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Internet Connectivity
Glossary of Terms

ARPANet (Advanced Research Projects Agency Network) - The precursor to the Internet. Developed by the U.S. Department of Defense as an experiment in wide-area-networking that would survive a nuclear war.

Bandwidth - Refers to size of pipe through which data can be sent. The greater the bandwidth, the greater the amount of data the line can handle. 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. Technically, bandwidth is the width of a transmission line measured in Hertz.

Bit - Contraction of Binary digit. A computer only uses two digits, "0" (which turns an electrical circuit "off") and "1" (which turns an electrical circuit "on"). The smallest unit of information handled by a computer. Can be a single character in binary number, a single pulse in a coded group of pulses, or a unit of information capacity. A computer's processing capability usually is determined by the number of bits which can be handled at one time. There are eight bits in a single byte. Personal computers, for instance, commonly offer 8-, 16- or 32-bit microprocessors.

Byte - A generic term developed by IBM to indicate a measurable number of consecutive binary digits which are usually operated upon as a unit. Bytes of eight bits ("by eight") usually represent either one character or two numerals. A computer's storage capacity or memory is figured in kilobytes (K or KB): one K is actually 1,024 (2 to the 16th power) bits.

Data bits - The number of bits that are used to define one character of information during telecommunications.

Data transfer rate - The number of kilobytes of information that can be transferred each second from the CD-ROM disc or other peripheral to the host computer. A single-speed CD-ROM drive has a data transfer rate of 150 K/sec; a quad-speed drive has 600 K/sec.

Dedicated phone line - A normal telephone line that is used for nothing but telecommunications. This reduces the likelihood that someone will pick up an extension or otherwise interrupt while the modem is online.

Dial up - To use communications software and a modem to call up another computer and connect for a period of time. To access the Internet through dialing up, you can call a service provider directly and access services.

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.

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

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 '60s and early '70s.

ISDN - A circuit switched digital network that integrates voice and data into a single cable. It also provides an economical connection between LANs. Basically a way to move more data over existing regular phone lines. ISDN is rapidly becoming available to much of the United States 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.

Kilobyte - A thousand bytes.

Leased line - A permanent private line rented from a telephone company for exclusive 24-hour, 7-days a week use from your location to another location, usually to connect a local network to a WAN or an Internet service provider. Also may be called a dedicated line. The highest speed data connections require a leased line.

Local area network (LAN) - A system or computer network (group of computers and printers) limited to the immediate area, located in one area, same building or floor of a building, usually connected by less than 1,000 feet of cable.

Mega - Prefix meaning "one million."

Megabit - One million bits.

Megabyte - A million bytes. A thousand kilobytes.

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. Modems link computers together through telephone lines. Modulation is the process of changing computer data into tones that can be sent through a telephone line, and demodulation is the process of changing the tones back into computer data.

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.

T-3 - A leased-line connection capable of carrying data at 45,000,000 bits per second. This is more than enough to do full-screen, full motion video.

TCP/IP (Transmission Control Protocol/Internet Protocol) - Transport layer protocol is the method used to transport packets of information or data across the network, thus providing the basis for reliable connections between computers on the Internet. Internet protocol defines datagrams as the unit of information passed across the network.

Wide area network (WAN) - Any long distance data internet or network that uses dedicated leased lines and/or satellites to interconnect LANs and covers an area larger than a single building or campus (for example T-1). LANs are measured in feet, WANs are measured in miles.

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