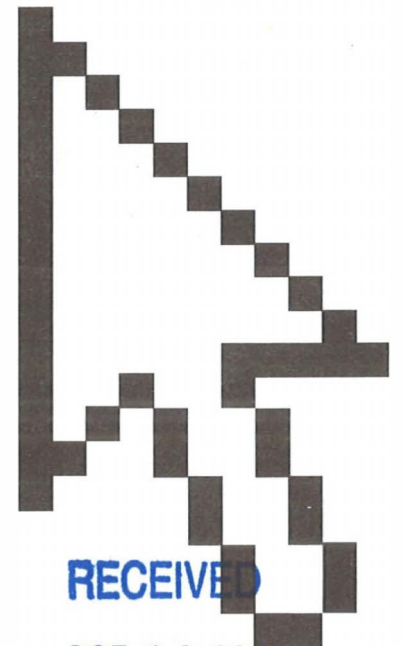


Microsoft®

Computer Dictionary

Fifth Edition



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Compressed SLIP *n.* Short for **Compressed Serial Line Internet Protocol**. A version of SLIP using compressed Internet address information, thereby making the protocol faster than SLIP. *Acronym:* CSLIP. *See also* SLIP.

compression *n.* *See* data compression.

compressor *n.* A device that limits some aspect of a transmitted signal, such as volume, in order to increase efficiency.

CompuServe *n.* An online information service that is a subsidiary of America Online. CompuServe provides information and communications capabilities, including Internet access. It is primarily known for its technical support forums for commercial hardware and software products and for being one of the first large commercial online services. CompuServe also operates various private network services.

computational intelligence *n.* The study of the design of intelligent agents whose reasoning is based on computational methods. The central scientific goal of computational intelligence is to understand the principles that make intelligent behavior possible, in natural or artificial systems. An intelligent agent is flexible to changing environments and changing goals—it learns from experience, and it makes appropriate choices given perceptual limitations and finite computation. The central engineering goal of computational intelligence is to specify methods for the design of useful, intelligent artifacts. *See also* agents (definition 2), artificial intelligence, autonomous agent.

computation-bound *adj.* Of, pertaining to, or characteristic of a situation in which the performance of a computer is limited by the number of arithmetic operations the microprocessor must perform. When a system is computation-bound, the microprocessor is overloaded with calculations. *Also called:* CPU-bound.

compute *vb.* **1.** To perform calculations. **2.** To use a computer or cause it to do work.

computer *n.* Any device capable of processing information to produce a desired result. No matter how large or small they are, computers typically perform their work in three well-defined steps: (1) accepting input, (2) processing the input according to predefined rules (programs), and (3) producing output. There are several ways to categorize computers, including class (ranging from microcomputers to supercomputers), generation (first through fifth generation), and mode of processing (analog versus digital). *See the table.* *See also* analog, digital (definition

2), integrated circuit, large-scale integration, very-large-scale integration.

Table C.1 Ways to Categorize Computers

Class	Computers can be classified as supercomputers, mainframes, superminicomputers, minicomputers, workstations, microcomputers, or PDAs. All other things (for example, the age of the machine) being equal, such a categorization provides some indication of the computer's speed, size, cost, and abilities.
Generation	First-generation computers of historic significance, such as UNIVAC, introduced in the early 1950s, were based on vacuum tubes. Second-generation computers, appearing in the early 1960s, were those in which transistors replaced vacuum tubes. Third-generation computers, dating from the 1960s, were those in which integrated circuits replaced transistors. Fourth-generation computers, appearing in the mid-1970s, are those, such as microcomputers, in which large-scale integration (LSI) enabled thousands of circuits to be incorporated on one chip. Fifth-generation computers are expected to combine very-large-scale integration (VLSI) with sophisticated approaches to computing, including artificial intelligence and true distributed processing.
Mode of processing	Computers are either analog or digital. Analog computers, generally used in scientific pursuits, represent values by continuously variable signals that can have any of an infinite number of values within a limited range at any particular time. Digital computers, the type most people think of as computers, represent values by discrete signals—the bits representing the binary digits 0 and 1.

computer-aided design *n.* *See* CAD.

computer-aided design and drafting *n.* *See* CADD.

computer-aided design/computer-aided manufacturing *n.* *See* CAD/CAM.

Microsoft DGCP service provided limited support for BOOTP service. *Acronym:* BOOTP. *Also called:* Boot Protocol. *See also* boot², DHCP, RFC, TCP/IP.

boot up *vb.* *See* boot².

border *n.* **1.** In programs and working environments that feature on-screen windows, the edge surrounding the user's workspace. Window borders provide a visible frame around a document or graphic. Depending on the program and its requirements, they can also represent an area in which the cursor or a mouse pointer takes on special characteristics. For example, clicking the mouse on a window border can enable the user to resize the window or split the window in two. **2.** In printing, a decorative line or pattern along one or more edges of a page or illustration.

