

**Systems Integration**

**Terms and Definitions**

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| **ADSL** | A newly standardized transmission technology facilitating simultaneous use of normal telephone services, data transmission of 6 Mbit/s in the downstream and Basic Rate Access (BRA). |
| ADSL Forum | Formed in late 1994 to help telephone companies and their suppliers realize the enormous market potential of ADSL. Assistance comes in two forms -technical and marketing. The Forum's marketing programs attempt to simplify ADSL's inherent technical complexity and spread the news. The Forum's public output therefore mixes the tutorial with the promotional. |
| [**AES**](http://www.aes.org/) **(*Audio Engineering Society*)** | Founded in 1948, a professional organization for electronic engineers and all others actively involved in audio engineering. Primarily concerned with education and standardization. |
| **AES 24** | A developing AES standard for sound systems using computer networks to control audio equipment. Formerly called "SC-10" (after the working group's subcommittee number), the title for AES24 - 1 (the first part to be published) is *Application Protocol for Controlling and Monitoring Audio Devices via Digital Data Networks*. The complete standard is broken down into several parts, each issued separately. To date only the preceding *Part 1: Architecture* is published; the remaining parts (at least three) are in process. |
| **Alarm Systems** | An assembly of equipment and devices designed and arranged to signal the presence of an alarm condition requiring urgent attention such as unauthorized entry, fire, and temperature rise. |
| **AMR (Automatic Meter Reading)** | A process of reading a meter, preparing and conditioning the data, and transmitting the accumulated data from the meter location to a central data accumulation device (usually a computer). The communications device might be a radio, telephone line, PLC, direct cable or any combination thereof. |
| **Amperage** | Amount of electrical current transferred from one component to another. This specification is often important when considering the [amplifier](http://www.soundsite.com/glossary/#power) loudspeaker interface. |
| **ANSI (American National Standards Institute)** | Founded in 1918, ANSI is a voluntary organization composed of over 1,300 members (including all the large [computer](http://webopedia.internet.com/TERM/A/computer.html) companies) that creates [standards](http://webopedia.internet.com/TERM/A/standard.html) for the computer industry. For example, ANSI [C](http://webopedia.internet.com/TERM/A/C.html) is a version of the C [language](http://webopedia.internet.com/TERM/A/language.html) that has been approved by the ANSI committee. To a large degree, all ANSI C [compilers](http://webopedia.internet.com/TERM/A/compiler.html), regardless of which company produces them, should behave similarly. In addition to [programming languages](http://webopedia.internet.com/TERM/A/programming_language.html), ANSI sets standards for a wide range of technical areas, from electrical specifications to [communications protocols](http://webopedia.internet.com/TERM/A/communications_protocol.html). |
| **API (Application Program Interface)** | A set of [routines](http://webopedia.internet.com/TERM/A/routine.html), [protocols](http://webopedia.internet.com/TERM/A/protocol.html), and tools for building [software applications](http://webopedia.internet.com/TERM/A/application.html). A good API makes it easier to develop a [program](http://webopedia.internet.com/TERM/A/program.html) by providing all the building blocks. A [programmer](http://webopedia.internet.com/TERM/A/programmer.html) puts the blocks together. Most [operating environments](http://webopedia.internet.com/TERM/A/operating_environment.html), such as [MS-Windows](http://webopedia.internet.com/TERM/A/MS_Windows.html), provide an API so that programmers can write applications consistent with the operating environment. Although APIs are designed for programmers, they are ultimately good for [users](http://webopedia.internet.com/TERM/A/user.html) because they guarantee that all programs using a common API will have similar [interfaces](http://webopedia.internet.com/TERM/A/interface.html). This makes it easier for users to learn new programs. |
| **ARP (Address Resolution Protocol)** | A [TCP/IP](http://webopedia.internet.com/TERM/A/TCP_IP.html) [protocol](http://webopedia.internet.com/TERM/A/protocol.html) used to convert an [IP address](http://webopedia.internet.com/TERM/A/IP_address.html) into a physical address (called a [*DLC address*](http://webopedia.internet.com/TERM/A/DLC.html)), such as an [Ethernet](http://webopedia.internet.com/TERM/A/Ethernet.html) address. A [host](http://webopedia.internet.com/TERM/A/host.html) wishing to obtain a physical address [broadcasts](http://webopedia.internet.com/TERM/A/broadcast.html) an ARP request onto the TCP/IP network. The host on the network that has the IP address in the request then replies with its physical hardware address. |
| **Aspect Ratio** | Ratio of a picture's width to its height. Typical television aspect ratio is 4:3, while [wide screen](http://www.soundsite.com/glossary/#wide) formats 16:9, provide greater width of the viewing area. |
| **ATM (*asynchronous transfer mode*) networking** | An extremely fast networking technology, already found on many disk editors (*Avid, Sonic Solutions, Studio Audio, etc.*) and predicted to infiltrate homes within the coming decade. ATM specifies the protocol (i.e., the order and sequence) of the digital information on the network, but not the physical means of transmission (e.g., fiber optic, twisted-pair, etc.). The protocol controls how the entire network is run and maintained. |
| **AutoIP** | Allows devices to claim IP addresses in the absence of a DHCP server or similar configuration authority. |
| **Automation** | Automatically controlled operation of an apparatus, process, or system by mechanical or electronic devices that take the place of human organs of observation, effort, and decision. |
| **Bandwidth** | The data carrying capacity of a transmission medium, usually measured in hertz (Hz). |
| **Baseband** | A transmission medium with capacity for one channel only. Typically found in local area networks (LANs). In baseband LANs, the entire bandwidth, or capacity, of the cable is used to trasmit a single digital signal. Everything on that cable (transmitted or received) must use that one channel, which is very fast, so each device needs only to use that high speed channel for only a little of the time. Therefore all attached devices (printers, computers, data bases) share by taking turns using the same cable. Baseband as used in [videoconferencing](http://www.rane.com/par-v.htm#videoconferencing) means audio and video signals are transmitted over separate cables. Contrast with [broadband](http://www.rane.com/#broadband). |
| **BIOS (Basic Input /Output System)** | Built- in [software](http://webopedia.internet.com/TERM/B/software.html) that determines what a [computer](http://webopedia.internet.com/TERM/B/computer.html) can do without accessing [programs](http://webopedia.internet.com/TERM/B/program.html) from a [disk](http://webopedia.internet.com/TERM/B/disk.html). On [PCs](http://webopedia.internet.com/TERM/B/PC.html), the BIOS contains all the [code](http://webopedia.internet.com/TERM/B/code.html) required to control the [keyboard](http://webopedia.internet.com/TERM/B/keyboard.html), [display screen](http://webopedia.internet.com/TERM/B/display_screen.html), [disk drives](http://webopedia.internet.com/TERM/B/disk_drive.html), [serial](http://webopedia.internet.com/TERM/B/serial.html) [communications](http://webopedia.internet.com/TERM/B/communications.html), and a number of miscellaneous [functions](http://webopedia.internet.com/TERM/B/function.html). The BIOS is typically placed in a [ROM](http://webopedia.internet.com/TERM/B/ROM.html) [chip](http://webopedia.internet.com/TERM/B/chip.html) that comes with the computer (it is often called a *ROM BIOS*). This ensures that the BIOS will always be available and will not be damaged by disk failures. It also makes it possible for a computer to [boot](http://webopedia.internet.com/TERM/B/boot.html) itself. Because [RAM](http://webopedia.internet.com/TERM/B/RAM.html) is faster than ROM, though, many computer manufacturers design [systems](http://webopedia.internet.com/TERM/B/system.html) so that the BIOS is [copied](http://webopedia.internet.com/TERM/B/copy.html) from ROM to RAM each time the computer is booted. This is known as [*shadowing*](http://webopedia.internet.com/TERM/B/shadowing.html). |
| **Bipole** | Bi- directional loudspeaker with zero degrees of phase difference between its front and rear acoustical output. |
| **Bit (Binary Digit)** | The smallest unit of digital information, represented by 1 (on) or 0 (off). |
| **Bluetooth** | Bluetooth refers to a short- range radio technology aimed at simplifying communications among net devices. It aims to simplify data synchronization between net devices and other computers. Products with Bluetooth technology must be qualified and pass interoperability testing by the Bluetooth Special Interest Group prior to release. The Bluetooth 1.0 specification consists of two documents: the Foundation Core, which provides design specifications, and the Foundation Profile, which provides interoperability guidelines. Bluetooth's founding members include Ericsson, IBM, Intel, Nokia and Toshiba. |
| **Bridge** | 1. In communications networks a bridge is a device that connects two or more different networks and forwards packets between them; specifically a device that (a) links or routes signals from one ring or bus to another, or from one network to another, (b) may extend the distance and capacity of a single [LAN](http://www.rane.com/par-l.htm#LAN) system, (c) performs no modification to packets or messages, (d) operates at the data- link layer of the [OSI](http://www.rane.com/par-o.htm#OSI) Reference Model (Layer 2), (e) reads packets, and (f) passes only those with addresses on the same segment of the network as the originating user. 2. A functional unit that interconnects two local area networks that use the same logical link control (LLC) procedure, but may use different medium access control (MAC) procedures. 3. A balanced electrical network, e.g., a [Wheatstone bridge](http://www.rane.com/par-w.htm#Wheatstone_bridge). Contrast with [hub](http://www.rane.com/par-h.htm#hub). |
| **Broadband** | Also *wideband*, a transmission medium having a bandwidth greater than a traditional telephone (speech) channel (4 kHz). [*Some argue that to be "broadband" the medium must support 20 kHz.*] The most common broadband medium is [coaxial cable](http://www.rane.com/par-c.htm#coax) carrying multiple audio, video and data channels simultaneously. Each channel takes up a different frequency on the cable. There will be guardbands, or empty spaces, between the channels to make sure each channel does not interfere with its neighbor. The most common example is the [CATV](http://www.rane.com/par-c.htm#CATV) cable. Contrast with [baseband](http://www.rane.com/#baseband). |
| **Broadband Internet** | An Internet transmission medium that has a bandwidth (capacity) capable of carrying numerous voice, video, and data channels simultaneously. Each Channel operates on a different frequency. Cable TV is a broadband transmission medium. |
| **Browser (Web browser)** | A [software application](http://webopedia.internet.com/TERM/b/application.html) used to locate and display Web pages. The two most popular browsers are [Netscape Navigator](http://webopedia.internet.com/TERM/b/Navigator.html) and Microsoft [Internet Explorer](http://webopedia.internet.com/TERM/b/Internet_Explorer.html). Both of these are *graphical browsers,* which means that they can display [graphics](http://webopedia.internet.com/TERM/b/graphics.html) as well as [text](http://webopedia.internet.com/TERM/b/text.html). In addition, most modern browsers can present [multimedia](http://webopedia.internet.com/TERM/b/multimedia.html) information, including sound and [video](http://webopedia.internet.com/TERM/b/video.html), though they require [plug-ins](http://webopedia.internet.com/TERM/b/plug_in.html) for some formats. |
| **Browser Interface** | A program that connects the data obtained from the Internet/Intranet to the computer and displays that data to the human operator (user). The browser interface also allows the user to enter and send data and/or commands via his/her computer over the Internet/Intranet. |
| **Bundled (Proprietary) Software** | Where a single manufacturer designs anddevelops more than one type of system,or application, suchthat they would share systems resources and a common database(s) when configured and integrated properly. |
| **Byte** | A unit of eight (8) bits. |
| **Cables**: Audio systems use many different types of cables as follows: |  |
| * **Coaxial Cable** | A single copper conductor, surrounded with a heavy layer of insulation, covered by a thick surrounding copper shield and jacket. A constant-impedance unbalanced transmission line. |
| * **Data Cable** | See [data cables](http://www.rane.com/par-d.htm#data_cables) and [Category cables](http://www.rane.com/#Category_cables). |
| * **Fiber Optics** | The technology of using glass fibers to convey light and modulated information. Short distances (typically less than 150 feet) use plastic fibers, while long distances must use glass fibers. |
| * **Mic Cable** (aka **Audio Cable**) | A shielded twisted pair, usually designed for low current, high flexibility and low handling noise. The best insulating materials are somewhat inflexible, so most mic cables use rubber, neoprene, PVC, or similar materials, with small gauge wire, and therefore, true mic cables are not intended for long runs. Unfortunately the term "mic cable" has become synonymous with general- purpose audio cable (as distinguished from *speaker cable*) when it can be quite different. The very best audio cable may not be the best mic cable and vice versa. |
| * **Quad Mic Cable** or **Star Quad Mic Cable** | [*A term coined by* [***Canare***](http://www.canare.com/starquad.html) *for the first quad mic cable, but was not trademarked and is now a generic term*]. A four conductor cable exhibiting very low noise and hum pickup (hum reduction can be 30 dB better than standard mic cable). The four conductors are wound together in a spiral, and then opposite conductors are joined together at the connectors forming a two conductor balanced line (also called *double balanced*) with superior performance. |
| * **Speaker Cable** | An unshielded insulated pair, normally not twisted, characterized by heavy (or large) gauge conductors (hence, low resistance), used to interconnect the output of a power amplifier and the input of a loudspeaker. The coupling between amplifier and loudspeaker may be direct or via transformer (see [constant voltage](http://www.rane.com/#constant_voltage)). The *star quad* design described above also makes excellent speaker cables for use in high noise environments. |
| * **Twisted- pair** | Standard two-conductor copper cable, with insulation extruded over each conductor and twisted together. Usually operated as a [balanced line](http://www.rane.com/par-b.htm#balanced_line) connection. May be shielded or not, abbreviated **UTP** (*unshielded twisted- pair*), or **STP** (*shielded twisted- pair*). |
| **Cable Modem** | An external device that hooks up to your computer. Instead of getting an Internet connection through your telephone wire (or another system), you get a connection through your cable network (same place your cable TV connection comes from). |
