's owner. Web 2.0 changes the Web to an interactive platform for computing. With Web 2.0 Web sites, however, users can own the data and exercise control over that data. Software applications are run entirely through the Internet browser.

As these interactive applications increase in popularity, they are also increasing in complexity which requires more and more bandwidth to run the added features. One feature of successful Web 2.0 applications is their ability to improve as users add their own content.

## Wide Area Network or WAN

A network that connects two or more remote locations together. Any media connection type from ordinary POTS lines, ISDN, DS1, DSL, satellite, microwave or fiber-based connections can be used in a WAN.



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## Wireless

Any communications service utilizing electromagnetic waves to transmit signals. In this type of system, the most notable feature is the lack of wires connecting devices. Wireless systems can be used over long and short distances but the type of wireless system used will determine the speed and the distance possible. Wireless operations permit services, such as long-range communications, that are impossible or impractical to implement with the use of wires.

## Wi-Fi

Wi-Fi (wireless fidelity) is a wireless LAN technology that lets a laptop, personal digital assistant, or other mobile device connect to another device.

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### Additional Resources:

These tech terms were derived from the following sources. Please refer to these sources for additional information.

Tech Term Glossary

[http://www.dsl-experts.com/broadband\\_glossary\\_a.htm](http://www.dsl-experts.com/broadband_glossary_a.htm)

TechSoup

<http://techsoup.org/tools/glossary.cfm>

Webopedia

<http://webopedia.com/>

Newton, Harry. (2006). *Newton's Telecom Dictionary*, (22<sup>nd</sup> ed). San Francisco: CMP Books.