Border Gateway Protocol *n.* A protocol used by NSFnet that is based on the External Gateway Protocol. *Acronym:* BGP. *See also* External Gateway Protocol, NSFnet.

boss screen *n.* A false display screen usually featuring business-related material that can be substituted for a game display when the boss walks by. Boss screens were popular with MS-DOS games, where it was difficult to switch to another application quickly. However, games designed for the Mac or Windows 9x generally don't need them because it is easy to switch to a different screen or application to hide the fact that one is playing a game.

bot *n.* **1.** Short for robot. A displayed representation of a person or other entity whose actions are based on programming. **2.** A program that performs some task on a network, especially a task that is repetitive or time consuming. **3.** On the Internet, a program that performs a repetitive or time-consuming task, such as searching Web sites and newsgroups for information and indexing them in a database or other record-keeping system (called *spiders*); automatically posting one or more articles to multiple newsgroups (often used in spamming and called *spambots*); or keeping IRC channels open. *Also called:* Internet robot. *See also* IRC, newsgroup, spam, spambot, spider.

bottom-up design *n.* A program development design methodology in which the lower-level tasks of a program are defined first; the design of the higher-level functions proceeds from the design of the lower-level ones. *See also* bottom-up programming, top-down programming. *Compare* top-down design.

bottom-up programming *n.* A programming technique in which lower-level functions are developed and tested first; higher-level functions are then built using the lower-level functions. Many program developers believe that the ideal combination is top-down design and bottom-up programming. *See also* top-down design. *Compare* object-oriented programming, top-down programming.

bounce *vb.* To return to the sender, used in reference to undeliverable e-mail.

BounceKeys *n.* A feature in Windows 9x that instructs the processor to ignore double strokes of the same key and other unintentional keystrokes.

bound¹ *adj.* Limited in performance or speed; for example, an input/output-bound system is limited by the speed of its input and output devices (keyboard, disk drives, and so on), even though the processor or program is capable of performing at a higher rate.

bound² *n.* The upper or lower limit in a permitted range of values.

bounding box *n.* *See* graphic limits.

Bourne shell *n.* The first major shell, or command interpreter, for UNIX and part of the AT&T System V release. The Bourne shell scripting language, developed at AT&T Bell Laboratories by Steve Bourne in 1979, was one of the original command languages for the UNIX operating system. While the Bourne shell lacks some features common in other UNIX shells, such as command-line editing and recall of previously issued commands, it is the one that the majority of shell scripts adhere to. *Also called:* sh. *See also* shell¹, shell script, System V, UNIX. *Compare* C shell, Korn shell.

boutique reseller *n.* A type of VAR (value-added reseller) that specializes in providing customized software, hardware, and services to vertical, or niche, markets. In the VAR environment, boutique resellers are distinguished from master resellers, or systems integrators, which offer a much wider variety of products and services. *See also* value-added reseller.

box *n.* **1.** Container for a piece of electronic equipment. **2.** Slang term for a computer; more specifically the unit holding the central processing unit, or CPU, and other "guts" of the system, as in "bet that new high-performance box really screams." *See also* central processing unit.

Boolean operator *n.* An operator designed to work with Boolean values. The four most common Boolean operators in programming use are AND (logical conjunction), OR (logical inclusion), XOR (exclusive OR), and NOT (logical negation). Boolean operators are often used as qualifiers in database searches—for example, *find all records where DEPARTMENT = "marketing" OR DEPARTMENT = "sales" AND SKILL = "word processing"*. Also called: logical operator. See also AND, exclusive OR, NOT, OR.

Boolean search *n.* A database search that uses Boolean operators. See also Boolean operator.

boost *vb.* To strengthen a network signal before it is transmitted further.

boot¹ *n.* The process of starting or resetting a computer. When first turned on (*cold boot*) or reset (*warm boot*), the computer executes the software that loads and starts the computer's more complicated operating system and prepares it for use. Thus, the computer can be said to pull itself up by its own bootstraps. Also called: bootstrap. See also BIOS, bootstrap loader, cold boot, warm boot.

boot² *vb.* **1.** To start or reset a computer by turning the power on, by pressing a reset button on the computer case, or by issuing a software command to restart. Also called: bootstrap, boot up. See also reboot. **2.** To execute the bootstrap loader program. Also called: bootstrap. See also bootstrap loader.

bootable *adj.* Containing the system files necessary for booting a PC and running it. See also boot².

bootable disk *n.* See boot disk.

boot block *n.* A portion of a disk that contains the operating-system loader and other basic information that enables a computer to start up. See also block¹ (definition 5).