| **Category 3 Cable (CAT 3)** | Four (4) twisted pairs of high- capacity wire enclosed in an insulated sheath. Handles telephone signals for phones, faxes and modems, plus video and data signals. Transfers data at 10 Mbits (mega bits) per second. |
| **Category 5 Cable (CAT 5)** | A rating system that refers to the number of twisted pairs of wires in a telephone cable. The more twists, the greater bandwidth and speed and the less interference in the transmission of voice and computer data. Specifying Cat 5, over the more common Cat 3, is an inexpensive upgrade. |
| **CEA (Consumer Electronics Association)** | Addresses questions of public policy, standards development, product marketing and training, which no single or small coalition of companies can address on its own. CEA brings together hundreds of high-tech companies to work on such issues. |
| **CEbus (Consumer Electronic Bus)** | An open standard that specifies requirements for communications between and interoperability of products in home or light-commercial environments. It specifies the required communications protocol, network object and product models. |
| **CEDIA (Custom Electronic Design and Installation Association)** | Atrade association for designers and installers of home theatre and home automation systems. |
| **Channel** | (1) In [communications](http://webopedia.internet.com/TERM/c/communications.html), the term *channel* refers to a communications [path](http://webopedia.internet.com/TERM/c/path.html) between two [computers](http://webopedia.internet.com/TERM/c/computer.html) or [devices](http://webopedia.internet.com/TERM/c/device.html). It can refer to the [physical](http://webopedia.internet.com/TERM/c/physical.html) [medium](http://webopedia.internet.com/TERM/c/media.html) (the wires) or to a set of [properties](http://webopedia.internet.com/TERM/c/property.html) that distinguishes one channel from another. For example, *TV channels* refer to particular frequencies at which radio waves are transmitted. [*IRC*](http://webopedia.internet.com/TERM/c/IRC.html) *channel*s refer to specific discussions. (2) For [IBM](http://webopedia.internet.com/TERM/c/IBM.html) PS/2 computers, a channel is the same as an [expansion bus](http://webopedia.internet.com/TERM/c/expansion_bus.html). (3) In sales and marketing, the way in which a vendor communicates with and sells products to consumers. |
| **Center Channel Loudspeaker** | Single loudspeaker which sits in front or on top of a television screen which reproduces the dialog of a movie in a [surround sound system](http://www.soundsite.com/glossary/#surround). |
| **CLEC (Competitive Local Exchange Carrier [pronounced see- lek])** | A telephone company that competes with an Incumbent Local Exchange Carrier (ILEC) such as a Regional Bell Operating Company (RBOC), GTE, ALLNET, etc. With the passage of the Telecommunications Act of 1996, there has been an explosion in the number of CLECs. |
| **Coaxial Cable** | Cable used to carry television and FM signals with a characteristic impedance of 75 ohms. It has a center wire, insulation, a tubular conductor (such as conductive pipe, braid, or foil), and more insulation, all centered or “coaxial” about the center wire. |
| **Codec (*code- decode* also *compression- decompression*)** | Originally a device for converting voice signals from analog to digital for use in digital transmission schemes, normally telephone based, and then converting them back again. Broaden now to mean an electronic device that converts analog signals, such as video and voice signals, into digital form and compresses them to conserve bandwidth. Most codecs employ proprietary coding algorithms for data compression, common examples being [Dolby's AC-2](http://www.dolby.com/pro/digaudio/breif90.html), [ADPCM](http://www.rane.com/digi-dic.htm#ADPCM), and [MPEG](http://www.rane.com/par-m.htm#MPEG) schemes. It is data compression (and direct digital video & audio inputs) that has evolved the newer meaning of *compression-**decompression*. |
| **Compact Disc Player** | Digital source component which reads and converts the binary information from a compact disc into an analog signal which is then fed to the rest of a hi-fi system. |
| **Connectivity** | A[computer](http://webopedia.internet.com/TERM/c/computer.html) buzzword that refers to a [program](http://webopedia.internet.com/TERM/c/program.html) or [device](http://webopedia.internet.com/TERM/c/device.html)'s ability to link with other programs and devices. For example, a program that can [*import*](http://webopedia.internet.com/TERM/c/import.html) [data](http://webopedia.internet.com/TERM/c/data.html) from a wide variety of other programs and can [*export*](http://webopedia.internet.com/TERM/c/export.html) data in many different [formats](http://webopedia.internet.com/TERM/c/format.html) is said to have *good connectivity.* On the other hand, computers that have difficulty linking into a [network](http://webopedia.internet.com/TERM/c/network.html) (many [laptop computers](http://webopedia.internet.com/TERM/c/laptop_computer.html), for example) have *poor connectivity.* |
| **Consultant** | An independent business who provides technical advice to a customer. They are also advisors in the systems and prime contractor selection process and monitoring the project process toward the desired outcome. Typically the consultant does not represent any specific product lines. |
| **Contractor** | A company or business who has a direct contractual relationship with, and responsibility to, the customer or facility owner. Sometimes referred to as the “prime” contractors. Contractors can work direct or sometimes as a part of a design-build team. |
| **Controlnet** | A pathway that carries information and control commands to many devices over a dedicated localized area. For example, from a one IP Internet address. |
| **Control Network** | A control network is a group of devices that are networked together to sense, monitor, communicate and control. In some ways, a control network resembles a data network (such as a LAN). Whereas, data networks consist of computers networked together, control networks consist of sensors, actuators and controllers networked together. Similar to data networks, control networks consist of devices attached to various communications media, connected by routers that communicate to one another using a common protocol. Network management software allows administrators to configure and maintain their networks. In control networks the components are optimized for the cost, performance, size and response characteristics of control applications to enable networks to extend into a class of applications that data networking technology cannot reach. |
| **Convergence** | (1) The coming together of two or more disparate disciplines or technologies. For example, the so-called [fax](http://webopedia.internet.com/TERM/c/fax.html) revolution was produced by a convergence of [telecommunications](http://webopedia.internet.com/TERM/c/telecommunications.html) technology, optical scanning technology, and printing technology. (2) In [graphics](http://webopedia.internet.com/TERM/c/graphics.html), convergence refers to how sharply an individual color [pixel](http://webopedia.internet.com/TERM/c/pixel.html) on a [monitor](http://webopedia.internet.com/TERM/c/monitor.html) appears. Each pixel is composed of three dots- a red, blue, and green one. If the dots are badly misconverged, the pixel will appear blurry. All monitors have some convergence errors, but they differ in degree. |
| **Crossover** | Frequency dividing electrical network which splits an incoming audio signal into ranges best suited to a loudspeaker's various drive elements. |
| **Daisy Chain** | A wiring method where each termination point is wired in series from the previous jack. A Daisy Chain is usually not the preferred wiring method, since a break in the wiring would disable all jacks “downstream” from the break. |
| **Data Rate** | The maximum number of bits of information that can be transmitted per second, typically expressed as megabytes per second (Mbps). |
| **Decibel** *Abbr.* **dB** | The new name for the transmission unit. *Bell System Tech. J.* January, 1929), where signal loss is a *logarithmic* function of the cable length. 2. The preferred method and term for representing the *ratio* of different audio levels. It is a mathematical shorthand that uses *logarithms* (a shortcut using the powers of 10 to represent the actual number) to reduce the size of the number. For example, instead of saying the dynamic range is 32,000 to 1, we say it is 90 dB [*the answer in dB equals 20 log x/y, where x and y are the different signal levels*]. Being a ratio, *decibels have no units*. Everything is relative. Since it is relative, then it must be relative to some *0 dB reference point*. To distinguish between reference points a suffix letter is added as follows:  **0 dBu** A voltage reference point equal to 0.775 V[rms](http://www.rane.com/par-r.htm#rms). [This reference originally was labeled dB*v* (lower-case) but was too often confused with dBV (upper- case), so it was changed to dBu (for unterminated).]  **+4 dBu** Standard pro audio voltage reference level equal to 1.23 Vrms.  **0 dBV** A voltage reference point equal to 1.0 Vrms.  **10 dBV** Standard voltage reference level for consumer and some pro audio use (e.g. TASCAM), equal to 0.316 Vrms. (Tip: RCA connectors are a good indicator of units operating at 10 dBV levels.)  **0 dBm** A *power* reference point equal to 1 milliwatt. To convert into an equivalent voltage level, *the impedance must be specified*. For example, 0 dBm into 600 ohms gives an equivalent voltage level of 0.775 V, or 0 dBu (see above); however, 0 dBm into 50 ohms, for instance, yields an equivalent voltage of 0.224 V something quite different. Since modern audio engineering is concerned with voltage levels, as opposed to power levels of yore, the convention of using a reference level of 0 dBm is obsolete. The reference levels of 0 dBu, or 10 dBV are the preferred units.  **0 dBr** An arbitrary reference level ("r" = "re") that must be specified. For example, a signal-to- noise graph may be calibrated in dBr, where 0 dBr is specified to be equal to 1.23 Vrms (+4 dBu); commonly stated as "dB re +4," that is, "0 dBr is defined to be equal to +4 dBu."  **0 dBFS** A reference level equal to "Full Scale." Used in specifying A/D and D/A audio data converters. Full scale refers to the maximum voltage level possible before "digital clipping," or digital overload of the data converter. See: [Overs](http://www.rane.com/par-o.htm#overs). The Full Scale value is fixed by the internal data converter design, and varies from model to model. |
| **Demarcation Point** | A point where operational control or ownership changes. Also called the “demarc”. |
| **Differential Amplification** | Method of amplifying a signal whereby the output signal is a function of the difference between two input signals. |
| **Digital-to-Analog Converter** | popularly known as a D- A converter, this device accepts an incoming digital bitstream and converts it to an analog electronic signal. |
| **Digital Audio Tape** | Digital audio format stored in binary form on a small cassette. Music can be recorded digitally with this format (some restrictions do apply to prevent excessive duplication). |
| **Distance learning** | A specialized form of [videoconferencing](http://www.rane.com/par-v.htm#videoconferencing) optimized for educational uses. Distance learning allows students to attend classes in a location distant from where the course is being presented. Two-way audio and video allows student and instructor interaction. |
| **DHCP (Dynamic Host Configuration Protocol)** | A protocol for assigning [dynamic](http://webopedia.internet.com/TERM/D/dynamic.html) [IP addresses](http://webopedia.internet.com/TERM/D/IP_address.html) to devices on a [network](http://webopedia.internet.com/TERM/D/network.html). With dynamic addressing, a device can have a different IP address every time it connects to the network. In some systems, the device's IP address can even change while it is still connected. DHCP also supports a mix of static and dynamic IP addresses. Dynamic addressing simplifies network administration because the software keeps track of IP addresses rather than requiring an administrator to manage the task. This means that a new computer can be added to a network without the hassle of manually assigning it a unique IP address. Many [ISPs](http://webopedia.internet.com/TERM/D/ISP.html) use dynamic IP addressing for [dial-up users](http://webopedia.internet.com/TERM/D/dial_up_access.html). DHCP [client](http://webopedia.internet.com/TERM/D/client.html) support is built into [Windows 95](http://webopedia.internet.com/TERM/D/Windows_95.html), 98 and [NT](http://webopedia.internet.com/TERM/D/Windows_NT.html) Workstation. NT 4 Server includes both client and server support. |
| **Digital** | Refers to the use of binary code in the storage and transmission of data. In recording audio and video data the images are discrete, non-continuous codes. It provides signal reproduction with little noise or distortion. |
| **Dipole** | Bi-directional loudspeaker with 180 degrees of phase difference between its front and rear acoustical output. |
| **Direct View Television** | Television which uses a cathode ray tube (CRT) to display a picture. |
| **DNS (Domain Name System (or Service)** | An [Internet](http://webopedia.internet.com/TERM/D/Internet.html) service that translates [*domain names*](http://webopedia.internet.com/TERM/D/domain_name.html) into IP addresses. Because domain names are alphabetic, they're easier to remember. The Internet however, is really based on [IP addresses](http://webopedia.internet.com/TERM/D/IP_address.html). Every time you use a domain name, therefore, a DNS service must translate the name into the corresponding IP address. For example, the domain name *www.example.com* might translate to *198.105.232.4*. The DNS system is, in fact, its own [network](http://webopedia.internet.com/TERM/D/network.html). If one DNS server doesn't know how to translate a particular domain name, it asks another one, and so on, until the correct IP address is returned. A second “DNS” (short for ***digital nervous system****,* a term coined by Bill Gates) referrers to a network of personal computers that make it easier to obtain and understand information. In small networks, such as at home or in small business, DNS Servers may not exist. |
| **Dolby AC-3** | Standard from Dolby Laboratories which incorporates six discrete channels of information for the playback of video soundtracks. |
| [**Dolby Digital®**](http://www.dolby.com/digital/) | Dolby's name for its format for the digital soundtrack system for motion picture playback. Utilizes their [AC-3](http://www.rane.com/digi-dic.htm#AC_3) system of digital compression. The signal is optically printed *between* the sprocket holes. Now being introduced to Home Theater on laser disc and DVD. Dolby Digital may use any number of primary audio delivery and reproduction channels, from 1 to 5, and may include a separate bass-only effects channel. The designation "5.1" describes the complete channel format. Surround decoder systems with Dolby Digital automatically contain Dolby Pro Logic processing to ensure full compatibility with the many existing program soundtracks made with Dolby Surround encoding. *No abbreviations are to be used.* |
| **Dolby Pro Logic** | Surround sound standard from Dolby Laboratories for the playback of movie soundtracks in the home. The system utilizes five loudspeakers - two main, two [rear](http://www.soundsite.com/glossary/#rear), and a [center](http://www.soundsite.com/glossary/#center) and a decoder to properly steer the signal to its appropriate channel. |