boot disk *n.* A floppy disk that contains key system files from a PC-compatible operating system and that can boot, or start, the PC. A boot disk must be inserted in the primary floppy disk drive (usually drive A:) and is used when there is some problem with starting the PC from the hard disk, from which the computer generally boots. Also called: bootable disk. See also A:, boot², boot drive, hard disk.

boot drive *n.* In a PC-compatible computer, the disk drive that the BIOS uses to automatically load the operating system when the computer is turned on. Generally, the default boot drive is the primary floppy disk drive A: in PC-compatible computers with MS-DOS, Windows 3x, or Windows 9x operating systems. If a floppy disk is not found in that drive, the BIOS will check the primary hard disk next, which is drive C:. The BIOS for these operating systems can be reconfigured to search drive C: first by using the BIOS setup program. See also A:, BIOS, disk drive, hard disk.

boot failure *n.* The inability of a computer to locate or activate the operating system and thus boot, or start, the computer. See also boot².

boot files *n.* The system files needed to start Microsoft Windows. The boot files include Ntldr and Ntdetect.com. See also partition boot sector.

boot loader *n.* See bootstrap loader.

BOOTP *n.* See Bootstrap Protocol.

boot partition *n.* The partition on a hard disk that contains the operating system and support files that the system loads into memory when the computer is turned on or restarted.

boot record *n.* The section of a disk that contains the operating system.

boot sector *n.* The portion of a disk reserved for the bootstrap loader (the self-starting portion) of an operating system. The boot sector typically contains a short machine language program that loads the operating system.

bootstrap¹ *n.* See boot¹.

bootstrap² *vb.* See boot².

bootstrap loader *n.* A program that is automatically run when a computer is switched on (booted). After first performing a few basic hardware tests, the bootstrap loader loads and passes control to a larger loader program, which typically then loads the operating system. The bootstrap loader typically resides in the computer's read-only memory (ROM).

Bootstrap Protocol *n.* A protocol used primarily on TCP/IP networks to configure diskless workstations. RFCs 951 and 1542 define this protocol. DHCP is a later boot configuration protocol that uses this protocol. The

fixed-word-length computer *n.* A description that applies to almost all computers and refers to the uniform size of the data units, or words, that are processed by the microprocessor and shuttled through the system over the hardware lines composing the main data bus. Fixed-word-length computers, including IBM and Macintosh personal computers, commonly work with 2 or 4 bytes at a time.

F keys *n.* See function key.

flag *n.* **1.** Broadly, a marker of some type used by a computer in processing or interpreting information; a signal indicating the existence or status of a particular condition. Flags are used in such areas as communications, programming, and information processing. Depending on its use, a flag can be a code, embedded in data, that identifies some condition, or it can be one or more bits set internally by hardware or software to indicate an event of some type, such as an error or the result of comparing two values. **2.** In the HDLC communications protocol, a flag is the unique series of bits 01111110, used to start and end a transmission frame (message unit). See also HDLC.

flame¹ *n.* An abusive or personally insulting e-mail message or newsgroup posting.

flame² *vb.* **1.** To send an abusive or personally insulting e-mail message or newsgroup posting. **2.** To criticize personally by means of e-mail messages or newsgroup postings.

flame bait *n.* A posting to a mailing list, newsgroup, or other online conference that is likely to provoke flames, often because it expresses a controversial opinion on a highly emotional topic. See also flame¹, flame war. Compare troll.

flamefest *n.* A series of inflammatory messages or articles in a newsgroup or other online conference.

flamer *n.* A person who sends or posts abusive messages via e-mail, in newsgroups and other online forums, and in online chats. See also chat¹ (definition 1), newsgroup.

flame war *n.* A discussion in a mailing list, newsgroup, or other online conference that has turned into a protracted exchange of flames. See also flame¹.

Flash *n.* A vector graphics file format (extension .swf) developed by Macromedia to enable designers to add animation and interactivity to multimedia Web pages. Flash files can be played back with a downloadable Shockwave plug-in or a Java program. The file format has been released by Macromedia as an open standard for the Internet.

flash *vb.* See burn.

flash memory *n.* A type of nonvolatile memory. Flash memory is similar to EEPROM memory in function but it must be erased in blocks, whereas EEPROM can be erased one byte at a time. Because of its block-oriented nature, flash memory is commonly used as a supplement to or replacement for hard disks in portable computers. In this context, flash memory either is built into the unit or, more commonly, is available as a PC Card that can be plugged into a PCMCIA slot. A disadvantage of the block-oriented nature of flash memory is that it cannot be practically used as main memory (RAM) because a computer needs to be able to write to memory in single-byte increments. See also EEPROM, nonvolatile memory, PC Card, PCMCIA slot.

flash ROM *n.* See flash memory.

flat address space *n.* An address space in which each location in memory is specified by a unique number. (Memory addresses start at 0 and increase sequentially by 1.) The Macintosh operating system, OS/2, and Windows NT use a flat address space. MS-DOS uses a segmented address space, in which a location must be accessed with a segment number and an offset number. See also segmentation. Compare segmented address space.