| **DSL** | Refers collectively to all types of (Digital Subscriber Lines)*,* the two main categories being [ADSL](http://webopedia.internet.com/TERM/x/ADSL.html) and [SDSL](http://webopedia.internet.com/TERM/x/SDSL.html). Two other types of xDSL technologies are *High- data-rate DSL (HDSL)* and *Single- line DSL (SDSL)*. DSL technologies use sophisticated modulation schemes to pack data onto copper wires. DSL is one of several methods for delivering high- speed, ever- ready access to the Internet, 5 to 30 times as fast as traditional telephone line modems. It also lets users make and receive phone calls while surfing the net. DSLs are sometimes referred to as last mile technologies because they are used only for connections from a telephone switching station to a home or office, not between switching stations. |
| **DSS (Digital Satellite System)** | A network of satellites that [broadcast](http://webopedia.internet.com/TERM/D/broadcast.html) [digital](http://webopedia.internet.com/TERM/D/digital.html) data. An example of a DSS is *DirecTV,* which broadcasts digital television signals. DSS's are expected to become more important as the TV and computer converge into a single medium for information and entertainment. |
| **DTMF (Dual Tone Multi- Frequency)** | A system used by touch-tone telephones. DTMF assigns a specific frequency, or tone, to each key so that it can easily be identified by a [microprocessor](http://webopedia.internet.com/TERM/D/microprocessor.html). |
| **DTML** | Acronym for **Dual Tone, Multi-frequency.** |
| **DTV (Desktop Video Production)** | Theproduction ofvideos with a personal computer. It is an emerging technology. |
| **DVD (Digital Versatile Disc or Digital Video Disc)** | A new type of [CD-ROM](http://webopedia.internet.com/TERM/D/CD_ROM.html) that holds a minimum of 4.7GB ([gigabytes](http://webopedia.internet.com/TERM/D/gigabyte.html)), enough for a full-length movie. Many experts believe that DVD disks, called *DVD- ROMs,* will eventually replace CD-ROMs, as well as VHS video cassettes and laser discs. The DVD specification supports disks with capacities of from 4.7GB to 17GB and access rates of 600 KBps to 1.3 [MBps](http://webopedia.internet.com/TERM/D/MBps_megabytes.html). One of the best features of DVD drives is that they are backward-compatible with CD-ROMs. This means that DVD players can play old CD- ROMs, CD-I disks, and video CDs, as well as new DVD-ROMs. Newer DVD players, called *second-generation* or *DVD-2 drives,* can also read [CD-R](http://webopedia.internet.com/TERM/D/CD_R_drive.html) and [CD-RW disks](http://webopedia.internet.com/TERM/D/CD_RW_disk.html). DVD uses [MPEG-2](http://webopedia.internet.com/TERM/D/MPEG.html) to compress [video](http://webopedia.internet.com/TERM/D/video.html) data. |
| **DVR (Digital Video Recorder)** | A device that converts the picture into digital signals. These signals can be stored, transferred and searched. |
| **DSP (Digital Signal Processing)** | A technology for signal processing that combines [algorithms](http://www.rane.com/digi-dic.htm#algorithm) and fast number-crunching digital hardware, and is capable of high-performance and flexibility. |
| **Dynamic Loudspeaker** | Loudspeaker which uses conventional cone and dome drive elements exclusively. |
| **E-Commerce** | Conducting business [on-line](http://webopedia.internet.com/TERM/e/on_line.html). This includes, for example, buying and selling products with [digital cash](http://webopedia.internet.com/TERM/e/digital_cash.html) and via [Electronic Data Interchange (EDI)](http://webopedia.internet.com/TERM/e/EDI.html). |
| **Early Adopter** | Beloved by high-tech manufacturers, the early adopter is a consumer willing to try any new technology. |
| **Efficiency** | Ratio of a loudspeaker's acoustical output to a given electrical input. A loudspeaker's sound pressure level is measured in decibels. |
| **Electrostatic Loudspeaker** | Planar loudspeaker which incorporates a charged transducer suspended between two oppositely charged electrodes. |
| **EPRI (Electric Power Research Institute)** | A non-profit research group dedicated to applied research for its member electric utilities. Its charter includes fundamental and applied research. |
| **Ethernet** | A [local-area network (LAN)](http://webopedia.internet.com/TERM/E/local_area_network_LAN.html) [protocol](http://webopedia.internet.com/TERM/E/protocol.html) developed by [Xerox Corporation](http://webopedia.internet.com/TERM/E/Xerox.html) in cooperation with [DEC](http://webopedia.internet.com/TERM/E/DEC.html) and [Intel](http://webopedia.internet.com/TERM/E/Intel.html) in 1976. Ethernet uses a [bus or star topology](http://webopedia.internet.com/TERM/E/topology.html) and [supports](http://webopedia.internet.com/TERM/E/support.html) [data transfer rates](http://webopedia.internet.com/TERM/E/data_transfer_rate.html) of 10 [Mbps](http://webopedia.internet.com/TERM/E/Mbps.html) (10Base – T). The Ethernet specification served as the basis for the [IEEE 802.3](http://webopedia.internet.com/TERM/E/IEEE_802_standards.html) [standard](http://webopedia.internet.com/TERM/E/standard.html), which specifies the [physical](http://webopedia.internet.com/TERM/E/physical.html) and lower [software](http://webopedia.internet.com/TERM/E/software.html) layers. Ethernet uses the [CSMA/CD](http://webopedia.internet.com/TERM/E/CSMA_CD.html) access method to handle simultaneous demands. It is one of the most widely implemented LAN standards. A newer version of Ethernet, called [*100Base-T*](http://webopedia.internet.com/TERM/E/100Base_T.html) (or *Fast Ethernet),* supports data transfer rates of 100 Mbps. The newest version, [*Gigabit Ethernet*](http://webopedia.internet.com/TERM/E/Gigabit_Ethernet.html) supports data rates of 1 [gigabit](http://webopedia.internet.com/TERM/E/gigabit.html) (1,000 megabits) per second. |
| **Fiber Optics** | Plastic or glass cable that carries a large capacity of information using light beams (modulated light waves) and is immune to electrical noise, lightning, and induced voltages. Data, expressed as pulses of light rather than electrons, are transmitted by lasers or other devices. Fiber-based systems are suited for high volume, and broadband communications. A pair of hair-thin strands can carry the same volume of information as 32,000 pairs of copper communications cables. Fiber is costly and requires sophisticated electronic equipment. |
| **Firewall** | A system designed to prevent unauthorized [access](http://webopedia.internet.com/TERM/f/access.html) to or from a private [network](http://webopedia.internet.com/TERM/f/network.html). Firewalls can be implemented in both [hardware](http://webopedia.internet.com/TERM/f/hardware.html) and [software](http://webopedia.internet.com/TERM/f/software.html), or a combination of both. Firewalls are frequently used to prevent unauthorized [Internet](http://webopedia.internet.com/TERM/f/Internet.html) users from accessing private networks connected to the Internet, especially Intranets. All messages entering or leaving the Intranet pass through the firewall, which examines each message and blocks those that do not meet the specified [security](http://webopedia.internet.com/TERM/f/security.html) criteria. |
| **FireWire (aka: IEEE 1394-1995)** | A new, very fast [external bus](http://webopedia.internet.com/TERM/I/external_bus.htm) standard that supports [data transfer rates](http://webopedia.internet.com/TERM/I/data_transfer_rate.htm) of up to 400 [Mbps](http://webopedia.internet.com/TERM/I/Mbps.htm) (400 million bits per second). Products supporting the 1394 standard go under different names, depending on the company. Apple, which originally developed the technology, uses the trademarked name *FireWire*. Other companies use other names, such as *I-link* and *Lynx,* to describe their 1394 products. A single 1394 [port](http://webopedia.internet.com/TERM/I/port.htm) can be used to connect up 63 external devices. In addition to its high speed, 1394 also supports [*isochroous*](http://webopedia.internet.com/TERM/I/isochronous.htm) *data* *-*delivering data at a guaranteed rate. This makes it ideal for devices that need to transfer high levels of data in [real-time](http://webopedia.internet.com/TERM/I/real_time.htm), such as [video](http://webopedia.internet.com/TERM/I/video.htm) devices. Although extremely fast and flexible, 1394 is also expensive. Like [USB](http://webopedia.internet.com/TERM/I/USB.htm), 1394 supports both [Plug-and-Play](http://webopedia.internet.com/TERM/I/plug_and_play.htm) and [hot plugging](http://webopedia.internet.com/TERM/I/hot_plugging.htm), and also provides power to peripheral devices. The main difference between 1394 and USB is that 1394 supports faster data transfer rates and is more expensive. 1394 is expected to be used mostly for devices that require large [throughputs](http://webopedia.internet.com/TERM/I/throughput.htm), such as video cameras, whereas USB will be used to connect most other peripheral devices. |
| **Flash Memory** | A special type of [*EEPROM*](http://webopedia.internet.com/TERM/f/EEPROM.html) that can be erased and reprogrammed in [blocks](http://webopedia.internet.com/TERM/f/block.html) instead of one [byte](http://webopedia.internet.com/TERM/f/byte.html) at a time. Many modern PCs have their [BIOS](http://webopedia.internet.com/TERM/f/BIOS.html) [stored](http://webopedia.internet.com/TERM/f/store.html) on a flash memory [chip](http://webopedia.internet.com/TERM/f/chip.html) so that it can easily be updated if necessary. Such a BIOS is sometimes called a [*flash BIOS*](http://webopedia.internet.com/TERM/f/BIOS.html). Flash memory is also popular in [modems](http://webopedia.internet.com/TERM/f/modem.html) because it enables the modem manufacturer to support new [protocols](http://webopedia.internet.com/TERM/f/protocol.html) as they become standardized. |
| **Frequency Response** | Measurement of an audible signal's amplitude and phase characteristics relative to a given, absolute level. |
| Front-End Integration | Software system designed to configurable integrate directly with the hardware components of stand-alone systems. It would replace the software, database and user interface of the stand-alone system(s). In reality this would be a new system product (proprietary or open) that integrates with what may have previously been proprietary hardware components. Customer choice of components, though potentially greater than with bundled (proprietary) integration, is limited to what hardware components the front- end software developer or systems manufacturer has been willing , or able, to include and support in their product. Integration with components can be by: reverse engineering (risky), “open” by formal agreement or open to all components. |
| **Front Projection Television** | Television which forms an image by projecting a picture from in front of a screen. |
| **FTP (File Transfer Protocol)** | The [protocol](http://webopedia.internet.com/TERM/F/protocol.html) used on the [Internet](http://webopedia.internet.com/TERM/F/internet.html) for sending [files](http://webopedia.internet.com/TERM/F/file.html). |
| **Gateway** | A special node that interfaces two or more dissimilar networks and translates between them (such as between security and lighting controls). |
| **G.Lite** | G.Lite is the informal name of what is expected to be the standard way to install [ADSL](http://www.whatis.com/adsl.htm) (Asymmetric Digital Subscriber Line) service. Also known as Universal ADSL, G.Lite makes it possible to have Internet connections to home and business computers at up to 1.5 [Mbps](http://www.whatis.com/mbps.htm) (millions of bits per second) over regular phone lines. Even at the lowest downstream rate generally offered of 384 [Kbps](http://www.whatis.com/kbps.htm) (thousands of bits per second), G.Lite will be about seven times faster than regular phone service with a [V.90](http://www.whatis.com/v90.htm) modem and three times faster than an [ISDN](http://www.whatis.com/isdn.htm) connection. Upstream speeds from the computer will be up to 128 Kbps. (Theoretical speeds for ADSL are much higher, but the data rates given here are what is realistically expected.) |
| **GUI (*graphical user interface*)** | A generic name for any computer interface that substitutes graphics (like buttons, arrows, switches, sliders, etc.) for characters; usually operated by a mouse or trackball. First mass use was [Apple](http://www.apple.com/)'s Macintosh® computers, but is now dominated by [Microsoft](http://www.microsoft.com/)'s Windows® programs. |
| **HAA (Home Automation Association)** | A trade association for installers and manufacturers of home automation products and systems. |
| **HAVi (Home Audio/Video Interoperability)** | Pertains to interconnecting and controlling AV electronic appliances connected in Home Audio/Video Networks based on IEEE-1394. In May 1998, the HAVi core specification, a core home networks application for AV electronics appliances, was compiled and released by eight companies- [GRUNDIG A.G.](http://www.grundig.de/), [Hitachi, Ltd.](http://www.hitachi.co.jp/), [Matsushita Electric Industrial Co., Ltd.](http://www.panasonic.co.jp/), [Royal Philips Electronics N.V.](http://www.sv.philips.com/), [Sharp Corporation](http://www.sharp.co.jp/), [Sony Corporation](http://www.sony.co.jp), [Thomson Multimedia S.A.](http://www.thomson-multimedia.com/), [Toshiba Corporation](http://www.toshiba.co.jp/index.htm).  The HAVi core specification is being actively promoted as a home network standard for the AV electronics and multimedia industries. |
| **HDCD** | An encode/decode process attempting to improve upon the sound quality provided by the original compact disc standard. CD's recorded in HDCD can be played back in a conventional [CD player](http://www.soundsite.com/glossary/#cd) and likewise, a CD player incorporating an HDCD decoder can play back non- HDCD encoded disks. |
| **HDTV (High Definition Television)** | The new digital standard for enhanced picture quality for TV broadcasting that will dramatically increase the number of HRLs (Horizontal Resolution Lines), providing a much sharper picture even if the image is several feet wide. HDTV requires signals that are broadcast in HDTV format. |
| **Home API** | The Home API Working Group was founded two years ago to focus on the unique problems of getting PC's and home devices connected and reliably controlled in the home. The Home API Working Group believes that a merge of Home API interests and efforts with the UPnP Forum is in the best interest of Home API developers. |
| **Home Application Server** | A program run on a mid-sized machine that handles all [application](http://webopedia.internet.com/TERM/a/application.htm) operations- based computers and a company's back- end business applications or databases. Because many databases cannot interpret commands written in HTML, the application server works as a translator, allowing, for example, a customer with a browser to search an online retailer's database for pricing information. Application servers are seen as filling a large and growing market. |
| **Home Automation** | The result of installing communicating microprocessor-based products and systems in homes. |
| **Home PNA (Home Phoneline Networking Alliance)** | An association of industry-leading companies working together to ensure adoption of a single unified phoneline networking standard and rapidly bring to market a range of interoperable home networking solutions. [http://www.HomePNA.org/](http://www.HomePNA.org). |
| **Home PnP (Plug’N Play)** | An interoperability specification for consumer products based on the CAL language developed by the CEBus Industry Council usable over any network protocol. |
| **HomeRF Working Group** | The mission of the HomeRF Working Group is to enable the existence of a broad range of interoperable consumer devices, by establishing an open industry specification for unlicensed RF digital communications for PCs and consumer devices anywhere, in and around the home. |
| **Home Run** | A wiring method that connects each outlet or sensor directly to the electrical, distribution or control panel instead of several outlets/sensors on a continuous loop. |
| **Horn Loading** | Acoustical effect achieved by placing the diaphragm of a driver element at the throat of a horn, producing a driver of greater efficiency. |
| **HTML (Hyper Text Markup Language)** | The authoring [language](http://webopedia.internet.com/TERM/H/language.html) used to create [documents](http://webopedia.internet.com/TERM/H/document.html) on the [World Wide Web](http://webopedia.internet.com/TERM/H/World_Wide_Web.html). |
| **HTTP (Hyper Text Transfer Protocol)** | The underlying [protocol](http://webopedia.internet.com/TERM/H/protocol.html) used by the [World Wide Web](http://webopedia.internet.com/TERM/H/World_Wide_Web.html). HTTP defines how messages are formatted and transmitted, and what actions [Web servers](http://webopedia.internet.com/TERM/H/Web_server.html) and [browsers](http://webopedia.internet.com/TERM/H/browser.html) should take in response to various commands. For example, when you enter a [URL](http://webopedia.internet.com/TERM/H/URL.html) in your browser, this actually sends an HTTP command to the Web server directing it to fetch and transmit the requested [Web page](http://webopedia.internet.com/TERM/H/web_page.html). HTTP is called a [*stateless*](http://webopedia.internet.com/TERM/H/stateless.html) protocol because each command is executed independently, without any knowledge of the commands that came before it. This is the main reason that it is difficult to implement [Web sites](http://webopedia.internet.com/TERM/H/web_site.html) that react intelligently to user input. This shortcoming of HTTP is being addressed in a number of new technologies, including [ActiveX](http://webopedia.internet.com/TERM/H/ActiveX.html), [Java](http://webopedia.internet.com/TERM/H/Java.html), [JavaScript](http://webopedia.internet.com/TERM/H/JavaScript.html) and [cookies](http://webopedia.internet.com/TERM/H/cookie.html). Currently, most Web browsers and servers support HTTP 1.1. One of the main features of HTTP 1.1 is that it supports *persistent connections.* This means that once a browser connects to a Web server, it can receive multiple files through the same connection. This should improve performance by as much as 20%. |
| **Hub** | The point on a network where many circuits are connected. Hub hardware can be either active or passive. Wiring hubs are useful for their centralized management capabilities and for their ability to isolate nodes from disruption. |
| **HVAC** | (Heating, Ventilating, and Air Conditioning System) **-** a system that provides heating, ventilating, and/or cooling within or associated with a building. |
| **Hybrid Loudspeaker** | Loudspeaker which utilizes both dynamic and [planar](http://www.soundsite.com/glossary/#planar) components. |
| **ICSHub** | ICSP Network link between ICSNet data hubs. Each hub link can operate up to 1000 feet over Category 5 wiring. |
| **ICSNet** | The Panja high-speed ICSP controlnet, it employs industry-standard Category 5 wiring and RJ-45 terminals. |
| **ICSP (Internet Control System Protocol)** | A standard Internet protocol for system control and integration applications. |
| **IEEE (Institute of Electrical and Electronic Engineers)** | An international professional society that issues its own standards and is a member of ANSI and ISO. |
| **IEEE Standards** | A set of network standards developed by the [IEEE](http://webopedia.internet.com/TERM/I/IEEE.html). |
| **IEEE 802.1** | Standards related to [network management](http://webopedia.internet.com/TERM/I/network_management.html). Refers to the broad subject of managing [computer networks](http://webopedia.internet.com/TERM/n/network.html). There exists a wide variety of [software](http://webopedia.internet.com/TERM/n/software.html) and [hardware](http://webopedia.internet.com/TERM/n/hardware.html) products that help network system administrators manage a network. Network management covers a wide area, including: *Security:* Ensuring that the network is protected from unauthorized users. *Performance:* Eliminating bottlenecks in the network. *Reliability:* Making sure the network is available to users and responding to hardware and software malfunctions. |
| **IEEE 802.2** | General standard for the data link layer in the [OSI Reference Model](http://webopedia.internet.com/TERM/I/OSI.html). The IEEE divides this layer into two sub-layers: the [*data link control (DLC) layer*](http://webopedia.internet.com/TERM/I/DLC.html) and the *media access control (MAC) layer.* The MAC layer varies for different network types and is defined by standards IEEE 802.3 through IEEE 802.5. |
| **IEEE 802.3** | Defines the MAC layer for [bus networks](http://webopedia.internet.com/TERM/I/bus_network.html) that use [CSMA/CD](http://webopedia.internet.com/TERM/I/CSMA_CD.html). This is the basis of the [Ethernet](http://webopedia.internet.com/TERM/I/Ethernet.html) standard, a [network](http://webopedia.internet.com/TERM/b/network.html) in which all [nodes](http://webopedia.internet.com/TERM/b/node.html) are connected to a single wire (the bus) that has two endpoints. [Ethernet](http://webopedia.internet.com/TERM/b/Ethernet.html) [10Base-2](http://webopedia.internet.com/TERM/b/10Base2.html) and [10Base-5](http://webopedia.internet.com/TERM/b/10Base5.html) networks, for example, are bus networks. Other common network types include [star networks](http://webopedia.internet.com/TERM/b/star_network.html) and [ring networks](http://webopedia.internet.com/TERM/b/ring_network.html). |
| **IEEE 802.4** | Defines the MAC layer for bus networks that use a token-passing mechanism ([token bus networks](http://webopedia.internet.com/TERM/I/token_bus_network.html)). |
| **IEEE 802.5** | Defines the MAC layer for [token-ring networks](http://webopedia.internet.com/TERM/I/token_ring_network.html). |
| **IEEE 802.6** | Standard for [Metropolitan Area Networks (MANs)](http://webopedia.internet.com/TERM/I/MAN.html). |
| **IEEE 1394** | A data communications scheme standard that manages digitization, compression and synchronization processes. |
| **IETF (Internet Engineering Task Force)** | A large open international community of network designers, operators, vendors, and researchers concerned with the evolution of the Internet architecture and the smooth operation of the Internet. It is open to any interested individual. |
| **Impedance** | A measure of the complex resistive and reactive attributes of a component in an alternating-current (AC) circuit. Impedance is what restricts current flow in an AC electrical circuit; impedance is not relevant to DC circuits. In DC circuits, resistors limit current flow (because of their resistance). In AC circuits, inductors and capacitors similarly limit the AC current flow, but this is now because of their inductive or capacitive [reactance](http://www.rane.com/par-r.htm#reactance). Impedance is like resistance but it is more. Impedance is the sum of a circuit, or device's resistance AND reactance. Reactance is measured in ohms (like resistance and impedance) but is frequency-dependant. Think of impedance as the complete or total current limiting ohms of the circuit- the whole banana. Since AC circuits involve phase shift- i.e., the voltage and current are rarely in phase due to the storage effects (*think "time;" it takes time to charge and discharge*) of capacitors and inductors, the reactance is termed "complex," that is there is a "real" part (resistive) and an "imaginary" part (bad terminology, but it means the phase shifting resistance part). To summarize: *resistance* has no phase shift; *reactance* (capacitors & inductors in AC circuits) includes phase shift; and *impedance*, is the sum of resistance and reactance. Just that simple. |
| **Installer** | Trained low-voltage and systems technicians who are responsible for hardware installation. Typically they work in the field or in equipment rack assembly areas. Training usually consists of some limited product specific knowledge and experience. Installers generally have experience in field installation practices and don’t do commissioning or final testing. |
| **Integrated Amplifier** | Single unit containing both a [preamplifier](http://www.soundsite.com/glossary/#preamp) and a [power amplifier](http://www.soundsite.com/glossary/#power). |
| Integrated Systems | Systems can only be considered as an open system if they were designed to seamlessly share, versus duplicate, system resources. Systems designed to be stand-alone, with their own database(s), cannot be easily integrated unless they were designed to be configurable database independent. The primary definitional distinction between “integratable” versus “interfacable” systems is the sharing of a single- database versus having to support multiple databases, which contain mostly duplicate data with the associated synchronization overhead and costs. Fully Integrated applications must be designed to function accordingly by sharing resources and not as separate systems. Legacy systems and hardware could be excluded, interfaced or integrated depending on both the willingness and capability of the designing software developer or systems manufacturer. Open systems architecture is still an emerging technology and many variations have been presented for consideration to develop standards around. |
| **Interface** | Something that connects two separate entities. For example, a [*user interface*](http://webopedia.internet.com/TERM/i/user_interface.html) is the part of a [program](http://webopedia.internet.com/TERM/i/program.html) that connects the [computer](http://webopedia.internet.com/TERM/i/computer.html) with a human [operator](http://webopedia.internet.com/TERM/i/operator.html) ([user](http://webopedia.internet.com/TERM/i/user.html)). There are also [interfaces](http://webopedia.internet.com/TERM/i/interface.html) to connect programs, to connect [devices](http://webopedia.internet.com/TERM/i/device.html), and to connect programs to devices. An interface can be a program or a device, such as an electrical [connector](http://webopedia.internet.com/TERM/i/connector.html). (v) To communicate. For example, two devices that can transmit [data](http://webopedia.internet.com/TERM/i/data.html) between each other are said to *interface with each other.* This use of the term is scorned by [language](http://webopedia.internet.com/TERM/i/language.html) purists because *interface* has historically been used as a noun. |
| **Internet** | A global [network](http://webopedia.internet.com/TERM/I/network.htm) connecting millions of [computers](http://webopedia.internet.com/TERM/I/computer.htm). As of 1999, the Internet has more than 200 million [users](http://webopedia.internet.com/TERM/I/user.htm) worldwide, and that number is growing rapidly. More than 100 countries are linked into exchanges of [data](http://webopedia.internet.com/TERM/I/data.htm), news and opinions. Unlike [online services](http://webopedia.internet.com/TERM/I/online_service.htm), which are centrally controlled, the Internet is decentralized by design. Each Internet computer, called a [*host*](http://webopedia.internet.com/TERM/I/host.htm), is independent. The operator can choose which Internet services to use and which [local](http://webopedia.internet.com/TERM/I/local.htm) services to make available to the global Internet community. Remarkably, this anarchy by design works exceedingly well. There are a variety of ways to [access](http://webopedia.internet.com/TERM/I/access.htm) the Internet. Most online services, such as [America Online](http://webopedia.internet.com/TERM/I/America_Online.htm), offer access to some Internet services. It is also possible to gain access through a commercial [Internet Service Provider (ISP)](http://webopedia.internet.com/TERM/I/ISP.htm). |
| **Interoperability** | The easy integration of products from multiple vendors without the need for custom hardware or software. |
| **IP (Internet Protocol)** | Specifies the format of [packets](http://webopedia.internet.com/TERM/I/packet.html), also called *data grams,* and the addressing scheme. Most [networks](http://webopedia.internet.com/TERM/I/network.html) combine IP with a higher- level [protocol](http://webopedia.internet.com/TERM/I/protocol.html) called [*Transport Control Protocol (TCP)*](http://webopedia.internet.com/TERM/I/TCP.html), which establishes a virtual connection between a destination and a source. IP by itself is something like the postal system. It allows you to address a package and drop it in the system, but there's no direct link between you and the recipient. TCP/IP, on the other hand, establishes a connection between two [hosts](http://webopedia.internet.com/TERM/I/host.html) so that they can send messages back and forth for a period of time. |
| **IR (Infrared)** | The part of the visible spectrum that is contiguous to the red end of the visible spectrum and that comprises electromagnetic radiation of wavelengths from 0.8 to 1000 microns. |
| **IrDA (Infrared Data Association)** | A trade association of computer and chip manufactures creating standards for high-speed communications for infrared media. |
| **ISDN (Integrated Services Digital Network)** | An international [communications](http://webopedia.internet.com/TERM/I/communications.htm) [standard](http://webopedia.internet.com/TERM/I/standard.htm) for sending voice, [video](http://webopedia.internet.com/TERM/I/video.htm), and [data](http://webopedia.internet.com/TERM/I/data.htm) over [digital](http://webopedia.internet.com/TERM/I/digital.htm) telephone lines or normal telephone wires. ISDN [supports](http://webopedia.internet.com/TERM/I/support.htm) [data transfer rates](http://webopedia.internet.com/TERM/I/data_transfer_rate.htm) of 64 [Kbps](http://webopedia.internet.com/TERM/I/Kbps.htm) (64,000 [bits per second](http://webopedia.internet.com/TERM/I/bps.htm)). Most ISDN lines offered by telephone companies give you two lines at once, called *B channels.* You can use one line for voice and the other for data, or you can use both lines for data to give you data rates of 128 Kbps, three times the data rate provided by today's fastest [modems](http://webopedia.internet.com/TERM/I/modem.htm). |
| [**ISO**](http://133.82.181.177/ikeda/ISO/home.html) **(*International Standards Organization*** or ***International Organization for Standardization*)** | Founded in 1947 and consisting of members from over 90 countries, the ISO promotes the development of international standards and related activities to facilitate the exchange of goods and services worldwide. The U.S. member body is [ANSI](http://www.rane.com/digi-dic.htm#ANSI). [*Interesting tidbit*: according to ISO internet info, "ISO" is not an acronym. It is a derived Greek word, from *isos*, equal. For example, *isobar*, equal pressure, or *isometric*, equal length. Take a small jump from "equal" to "standard" and you have the name of the organization. It offers the further advantage of being valid in all the official languages of the organization (English, French & Russian), whereas if it were to be an acronym it would not work for French and Russian.] |
| **ISP (Internet Service Provider)** | A company that provides access to the [Internet](http://webopedia.internet.com/TERM/I/Internet.html). For a monthly and/or hourly fee, the service provider gives you a software package, [username](http://webopedia.internet.com/TERM/I/username.html), [password](http://webopedia.internet.com/TERM/I/password.html) and access phone number. Equipped with a [modem](http://webopedia.internet.com/TERM/I/modem.html), you can then [log on](http://webopedia.internet.com/TERM/I/log_on.html) to the Internet and [browse](http://webopedia.internet.com/TERM/I/browse.html) the [World Wide Web](http://webopedia.internet.com/TERM/I/World_Wide_Web.html) and [USENET](http://webopedia.internet.com/TERM/I/USENET.html), and send and receive [e-mail](http://webopedia.internet.com/TERM/I/e_mail.html). ISPs are also called [*IAPs (Internet Access Providers)*](http://webopedia.internet.com/TERM/I/IAP.html). |
| **JAVA** | A [high-level programming language](http://webopedia.internet.com/TERM/J/high_level_language.html) developed by [Sun Microsystems](http://webopedia.internet.com/TERM/J/Sun_Microsystems.html). Java is an [object-oriented language](http://webopedia.internet.com/TERM/J/object_oriented_programming_OOP.html) similar to [C++](http://webopedia.internet.com/TERM/J/C_plus_plus.html), but simplified to eliminate language features that cause common programming errors. Java [source code](http://webopedia.internet.com/TERM/J/source_code.html) files (files with a *.java* extension) are [compiled](http://webopedia.internet.com/TERM/J/compile.html) into a format called *bytecode* (files with a *.class* extension), which can then be executed by a Java [interpreter](http://webopedia.internet.com/TERM/J/interpreter.html). Compiled Java code can run on most computers. Java is a general purpose programming language with a number of features that make the language well suited for use on the World Wide Web. Small Java applications are called Java Applets and can be [downloaded](http://webopedia.internet.com/TERM/J/download.html) from a [Web server](http://webopedia.internet.com/TERM/J/Web_server.html) and run on your computer by a Java-compatible [Web browser](http://webopedia.internet.com/TERM/J/browser.html), such as [Netscape Navigator](http://webopedia.internet.com/TERM/J/Navigator.html) or [Microsoft Internet Explorer](http://webopedia.internet.com/TERM/J/Internet_Explorer.html). |
| **Jini** (pronounced GEE-nee) | Software from [Sun Microsystems](http://webopedia.internet.com/TERM/J/Sun_Microsystems.htm) that seeks to simplify the connection and sharing of [devices](http://webopedia.internet.com/TERM/J/device.htm), such as printers and disk drives, on a network. Currently adding such devices to a computer or [network](http://webopedia.internet.com/TERM/J/network.htm) requires installation and boot- up, but a device that incorporates Jini will announce itself to the network, provide some details about its capabilities, and immediately become accessible to other devices on the network. Under this technology it would be possible to create distributed computing, whereby capabilities are shared among the machines on a common network. This would allow users to access the power and features of any device on the network and would free the desktop computer from holding all the memory, storage and processing power it needs for any job. For example, if a disk drive on a network had Jini capabilities, any computer on that network could use the drive as though it were its own. Because Jini has the potential to make operating systems incidental to the power of networks, some have seen Jini as an attempt to reduce the influence of [Windows](http://webopedia.internet.com/TERM/J/Windows.htm). The software works by passing snippets of programs, called [applets](http://webopedia.internet.com/TERM/J/applet.htm), back and forth among devices. Any computer that can run [Java](http://webopedia.internet.com/TERM/J/Java.htm) will be able to access the code and data that passes among devices. |
| **JPEG (*Joint Photographic Experts Group*)** | A standard for lossy compression of graphic image files. |
| **KH (Kilohertz)** | A term meaning 1000 cycles per second. |
| **Kilobytes** | In [decimal](http://webopedia.internet.com/TERM/k/decimal.html) [systems](http://webopedia.internet.com/TERM/k/system.html), *kilo* stands for 1,000, but in [binary](http://webopedia.internet.com/TERM/k/binary.html) systems, a *kilo* is 1,024 (2 to the 10th power). Technically, therefore, a kilobyte is 1,024 [bytes](http://webopedia.internet.com/TERM/k/byte.html), but it is often used loosely as a synonym for 1,000 bytes. For example, a [computer](http://webopedia.internet.com/TERM/k/computer.html) that has 256K [main memory](http://webopedia.internet.com/TERM/k/main_memory.html) can [store](http://webopedia.internet.com/TERM/k/store.html) approximately 256,000 bytes (or [characters](http://webopedia.internet.com/TERM/k/character.html)) in [memory](http://webopedia.internet.com/TERM/k/memory.html) at one time. A [megabyte](http://webopedia.internet.com/TERM/k/megabyte.html) is 2 to the 20th power (approximately 1 million) and a [gigabyte](http://webopedia.internet.com/TERM/k/gigabyte.html) is 2 to the 30th power (approximately 1 billion). In computer literature, kilobyte is usually abbreviated as *K* or *Kb.* To distinguish between a decimal K (1,000) and a binary K (1,024), the [IEEE](http://webopedia.internet.com/TERM/k/IEEE.html) has suggested following the convention of using a small *k* for a decimal kilo and a capital *K* for a binary kilo, but this convention is by no means strictly followed. |
| **LAN (Local Area Network)** | A [computer](http://webopedia.internet.com/TERM/l/computer.html) [network](http://webopedia.internet.com/TERM/l/network.html) that spans a relatively small area. Most LANs are confined to a single building or group of buildings. However, one LAN can be connected to other LANs over any distance via telephone lines and radio waves. A [system](http://webopedia.internet.com/TERM/l/system.html) of LANs connected in this way is called a [*wide-area network (WAN)*](http://webopedia.internet.com/TERM/l/wide_area_network_WAN.html). LANs are capable of transmitting data at very fast rates, much faster than data can be transmitted over a telephone line; but the distances are limited, and there is also a limit on the number of computers that can be attached to a single LAN. |
| **LCD (Liquid Crystal Display)** | A type of display used in [digital](http://webopedia.internet.com/TERM/L/digital.html) watches and many [portable computers](http://webopedia.internet.com/TERM/L/portable.html). LCD displays utilize two sheets of polarizing material with a liquid crystal solution between them. An electric current passed through the liquid causes the crystals to align so that light cannot pass through them. Each crystal, therefore, is like a shutter, either allowing light to pass through or blocking the light. [Monochrome](http://webopedia.internet.com/TERM/L/monochrome.html) LCD images usually appear as blue or dark gray images on top of a grayish-white [background](http://webopedia.internet.com/TERM/L/background.html). Color LCD displays use two basic techniques for producing color: *Passive matrix* is the less expensive of the two technologies. The other technology, called [*thin film transistor*](http://webopedia.internet.com/TERM/L/TFT.html) ([TFT](http://webopedia.internet.com/TERM/L/TFT.html)) or [*active-matrix*](http://webopedia.internet.com/TERM/L/active_matrix_display.html), produces color images that are as sharp as traditional [CRT](http://webopedia.internet.com/TERM/L/CRT.html) displays, but the technology is expensive. Recent passive-matrix displays using new [CSTN](http://webopedia.internet.com/TERM/L/CSTN.html) and [DSTN](http://webopedia.internet.com/TERM/L/DSTN.html) technologies produce sharp colors rivaling active-matrix displays. Most LCD screens used in [notebook computers](http://webopedia.internet.com/TERM/L/notebook_computer.html) are backlit to make them easier to read. |
| **LCD Projection Television** | Front projection television which projects liquid crystal display pixels from a single lens onto a screen. |
| **Line Doubler** | Electronic device meant to enhance a video picture by doubling the number of broadcasted lines per frame. |
| **Line Stage Preamplifier** | Stage of a [preamplifier](http://www.soundsite.com/glossary/#preamp) which accommodates all sources other than a [turntable](http://www.soundsite.com/glossary/#turntable). |
| **LON (Local Operating Network)** | Coined and trademarked by Echelon, a LON is the communications component in a complete network solution for control applications. |
| **LonMark Association** | The LonMark Interoperability Association design guidelines help manufacturers build interoperable LonMark products based upon LonWorks technology. Within association task groups, LonMark members develop application specific functional profiles. These profiles precisely layout the network interface for a particular controls function. Functional profiles ease the specification process and enhance interoperability without compromising the ability of specifiers to call for unique capabilities, or the ability of manufacturers to differentiate products. |
| **Luminance** | That part of the video signal which carries the information on how bright the TV signal is to be. |
| **MAC (Media Access Control address)** | A hardware address that uniquely identifies each [node](http://webopedia.internet.com/TERM/M/node.html) of a [network](http://webopedia.internet.com/TERM/M/network.html). In [IEEE](http://webopedia.internet.com/TERM/M/IEEE.html) 802 networks, the [Data Link Control (DLC) layer](http://webopedia.internet.com/TERM/M/DLC.html) of the [OSI Reference Model](http://webopedia.internet.com/TERM/M/OSI.html) is divided into two sub-layers: the *Logical Link Control (LLC) layer* and the *Media Access Control (MAC) layer.* The MAC layer interfaces directly with the network media. Consequently, each different type of network media requires a different MAC layer. On networks that do not conform to the IEEE 802 standards but do conform to the OSI Reference Model, the node address is called the *Data Link Control (DLC) address.* |
| **MACRO** | A lengthy series of instructions dictated to a home controller that reduces a complex process to a single command, so one button can dim the lights, lower the shades and start a movie. |
| **Magnetic Planar Loudspeaker** | Planar loudspeaker employing a large panel transducer onto which a copper wire has been attached, thus acting as a distributed voice coil across the surface. |
| **Manufacturer** | The designer of a product (hardware component, software or packaged system containing both software and hardware components) and the authority with final production responsibility for the performance to specification of their product usually expressed in the form of a product guarantee. Typically the manufacturer sells their products through a dealer or distributor network. |
| **Matrix-Mixer** | Similar to the matrix switcher (or [router](http://www.rane.com/par-r.htm#router)) below, but with additional signal processing features on all the inputs and outputs. With a matrix-mixer, not only can you assign any input to any output but you may add EQ, compression, change level, etc. Very elaborate models exist with as many as 32-channels in and 8 or more output channels. |
| **Mbps (megabits Per Second)** | One million bits of information transference per second between two pieces of digital equipment. |
| **MCM (Multi-Carrier Modulation)** | The principle of transmitting data by dividing the stream into several parallel bit streams, each of which has a much lower bit rate, and by using these substreams to modulate several carriers. The first systems using MCM were military HF radio links in the late 1950s and early 1960s. |
| **Media converter** or **media manager** | The *ability* to manage and the *process* of managing different media ([coaxial cable](http://www.rane.com/par-c.htm#coax), [twisted-pair cable](http://www.rane.com/par-t.htm#twisted_pair), [fiber-optics cable](http://www.rane.com/par-f.htm#fiber_optics)) used within the same network. Media management involves cable performance monitoring, cable break detection, planning for cable routes, as while as converting data signals between the various media. |
| **Megabytes** | (1) When used to describe data storage, 1,048,576 (2 to the 20th power) [bytes](http://webopedia.internet.com/TERM/m/byte.html). *Megabyte* is frequently abbreviated as *M* or [*MB*](http://webopedia.internet.com/TERM/m/MB.html). (2) When used to describe [data transfer rates](http://webopedia.internet.com/TERM/m/data_transfer_rate.html), as in *MBps,* it refers to one million bytes. |
| **MHz (megahertz)** | A unit of frequency denoting one million Hertz (i.e. 1,000,000 cycles per second). Usually refers to the upper frequency band on a cabling system. |
| **MIDI (*musical instrument digital interface*)** | Industry standard bus and protocol for interconnection and control of musical instruments. First launched in 1983, now generalized and expanded to include signal processing and lighting control. |
| **Midrange** | Drive element in a loudspeaker responsible for reproducing the midband of an audible signal, typically operating anywhere between 350 Hz and 3 kHz. Also refers to those specific frequencies as well. |
| **Mixer** | At its simplest level, an audio device used to add (combine or sum) multiple inputs into one or two outputs, complete with level controls on all inputs. From here signal processing is added to each of the inputs and outputs until behemoth monsters with as many as 64 inputs are created at a cost of around 10-20 kilobucks per input for fully digitized and automated boards. At these price points a mixer becomes a recording console. |
| **MP3** | The file extension for [MPEG](http://webopedia.internet.com/TERM/M/MPEG.htm), audio layer 3. Layer 3 is one of three coding schemes (layer 1, layer 2 and layer 3) for the compression of audio signals. Layer 3 uses perceptual audio coding and psycho acoustic compression to remove all superfluous information (more specifically, the redundant and irrelevant parts of a sound signal. The stuff the human ear doesn't hear anyway). It also adds a MDCT (Modified Discrete Cosine Transform) that implements a filter bank, increasing the frequency resolution 18 times higher than that of layer 2. The result in real terms is layer 3 shrinks the original sound data from a [CD](http://webopedia.internet.com/TERM/M/compact_disc.htm) (with a \*bit rate of 1411.2 kilobits per one second of stereo music) by a factor of 12 (down to 112-128kbps) without sacrificing sound quality. *\*Bit rate denotes the average number of bits that one second of audio data will consume*. Because MP3 files are small, they can easily be transferred across the Internet. Controversy arises when copyrighted songs are sold and distributed illegally off of Web sites. On the other hand, musicians may be able to use this technology to distribute their own songs from their own Web sites to their listeners, thus eliminating the need for record companies. Costs to the consumer would decrease, and profits for the musicians would increase. |
| **Multicast** | An IP multicast is a mechanism for sending a single message to multiple recipients. It is useful for discovery operations where one does not know exactly who has the information one seeks. |
| **Multicast DNS** | A proposal to the IETF on rules for making normal DNS requests using multicast UDP. |
| **Modem** | A device that converts a computer system’s digital information into analog information and transmits it over a telephone line. Another modem must be used when the information is received to convert the information back from analog to digital. |
| **Multimedia** | Generally refers to personal computers capable of multiple forms of communication methods. These constitute a minimum combination of stereo audio, video, text, and graphics, plus the more complex system includes fax and telephony provisions. |
| **NAT (Network Address Translation)** | An [Internet](http://webopedia.internet.com/TERM/N/Internet.html) standard that enables a [local-area network (LAN)](http://webopedia.internet.com/TERM/N/local_area_network_LAN.html) to use one set of [IP addresses](http://webopedia.internet.com/TERM/N/IP_address.html) for internal traffic and a second set of addresses for external traffic. A *NAT box* located where the LAN meets the Internet makes all necessary IP address translations. NAT serves two main purposes. It provides a type of [firewall](http://webopedia.internet.com/TERM/N/firewall.html) by hiding internal IP addresses and enables a company to use more internal IP addresses. Since they're used internally only, there's no possibility of conflict with IP addresses used by other companies and organizations. It allows a company to combine multiple ISDN connections into a single Internet connection. |
| **NBFAA (The National Burglar and Fire Alarm Association).** |  |
| **NEC (National Electrical Code)** | A set of rules and regulations plus recommended electrical practices that are put out be the National Fire Protection Association and generally accepted as the building wiring standard in the US. |
| **NFPA (National Fire Protection Association)** | An organization that produces the National Electrical Code. |
| **NSCA (National Systems Contractors Association)** | The leading not-for-profit association representing the commercial electronic systems industry. With a slate of more than 2,500 corporate and individual members worldwide, the National Systems Contractors Association is a powerful advocate of all who work within the low-voltage industry, including systems contractors/integrators, product manufacturers, consultants, sales representatives, a growing number of architects, specifying engineers and others. |
| **NTSC** | Video standard primarily broadcast the United States and Japan which produces 525 lines of video per frame, at a rate of 30 frames per second. |
| **OFDM (Orthogonal Frequency Division Multiplexing)** | A special form of MCM with densely spaced subcarriers and overlapping spectra was patented in the U.S. in 1970 OFDM abandoned the use of steep bandpass filters that completely separated the spectrum of individual subcarriers, as it was common practice in older Frequency Division Multiplex (FDMA) systems (e.g. in analogue SSB telephone trunks), in Multi-Tone telephone modems and still occurs in Frequency Division Multiple Access radio. |
| **Open Systems Integration** | Systems that are designed to integrate with other open systems without the direct involvement of the manufacturers. They would be “plug and play” compatible via a common database and user interface. The standards to determine integration techniques and compatibility have yet to be established in some cases but many are being considered by several industry organizations and trade associations. They could include new emerging business languages, such as XML, which define a common set of rules for systems to communicate and could apply equally to vertical or horizontal integration. |
| **OSI (Open System Interconnection)** | The only internationally accepted framework of standards for communication between different systems made by different vendors. The model originally developed by [ISO](http://www.rane.com/par-i.htm#ISO) describing computer communication services and protocols without making assumptions concerning language, operating sytems or application issues. The main goal is to create an open systems networking environment where any vendor's computer system, connected to any network, can freely share data with any other computer system on that network. |
| **OSGI** | The Open Services Gateway Initiative is an industry group working to define and promote an open standard for connecting the coming generation of smart consumer and small business appliances with commercial Internet services. The Open Services Gateway specification will provide a common foundation for Internet Service Providers, network operators and equipment manufacturers to deliver a wide range of e-services via gateway servers running in the home or remote office. |
| **Parallel interface** | The printer port in the PC world. A parallel port conforming to the quasi- standard called the Centronics Parallel Standard (there is no EIA standard). Originally a 36- pin connector, now more often a D-25 type connector. A parallel (as opposed to *serial*) interface transfers all bits in a word simultaneously. |
| **PAL** | European television standard developed in Germany which broadcasts 625 lines per frame, at a rate of 25 frames per second. |
| **PC- Centric** | Hardware, software and/or protocols dependant upon a specific PC (personal computer) to function. |
| [**PCMCIA**](http://www.pc-card.com/) **(Personal Computer Memory Card International Association)** | 1. The association and first name given to the standardized credit card size packages (aka *smart cards*) for memory and I/O ([modem](http://www.rane.com/par-m.htm#modem)s, [LAN](http://www.rane.com/par-l.htm#LAN) cards, etc.) for computers, laptops, palmtops, etc. Nicknamed *PC Card*, which is now the preferred term. 2. Popularly believed to stand for *People Can't Memorize Computer Interface Acronyms*. |
| **Peer To Peer** | A simple kind of network that sets up a conversation between two machines without a middleman (server). Both can carry out the same functions. |
| **Planar Loudspeaker** | Loudspeaker which produces sound by vibrating a thin, flat transducer, commonly suspended between electrodes or magnets, in response to a signal. |
| **Plasma Screen** | A flat-screen monitor, approximately three to five inches thick, for screening digital, satellite, video, cable and television programs. It can also be used as a computer. *Note: Not all plasma screens are HDTV compatible.* |
| **PLC (Powerline Carrier)** | The transmission of communication signals across utility power lines or existing home wiring. Frequencies may range from 8 kHz to 200 kHz and above. Power levels are normally in the 1 to 20 watt range. The advantages of these systems include their ability to send signals over very long transmission lines (more than 100 miles) and their reliability. However they are limited in the amount of information they can transport because of narrow bandwidths. Their low-frequency signals are severely attenuated by capacitor banks and transformers and can be overcome. |
| **Plenum Cable** | The type of cable used when smoke retardant properties are required. Plenum cable is specifically designed for use in a plenum area (see above) which is typically used as the distribution system in buildings. Most cities requiring all cable ran through a plenum ceiling to be *plenum cable* which has insulated conductors jacketed with PVDF (*polyvinylidene difloride*) - a material providing low flame spread and low smoke producing properties. Plenum cables are approved by Underwriters Laboratories for non-conduit applications located in environmental air spaces. This low cost alternative has replaced traditional conduit use in many commercial installations. |
| **Polarity** | A signal's electromechanical potential with respect to a reference potential. For example, if a loudspeaker cone moves *forward* when a *positive* voltage is applied between its red and black terminals, then it is said to have a *positive polarity*. A microphone has *positive polarity* if a positive pressure on its diaphragm results in a positive output voltage. [Usage Note: polarity vs. [phase shift](http://www.rane.com/#phase_shift): *polarity* refers to a signal's *reference* NOT to its *phase shift*. Being 180° *out-of-phase* and having *inverse polarity* are DIFFERENT things. We wrongly say something is *out*-*of-phase* when we mean it is *inverted*. One takes *time*; the other does not.] |
| **Port** | An entrance or exit from a network or a computer interface where a modem can be attached. |
| **POTS (Privately Owned Telephone Systems)** | Also commonly referred to as Plain Old Telephone Service. The basic service supplying standard analog single line telephones, telephone lines and access to the public switched network. |
| **Power Amplifier** | Electronic device which increases the power of an incoming low level signal to accommodate the power requirements of a loudspeaker. |
| **Powerline Network** | A method of passing automation signals between devices connected to the electrical wiring. These signals coexist on the same wires and do not interfere with the home’s power delivery. Data signals can be sent and received by X-10 or CEDus devices to turn on or off and to dim or brighten. |
| **Preamplifier** | Control center of an audio/video system. Source component switching is done here, as well as volume and balance control. This component generally has some degree of signal amplification associated with it. |
| **Project Manager** | Industry professionals who are responsible for all aspects of a project until such time the job has been successfully completed, documented and billed. |
| **Protocol** | An agreed-upon [format](http://webopedia.internet.com/TERM/p/format.html) for transmitting [data](http://webopedia.internet.com/TERM/p/data.html) between two [devices](http://webopedia.internet.com/TERM/p/device.html). There are a variety of standard protocols from which [programmers](http://webopedia.internet.com/TERM/p/programmer.html) can choose. Each has particular advantages and disadvantages; for example, some are simpler than others, some are more reliable, and some are faster. From a [user's](http://webopedia.internet.com/TERM/p/user.html) point of view, the only interesting aspect about protocols is that your [computer](http://webopedia.internet.com/TERM/p/computer.html) or device must [support](http://webopedia.internet.com/TERM/p/support.html) the right ones if you want to communicate with other computers. |
| **Proximity Networking** | Networks that are available to clients for the time that the clients are in a geographical area. Examples are the airport flight display, restaurant menu or shopping mall map that can be displayed automatically on a handheld device. The fundamental requirement for proximity networking is that no server-specific code need exist on the client before using the service, and no undesired code or configuration remains once service is out of range. In addition, a simple mechanism for discovering and navigating to local service is required. |
| **PSTN (Public Switched Telephone Network)** | Refers to the international telephone system based on copper wires carrying [analog](http://webopedia.internet.com/TERM/P/analog.html) voice data. This is in contrast to newer telephone networks base on digital technologies, such as [ISDN](http://webopedia.internet.com/TERM/P/ISDN.html) and [FDDI](http://webopedia.internet.com/TERM/P/FDDI.html). Telephone service carried by the PSTN is often called [*plain old telephone service (POTS)*](http://webopedia.internet.com/TERM/P/POTS.html). |
| **QoS (Quality of Service)** | A networking term that specifies a guaranteed “[throughput](http://webopedia.internet.com/TERM/Q/throughput.html)” level (the amount of [data](http://webopedia.internet.com/TERM/t/data.html) transferred from one place to another or processed in a specified amount of time). |
| **RAM (Random Access Memory)** | A type of [computer memory](http://webopedia.internet.com/TERM/R/memory.html) that can be [accessed](http://webopedia.internet.com/TERM/R/access.html) randomly; that is, any [byte](http://webopedia.internet.com/TERM/R/byte.html) of memory can be accessed without touching the preceding bytes. RAM is the most common type of memory found in [computers](http://webopedia.internet.com/TERM/R/computer.html) and other [devices](http://webopedia.internet.com/TERM/R/device.html), such as [printers](http://webopedia.internet.com/TERM/R/printer.html). There are two basic types of RAM, [dynamic RAM (DRAM)](http://webopedia.internet.com/TERM/R/dynamic_RAM.html) and [static RAM (SRAM)](http://webopedia.internet.com/TERM/R/SRAM.html) . The two types differ in the technology they use to hold [data](http://webopedia.internet.com/TERM/R/data.html), dynamic RAM being the more common type. Dynamic RAM needs to be [refreshed](http://webopedia.internet.com/TERM/R/refresh.html) thousands of times per second. Static RAM does not need to be refreshed, which makes it faster; but it is also more expensive than dynamic RAM. Both types of RAM are *volatile,* meaning that they lose their contents when the power is turned off. |
| **RBOC (Regional Bell Operating Company)** | Seven ROBCs exist, each owns two or more Bell Operating Companies (BOCs). The RBOCs were carved out of the old AT&T/Bell System during the divestiture of the Bell operating companies from AT&T in 1984. |
| **Rear Channel Loudspeaker** | Loudspeaker pair which sits beside or behind the listener in a [surround sound system](http://www.soundsite.com/glossary/#surround). These speakers reproduce ambient information as well as soundtrack special effects. |
| Rear Projection Television | Television which forms an image by projecting a picture from behind a screen. |
| **Receiver** | Single unit containing a [preamplifier](http://www.soundsite.com/glossary/#preamp), a [power amplifier](http://www.soundsite.com/glossary/#power), and a [tuner](http://www.soundsite.com/glossary/#tuner). |
| **Residential Gateway** | A device that allows consumer premise equipment connected to in-home networks to access and use services from any external network regardless of the media. |
| **RF Technology** | Radio frequency technology allows wireless appliances to work. In most remote controls, point and change infrared technology may be more common, but RF is the wave of the future. The advantage is that it doesn't have to be pointed and that its signals even penetrate walls. The disadvantage: its range is only 150 to 500 feet. |
| **RF (Radio Frequency)** | Generally refers to data modulated over a high-frequency electromagnetic waves carrier for wireless transmission, the division of the radio spectrum from 535 kHz to 2.483 GHz. |
| **RG-6 Cable** | A coaxial cable used for broadband video applications with a 20 gauge center conductor, allowing a higher bandwidth than RG59 cable. Uses standard “F” connectors for video equipment connections. |
| **Ribbon Loudspeaker** | Planar Loudspeaker with drive elements consisting of thin foil transducers placed between the pole elements of a large magnet. |
| **RJ-11** | Standard telephone jack with a four wire connection. |
| **RJ-45 (Jack-45)** | An eight-wire [connector](http://webopedia.internet.com/TERM/R/connector.html) used commonly to connect computers onto a [local-area networks (LAN)](http://webopedia.internet.com/TERM/R/local_area_network_LAN.html), especially [Ethernets](http://webopedia.internet.com/TERM/R/Ethernet.html). RJ-45 connectors look similar to the ubiquitous [RJ-11 connectors](http://webopedia.internet.com/TERM/R/RJ_11.html) used for connecting telephone equipment, but they are somewhat wider. |
| **ROM (Read-Only Memory)** | Computer memory on which [data](http://webopedia.internet.com/TERM/R/data.html) has been prerecorded. Once data has been written onto a ROM [chip](http://webopedia.internet.com/TERM/R/chip.html), it cannot be removed and can only be [read](http://webopedia.internet.com/TERM/R/read.html). Unlike [main memory](http://webopedia.internet.com/TERM/R/main_memory.html) ([RAM](http://webopedia.internet.com/TERM/R/RAM.html)), ROM retains its contents even when the [computer](http://webopedia.internet.com/TERM/R/computer.html) is turned off. ROM is referred to as being *nonvolatile*, whereas RAM is *volatile.* Most [personal computers](http://webopedia.internet.com/TERM/R/personal_computer.html) contain a small amount of ROM that [stores](http://webopedia.internet.com/TERM/R/store.html) critical [programs](http://webopedia.internet.com/TERM/R/program.html) such as the program that [boots](http://webopedia.internet.com/TERM/R/boot.html) the computer. In addition, ROMs are used extensively in [calculators](http://webopedia.internet.com/TERM/R/calculator.html) and [peripheral devices](http://webopedia.internet.com/TERM/R/peripheral_device.html) such as [laser printers](http://webopedia.internet.com/TERM/R/laser_printer.html), whose [fonts](http://webopedia.internet.com/TERM/R/font.html) are often stored in ROMs. A variation of a ROM is a [*PROM*](http://webopedia.internet.com/TERM/R/PROM.html) *(programmable read only memory)*. PROMs are manufactured as blank chips on which data can be written with a special [device](http://webopedia.internet.com/TERM/R/device.html) called a *PROM* [*programmer*](http://webopedia.internet.com/TERM/R/programmer.html) . |
| **RS-232 (Recommended Standard-232C)** | A [standard](http://webopedia.internet.com/TERM/R/standard.html) [interface](http://webopedia.internet.com/TERM/R/interface.html) approved by the [Electronic Industries Association (EIA)](http://webopedia.internet.com/TERM/R/Electronic_Industries_Association.html) for connecting [serial](http://webopedia.internet.com/TERM/R/serial.html) [devices](http://webopedia.internet.com/TERM/R/device.html). Almost all [modems](http://webopedia.internet.com/TERM/R/modem.html) conform to the EIA-232 standard and most [personal computers](http://webopedia.internet.com/TERM/R/personal_computer.html) have an EIA-232 [*port*](http://webopedia.internet.com/TERM/R/port.html) for connecting a modem or other device. In addition to modems, many [display screens](http://webopedia.internet.com/TERM/R/display_screen.html), [mice](http://webopedia.internet.com/TERM/R/mouse.html), and serial [printers](http://webopedia.internet.com/TERM/R/printer.html) are designed to connect to an EIA-232 *port.* In EIA-232 parlance, the device that connects to the interface is called [*Data Communications Equipment (DCE)*](http://webopedia.internet.com/TERM/R/DCE.html) and the device to which it connects (e.g., the computer) is called [*Data Terminal Equipment (DTE)*](http://webopedia.internet.com/TERM/R/DTE.html). The EIA-232 standard [supports](http://webopedia.internet.com/TERM/R/support.html) two types of [connectors](http://webopedia.internet.com/TERM/R/connector.html)- a 25- pin D- type connector (DB-25) and a 9- pin D- type connector (DB-9). The type of serial [communications](http://webopedia.internet.com/TERM/R/communications.html) used by [PCs](http://webopedia.internet.com/TERM/R/PC.html) requires only 9 pins so either type of connector will work equally well. Although EIA-232 is still the most common standard for serial communication, the EIA has recently defined successors to EIA-232 called [*RS-422 and RS-423*](http://webopedia.internet.com/TERM/R/RS_422_and_RS_423.html). The new standards are [backward compatible](http://webopedia.internet.com/TERM/R/backward_compatible.html) so that RS-232 devices can connect to an RS-422 port. |
| **RS-422** | The standard adopted in 1978 by the [Electronics Industry Association](http://www.eia.org/) as *EIA-422*  *A, Electrical characteristics of balanced voltage digital interface circuits*. A universal [balanced line](http://www.rane.com/par-b.htm#balanced_line) twisted- pair standard for all long distance (~1000 m, or ~3300 ft) computer interconnections, daisy- chain style. |
| **RS-485** | The standard describing the electrical characteristics of a balanced interface used as a bus for master/slave operation. Allows up to 32 users to *bridge* onto the line (as opposed to RS-422's need to *daisy- chain* the interconnections)*.* |
| **RS-490** | The standard adopted in 1981 by the [EIA](http://www.eia.org/) entitled *Standard Test Methods of Measurement for Audio Amplifiers*. The power amp testing standard for consumer products. |
| **Scanning Rate** | Number of lines produced by a television per second, as it scans its picture onto a screen. Measured in Hz. |
| **Script/Scripting** | Another term for [*macro*](http://webopedia.internet.com/TERM/s/macro.html) or [batch file](http://webopedia.internet.com/TERM/s/batch_file.html), a script is a list of [commands](http://webopedia.internet.com/TERM/s/command.html) that can be [executed](http://webopedia.internet.com/TERM/s/execute.html) without [user](http://webopedia.internet.com/TERM/s/user.html) interaction. A *script* [*language*](http://webopedia.internet.com/TERM/s/language.html) is a simple [programming language](http://webopedia.internet.com/TERM/s/programming_language.html) with which you can write scripts. [Apple Computer](http://webopedia.internet.com/TERM/s/Apple_Computer.html) uses the term *script* to refer to [programs](http://webopedia.internet.com/TERM/s/program.html) written in its [HyperCard](http://webopedia.internet.com/TERM/s/HyperCard.html) or [AppleScript](http://webopedia.internet.com/TERM/s/AppleScript.html) language. |
| **SCSI port** (pronounced "scuzzy") **(*small computer system interface*)** | A standard 8-bit parallel interface used to connect up to seven peripherals, such as connecting a CD-ROM player or document scanner to a microcomputer. |
| **SD (Super Density Compact Disc)** | See: [DVD](http://www.rane.com/par-d.htm#DVD) |
| **Serial Interface** | An I/O (input/output) port that transmits data 1 bit at a time (in contrast to parallel transmission, which transmits multiple bits simultaneously). RS-232C is a common serial signaling protocol. |
| **Series Wiring** | A wiring method where each termination point is wired in series from the previous jack. (The same as Daisy Chain.) |
| **Set-Top Box** | A generic term for a device connected between the television set and the cable that performs selection and decryption processes. |
| **Server** | Computer or [device](http://webopedia.internet.com/TERM/s/device.html) on a [network](http://webopedia.internet.com/TERM/s/network.html) that manages network [resources](http://webopedia.internet.com/TERM/s/resource.html). For example, a *file server* is a computer and [storage device](http://webopedia.internet.com/TERM/s/storage_device.html) [dedicated](http://webopedia.internet.com/TERM/s/dedicated.html) to [storing](http://webopedia.internet.com/TERM/s/store.html) [files](http://webopedia.internet.com/TERM/s/file.html). Any [user](http://webopedia.internet.com/TERM/s/user.html) on the network can store files on the server. A *print server* is a computer that manages one or more [printers](http://webopedia.internet.com/TERM/s/printer.html), and a *network* *server* is a computer that manages network [traffic](http://webopedia.internet.com/TERM/s/traffic.html). A [database](http://webopedia.internet.com/TERM/s/database.html) *server* is a [computer system](http://webopedia.internet.com/TERM/s/computer_system.html) that processes database [queries](http://webopedia.internet.com/TERM/s/query.html). Servers are often dedicated, meaning that they perform no other tasks besides their server tasks. On [multiprocessing](http://webopedia.internet.com/TERM/s/multiprocessing.html) [operating systems](http://webopedia.internet.com/TERM/s/operating_system.html), however, a single computer can [execute](http://webopedia.internet.com/TERM/s/execute.html) several [programs](http://webopedia.internet.com/TERM/s/program.html) at once. A server in this case could refer to the program that is managing resources rather than the entire computer. |
| **SGML (Standard Generalized Markup Language)** | A [system](http://webopedia.internet.com/TERM/S/system.html) for organizing and tagging elements of a [document](http://webopedia.internet.com/TERM/S/document.html). SGML was developed and standardized by the International Organization for Standards ([ISO](http://webopedia.internet.com/TERM/S/ISO.html)) in 1986. SGML itself does not specify any particular [formatting](http://webopedia.internet.com/TERM/S/format.html); rather, it specifies the rules for tagging elements. These [tags](http://webopedia.internet.com/TERM/S/tag.html) can then be interpreted to format elements in different ways. SGML is used widely to manage large documents that are subject to frequent revisions and need to be printed in different formats. Because it is a large and complex system, it is not yet widely used on [personal computers](http://webopedia.internet.com/TERM/S/personal_computer.html). However, the growth of [Internet](http://webopedia.internet.com/TERM/S/Internet.html), and especially the [World Wide Web](http://webopedia.internet.com/TERM/S/World_Wide_Web.html), is creating renewed interest in SGML because the World Wide Web uses [HTML](http://webopedia.internet.com/TERM/S/HTML.html), which is one way of defining and interpreting tags according to SGML rules. |
| **Single Ended Amplification** | Method of amplifying a signal whereby one side of the input and output amplifying devices are connected to ground. |
| **SNMP (*Simple Network Management Protocol*)** | The most common method by which network management applications can query a management agent using a supported MIB (Management Information Base). SNMP operates at the [OSI](http://www.rane.com/par-o.htm#OSI) Application layer. The IP (Internet Protocol) based SNMP is the basis of most network management software, to the extent that today the phrase "managed device" implies SNMP compliance. |
| **S/N** or **SNR (*signal-to-noise ration)*** | An audio measurement of the residual noise of a unit, stated as the ratio of signal level (or power) to noise level (or power), normally expressed in decibels. The "signal" reference level must be stated. Typically this is either the expected nominal operating level, say, +4 dBu for professional audio, or the maximum output level, usually around +20 dBu. The noise is measured using a true [RMS](http://www.rane.com/par-r.htm#rms) type voltmeter over a *specified bandwidth*, and sometimes using [weighting filters](http://www.rane.com/par-w.htm#weighting_filters). All these thing must be stated for a S/N spec to have meaning. Simply saying a unit has a SNR of 90 dB means nothing, without giving the reference level, measurement bandwidth, and any weighting filers. A system's *maximum* S/N is called the [dynamic range](http://www.rane.com/par-d.htm#dynamic_range). |
| **Sound** | 1.a. Vibrations transmitted through an elastic material or a solid, liquid, or gas, with frequencies in the approximate range of 20 to 20,000 hertz, capable of being detected by human ears. Sound (in air) at a particular point is a rapid variation in the air pressure around a steady state value ([atmospheric pressure](http://www.rane.com/digi-dic.htm#atmospheric_pressure)) - that is, sound is a *disturbance* in the surrounding medium. b. Transmitted vibrations of any frequency. c. The sensation stimulated in the ears by such vibrations in the air or other medium. d. Such sensations considered as a group.2. Auditory material that is recorded, as for a movie.3. Meaningless noise.4. *Music.* A distinctive style, as of an orchestra or a singer. |
| **Sound Pressure** | The value of the rapid variation in air pressure due to a sound wave, measured in [pascals](http://www.rane.com/par-p.htm#pascal), [microbars](http://www.rane.com/par-m.htm#microbar), or [dynes](http://www.rane.com/par-d.htm#dyne) all used interchangeable, but *pascals* is now the preferred term. *Instantaneous* sound pressure is the peak value of the air pressure, often used in noise control measurements. *Effective* sound pressure is the [RMS](http://www.rane.com/par-r.htm#rms) value of the instantaneous sound pressure taken at a point over a period of time. |
| **Sound pressure level** or **SPL** | The [RMS](http://www.rane.com/par-r.htm#rms) sound pressure expressed in dB re 20 microPa (the lowest threshold of hearing for 1 kHz. [As points of reference, *0 dB SPL* equals the threshold of hearing, while *140 dB SPL* equals irreparable hearing damage.] |
| **Spread Spectrum** | A signaling technique where the AC energy transmitted by a device is spread over the range of frequencies rather than remaining concentrated at one frequency (such as an AM radio station). CEBus uses spread spectrum techniques on the power line and radio frequency devices. |
| **SSDP (Simple Service Discover Protocol)** | The Universal Plug and Play proposal for how to perform extremely simple discovery. |
| **Standards** | Agreed principals of protocol set by committees working under various trade and international organizations. |
| **Structured Wiring** | A planned and organized method of residential low voltage wiring allowing for efficient hook- up and future changes and additions. |
| **Star** | A topology in which all wire drops are wired directly to a central distribution point that establishes, maintains, and breaks connection to the drops. |
| **Subcontractor** | Any company who has an indirect relationship with the end-user or customer, usually through a prime or general contractor. There can be multiple layers of subcontractors on a project. Often time the technology providers are second or third tier subcontractors. |
| **Subwoofer** | Woofer large enough to produce frequencies from 20 or 30 Hz to 80 or 100 Hz, typically housed in its own enclosure. |
| **Surround Sound** | Attempt to recreate using more than a stereo pair of loudspeakers the acoustical and ambient information of a particular environment, such as a church, a stadium, a movie theater, etc. A surround sound decoder is a device which extracts the ambient and effects information from a recording or soundtrack and steers this signal to the appropriate amplification channels. |
| **SWAP (Shared Wireless Access Protocols)** | Describes wireless transmission devices and protocols for interconnecting computers, peripherals and electronic appliances in a home environment. |
| **Systems Contractor** | A company who provides sales, design, installation and service for a wide range of electronics, communications, security, telephony or similar products. Typically this company bids and installs projects according to specifications written by an Architect, Engineer or other building design professional. It is also common for this company to design and install systems directly for the building owner on a design-build basis. |
| **Systems Engineer** | Industry professionals in system(s) being installed and all underlying technologies. Typically they are the ones who design the system, load the software and commission the system. |
| **Systems Integration** | Having intelligent subsystems that communicate with each other and act upon the information shared. Many times these sub- systems will utilize a common operating system and network configuration. |
| **Systems Integrator** | A company that provides all or most of the products and services of a systems contractor yet also has the capabilities to do advanced programming, custom applications or other technical modifications to the original products that allow enhanced benefits to the user. |
| **T-1 Carrier** | A dedicated phone connection supporting data rates of 1.544Mbits per second. A T 1 line actually consists of 24 individual [channels](http://webopedia.internet.com/TERM/T/channel.html), each of which supports 64Kbits per second. Each 64Kbit/second channel can be configured to carry voice or data traffic. Most telephone companies allow you to buy just some of these individual channels, known as *fractional T-1* access. T-1 lines are a popular [leased line](http://webopedia.internet.com/TERM/T/leased_line.html) option for businesses connecting to the [Internet](http://webopedia.internet.com/TERM/T/Internet.html) and for [Internet Service Providers (ISPs)](http://webopedia.internet.com/TERM/T/ISP.html) connecting to the Internet [backbone](http://webopedia.internet.com/TERM/T/backbone.html). The Internet backbone itself consists of faster [T-3](http://webopedia.internet.com/TERM/T/T_3_carrier.html) connections. T-1 lines are sometimes referred to as *DS1* lines. |
| **T-3 Carrier** | A dedicated phone connection supporting data rates of about 43 [Mbps](http://webopedia.internet.com/TERM/T/Mbps.html). A T-3 line actually consists of 672 individual [channels](http://webopedia.internet.com/TERM/T/channel.html), each of which supports 64 [Kbps](http://webopedia.internet.com/TERM/T/Kbps.html). T-3 lines are used mainly by [Internet Service Providers (ISPs)](http://webopedia.internet.com/TERM/T/ISP.html) connecting to the [Internet](http://webopedia.internet.com/TERM/T/Internet.html) [backbone](http://webopedia.internet.com/TERM/T/backbone.html) and for the backbone itself. T-3 lines are sometimes referred to as *DS3* lines. |
| **TCP/IP (Transmission Control Protocol/Internet Protocol)** | A set of communications protocols to connect different types of computers over networks. |
| **TECHHOME.ORG (The Consumer Electronics Association's Web site)** | An easy-to-follow, hype free guide to networking a home, from the simplest systems to the most complex. |
| **TELCO** | An Americanism for a telephone company. |
| **Telecommunications** | Any transmission, emission, or reception of signs, signals, writings, images, and sounds, or information of any nature by cable, radio, visual, optical or other electromagnetic systems. |
| **Teleconferencing** | An *audio* conference held by three or more persons over a distance. Normal useage refers to voice conferencing, also termed *audioconferencing* which includes all forms of audio. The term is sometimes extended to include video and document, or data, conferencing. Note that the term does not mean *telephone* conferencing, but rather *distance* conferencing, although telephone lines are often used. |
| **TIA (*Telecommunications Industry Association*)** | Created in 1988 by a merger of the US Telecommunications Suppliers Association (USTSA) and the [EIA'](http://www.rane.com/par-e.htm#EIA)s Information and Telecommunications Technologies Group (EIA/ITG). This organization works with the EIA in developing technical standards and collecting market data for the telecommunication industry. |
| **Token Ring** | A [LAN](http://www.rane.com/par-l.htm#LAN) [baseband](http://www.rane.com/par-b.htm#baseband) network access mechanism and topology in which a supervisory "*token*" (a continuously repeating frame [group of data bits] transmitted onto the network by the controlling computer; it polls for network transmissions) is passed from station to station in sequential order. Stations wishing to gain access to the network must wait for the token to arrive before transmitting data. In a token ring topology, the next logical station receiving the token is also the nest physical station on the ring. This is the mechanism that prevents collisions on this type of network. Normally connected as a ***star-wired ring*** where each station is wired back to a central point known as the ***multistation access unit (MAU)***. The MAU forms a ring of the devices and performs the back-up function of restoring the ring should one of the devices crash or lose its cable connection. |
| **Touchscreen** | A visual display terminal screen that responds to instructions as the user touches the screen. |
| **Transmission Line** | Loudspeaker which contains a large, folded acoustical pipe into which the rear output of a driver element is effectively terminated. |
| Transistor | A semiconductor device (usually made of silicon) used in electronic circuit. Common uses include signal amplification and voltage rectification. |
| **Tuner** | A separate AM/FM radio which is fed into a [preamplifier](http://www.soundsite.com/glossary/#preamp) . |
| Turntable | Used for the playback of long playing records, this unit rotates records at a constant speed so that an attached phono cartridge can extract a musical signal. Must be used with a [tone arm](http://www.soundsite.com/glossary/#tonearm) and cartridge to comprise a complete playback system. |
| **Tweeter** | Drive unit in a loudspeaker responsible for reproducing the higher frequencies of an audible signal, typically active above 3 kHz. |
| **Twisted Pair** | Two insulated copper wires twisted around each other to reduce induction (thus interference) from one wire to the other. The twists, or lays, are varied in length to reduce the potential for signal interference between pairs. Several sets of twisted pair wires may be enclosed in a single cable. In cables greater than 25 pairs, the twisted pairs are grouped and bound together in a common cable sheath. |
| **UDP (User Datagram Protocol)** | A [connectionless](http://webopedia.internet.com/TERM/U/connectionless.html) [protocol](http://webopedia.internet.com/TERM/U/protocol.html) that, like TCP, runs on top of IP networks. Unlike [TCP/IP](http://webopedia.internet.com/TERM/U/TCP_IP.html), UDP/IP provides very few error recovery services, offering instead a direct way to send and receive datagrams over an IP network. It's used primarily for [broadcasting](http://webopedia.internet.com/TERM/U/broadcast.html) messages over a network. |
| **UPnP (Universal Plug ‘n Play)** | An architecture for pervasive peer-to-peer network connectivity of PCs of all form factors, intelligent appliances, and wireless devices. UPnP is a distributed, open networking architecture that leverages TCP/IP and the Web to enable seamless proximity networking in addition to control and data transfer among networked devices in the home, office, and everywhere in between. |
| **UPnP Forum** | More than 60 members from different areas in the industry have joined the UPnP Forum, and 15 companies are [members of the UPnP Forum Steering Committee](http://www.microsoft.com/presspass/press/1999/Nov99/UPnPpr.htm). Initial technical working groups are Printers, Internet Gateways, Home Lighting, Home Security, Home HVAC, and Home Energy Management. The steering committee has received nominations for other working groups, especially in the AV space, and is in the process of defining and creating the new working groups. |
| **URI (Uniform Resource Identifier)** | The generic term for all types of [names](http://webopedia.internet.com/TERM/U/name.html) and [addresses](http://webopedia.internet.com/TERM/U/address.html) that refer to [objects](http://webopedia.internet.com/TERM/U/object.html) on the [World Wide Web](http://webopedia.internet.com/TERM/U/World_Wide_Web.html). A [URL](http://webopedia.internet.com/TERM/U/URL.html) is one kind of URI. |
| **URL (Uniform Resource Locator)** | The global [address](http://webopedia.internet.com/TERM/U/address.html) of [documents](http://webopedia.internet.com/TERM/U/document.html) and other [resources](http://webopedia.internet.com/TERM/U/resource.html) on the [World Wide Web](http://webopedia.internet.com/TERM/U/World_Wide_Web.html). The first part of the address indicates what protocol to use, and the second part specifies the [IP address](http://webopedia.internet.com/TERM/U/IP_address.html) or the [domain name](http://webopedia.internet.com/TERM/U/domain_name.html) where the resource is located. |
| **USB (Universal Serial Bus)** | A new [external bus](http://webopedia.internet.com/TERM/U/external_bus.htm) standard that supports [data transfer rates](http://webopedia.internet.com/TERM/U/data_transfer_rate.htm) of 12 [Mbps](http://webopedia.internet.com/TERM/U/Mbps.htm) (12 million bits per second). A single USB [port](http://webopedia.internet.com/TERM/U/port.htm) can be used to connect up to 127 [peripheral devices](http://webopedia.internet.com/TERM/U/peripheral_device.htm), such as [mice](http://webopedia.internet.com/TERM/U/mouse.htm), [modems](http://webopedia.internet.com/TERM/U/modem.htm), and [keyboards](http://webopedia.internet.com/TERM/U/keyboard.htm). USB also supports [*Plug-and-Play*](http://webopedia.internet.com/TERM/U/plug_and_play.htm) installation and [*hot plugging*](http://webopedia.internet.com/TERM/U/hot_plugging.htm). It wasn't until the release of the best-selling iMac in 1998 that USB became widespread. It is expected to completely replace [serial](http://webopedia.internet.com/TERM/U/serial_port.htm) and [parallel ports](http://webopedia.internet.com/TERM/U/parallel_port.htm). |
| **UTP (*unshielded twisted-pair*)** See [cables](http://www.rane.com/par-c.htm#cables) |  |
|  |  |
| **VESA (Video Electronics Standards Association)** | A consortium of [video adapter](http://webopedia.internet.com/TERM/V/video_adapter.html) and [monitor](http://webopedia.internet.com/TERM/V/monitor.html) manufacturers whose goal is to standardize video [protocols](http://webopedia.internet.com/TERM/V/protocol.html). VESA has developed a family of [video standards](http://webopedia.internet.com/TERM/V/video_standards.html) that offer greater [resolution](http://webopedia.internet.com/TERM/V/resolution.html) and more colors than [VGA](http://webopedia.internet.com/TERM/V/VGA.html). These [standards](http://webopedia.internet.com/TERM/V/standard.html) are known collectively as [Super VGA](http://webopedia.internet.com/TERM/V/SVGA.html) (SVGA). |
| **Vacuum Tube** | A multi-electrode valve which controls the flow of electrons in a vacuum from electrode to electrode. It is based on a principle known as thermionic electron emission. A common use is for signal amplification. While not often found in modern electronics, certain audio manufacturers produce high quality components utilizing these devices. |
| **Vaporware** | Refers to either hardware or software that exist only in the minds of the marketeers. |
| **VOIP (sometimes called IP telephony, Voice over the Internet (VOI) or Voice over IP (VOIP) products)** | A category of hardware and software that enables people to use the [Internet](http://webopedia.internet.com/TERM/I/Internet.html) as the transmission medium for telephone calls. For users who have free, or fixed-price Internet access, Internet telephony software essentially provides free telephone calls anywhere in the world. To date, however, Internet [telephony](http://webopedia.internet.com/TERM/I/telephony.html) does not offer the same quality of telephone service as direct telephone connections. There are many Internet telephony applications available. Some, like CoolTalk and NetMeeting, come bundled with popular [Web browsers](http://webopedia.internet.com/TERM/I/browser.html). Others are [stand-alone](http://webopedia.internet.com/TERM/I/stand_alone.html) products |
| **WAN** | A [computer](http://webopedia.internet.com/TERM/w/computer.html) [network](http://webopedia.internet.com/TERM/w/network.html) that spans a relatively large geographical area. Typically, a WAN consists of two or more [local-area networks (LANs)](http://webopedia.internet.com/TERM/w/local_area_network_LAN.html). Computers connected to a wide-area network are often connected through public networks, such as the telephone system. They can also be connected through [leased lines](http://webopedia.internet.com/TERM/w/leased_line.html) or satellites. The largest WAN in existence is the [Internet](http://webopedia.internet.com/TERM/w/Internet.html). |
| **WAP (Wireless Application** [**Protocol**](http://webopedia.internet.com/TERM/W/protocol.htm)**)** | Is a secure specification that allows users to access information instantly via [handheld wireless devices](http://webopedia.internet.com/TERM/W/hand_held_computer.htm) such as mobile phones, pagers, two-way radios, smartphones and communicators. WAP is supported by all [operating systems](http://webopedia.internet.com/TERM/W/operating_system.htm). Ones specifically engineered for handheld devices include PalmOS, EPOC, Windows CE, FLEXOS, OS/9, and JavaOS. WAPs that use displays and access the Internet run what are called “microbrowsers”. These browsers have small file sizes that can accommodate the low memory constraints of handheld devices and the low-[bandwidth](http://webopedia.internet.com/TERM/W/bandwidth.htm) constraints of a wireless-handheld network. Although WAP supports HTML and XML, the WML language (an XML application) is specifically devised for small screens and one hand navigation without a keyboard. WML is scalable from two-line text displays up through graphic screens found on items such as smart phones and communicators. WAP also supports WMLScript. It is similar to [JavaScript](http://webopedia.internet.com/TERM/W/JavaScript.htm), but makes minimal demands on memory and [CPU](http://webopedia.internet.com/TERM/W/CPU.htm) power because it does not contain many of the unnecessary [functions](http://webopedia.internet.com/TERM/W/function.htm) found in other scripting languages. Because WAP is fairly new, it is not a formal [standard](http://webopedia.internet.com/TERM/W/standard.htm) yet. It is still an initiative that was started by Unwired Planet, Motorola, Nokia, and Ericsson. |
| **Watt** | Power specification stating the amount of energy dissipated in one second. This term is commonly associated with [power amplifiers](http://www.soundsite.com/glossary/#power). |
| **Wide screen** | Any video software or hardware which has an [aspect ratio](http://www.soundsite.com/glossary/#aspect) wider than 4:3 (which is the typical television ratio). Wide screen formats are meant to reproduce the original aspect ratio of a movie as viewed in a theater. |
| **WLAN** | A wireless LAN (WLAN) is a flexible data communication system implemented as an extension to, or as an alternative for, a wired LAN within a building or campus. Using electromagnetic waves, WLANs transmit and receive data over the air, minimizing the need for wired connections. Thus, WLANs combine data connectivity with user mobility, and, through simplified configuration, enable movable LANs. |
| **WOFDM** | Same as OFDM but does not rely on cable media. It is a wireless system. See OFDM. |
| **Woofer** | Drive element in a loudspeaker responsible for reproducing the lower (and sometimes midband) portion of an audio signal, ideally operating from 1 kHz down, depending on its size. |
| **xDSL** | Similar to [ISDN](http://webopedia.internet.com/TERM/x/ISDN.html) inasmuch as both operate over existing copper telephone lines ([POTS](http://webopedia.internet.com/TERM/x/POTS.html)) and both require the short runs to a central telephone office (usually less than 20,000 feet). However, xDSL offers much higher speeds up to 32 [Mbps](http://webopedia.internet.com/TERM/x/Mbps.html) for downstream traffic, and from 32 [Kbps](http://webopedia.internet.com/TERM/x/Kbps.html) to over 1 Mbps for upstream traffic. |
| **XML (*eXtensible Markup Language)*** | A new specification being developed by the [W3C](http://webopedia.internet.com/TERM/X/W3C.html). XML is a pared-down version of [SGML](http://webopedia.internet.com/TERM/X/SGML.html), designed especially for [Web](http://webopedia.internet.com/TERM/X/World_Wide_Web.html) documents. It enables designers to create their own customized [tags](http://webopedia.internet.com/TERM/X/tag.html) to provide functionality not available with [HTML](http://webopedia.internet.com/TERM/X/HTML.html). For example, XML supports links that point to multiple documents, as opposed to HTML links, which can reference just one destination each. Whether XML eventually supplants HTML as the standard Web formatting specification depends a lot on whether it is supported by future [Web browsers](http://webopedia.internet.com/TERM/X/Web_browser.html). So far, the only major browser vendor to endorse XML is [Microsoft](http://webopedia.internet.com/TERM/X/Microsoft.html), which has stated that XML will be supported in a future version of [Internet Explorer](http://webopedia.internet.com/TERM/X/Internet_Explorer.html). |