flatbed plotter *n.* A plotter in which paper is held on a flat platform and a pen moves along both axes, traveling across the paper to draw an image. This method is slightly more accurate than that used by drum plotters, which move the paper under the pen, but requires more space. Flatbed plotters can also accept a wider variety of media, such as vellum and acetate, because the material does not need to be flexible. See also plotter. Compare drum plotter, pinch-roller plotter.

flatbed scanner *n.* A scanner with a flat, transparent surface that holds the image to be scanned, generally a book or other paper document. A scan head below the surface moves across the image. Some flatbed scanners can also reproduce transparent media, such as slides. See the illustration. Compare drum scanner, handheld scanner, sheet-fed scanner.

edit key *n.* In a software application, a predefined key or combination of keys that, when pressed, causes the application to enter edit mode.

edit mode *n.* The mode of a program in which a user can make changes to a document, as by inserting or deleting data or text. *Compare* command mode.

editor *n.* A program that creates files or makes changes to existing files. An editor is usually less powerful than a word processor, lacking the latter's capability for text formatting, such as use of italics. Text or full-screen editors allow the user to move through the document using direction arrows. In contrast, line editors require the user to indicate the line number on which text is to be edited. *See also* Edlin.

Edlin *n.* An outdated line-by-line text editor used in MS-DOS through version 5. Its OS/2 counterpart is SSE. *See also* editor.

EDMS *n.* Acronym for electronic document management system. *See* document management system.

EDO DRAM *n.* Acronym for extended data out dynamic random access memory. A type of memory that allows for faster read times than DRAM of comparable speed by allowing a new read cycle to begin while data is being read from a previous cycle. This allows for faster overall system performance. *Compare* dynamic RAM, EDO RAM.

EDO RAM *n.* Acronym for extended data out random access memory. A type of dynamic RAM that keeps data available for the CPU while the next memory access is being initialized, resulting in increased speed. Pentium-class computers using Intel's Triton chip set are designed to take advantage of EDO RAM. *See also* central processing unit, dynamic RAM. *Compare* EDO DRAM.

EDP *n.* **1.** Acronym for electronic data processing. *See* data processing. **2.** Acronym for Enhanced Capabilities Port. A protocol, developed by Microsoft and Hewlett Packard, for bidirectional, high-speed communication between a computer and a printer or scanner. ECP is part of the IEEE 1284 standard, which specifies enhanced parallel ports that are compatible with the older, de facto standard Centronics parallel ports. *See also* EPP, IEEE 1284.

.edu *n.* In the Internet's Domain Name System, the top-level domain that identifies addresses operated by four-year, degreed educational institutions. The domain name .edu appears as a suffix at the end of the address. In the United States, schools that offer kindergarten through

high school classes use the top-level domain of .k12.us or just .us. *See also* DNS (definition 1), domain (definition 3), .k12.us, .us. *Compare* .com, .gov, .mil, .net, .org.

edutainment *n.* Multimedia content in software, on CD-ROM, or on a Web site that purports to educate the user as well as entertain. *See also* multimedia.

EEMS *n.* Acronym for Enhanced Expanded Memory Specification. A superset of the original Expanded Memory Specification (EMS). Version 3.0 of EMS allowed only storage of data and supported 4-page frames. EEMS allowed up to 64 pages along with executable code to be stored in expanded memory. The features of EEMS were included in EMS version 4.0. *See also* EMS, page frame.

EEPROM *n.* Acronym for electrically erasable programmable read-only memory. A type of EPROM that can be erased with an electrical signal. It is useful for stable storage for long periods without electricity while still allowing reprogramming. EEPROMs contain less memory than RAM, take longer to reprogram, and can be reprogrammed only a limited number of times before wearing out. *See also* EPROM, ROM.

EFF *n.* *See* Electronic Frontier Foundation.

e-form *n.* Short for electronic form. An online document that contains blank spaces for a user to fill in with requested information and that can be submitted through a network to the organization requesting the information. On the Web, e-forms are often coded in CGI script and secured via encryption. *See also* CGI (definition 1).

EGA *n.* Acronym for Enhanced Graphics Adapter. An IBM video display standard introduced in 1984. It emulates the Color/Graphics Adapter (CGA) and the Monochrome Display Adapter (MDA) and provides medium-resolution text and graphics. It was superseded by Video Graphics Display (VGA).

ego-surfing *n.* The practice of using a Web search engine to search for one's own name on the Internet.

EGP *n.* *See* exterior gateway protocol.

e-home *n.* *See* smart home.

EIA *n.* Acronym for Electronic Industries Association. An association based in Washington, D.C., with members from various electronics manufacturers. It sets standards for electronic components. RS-232-C, for example, is the EIA standard for connecting serial components. *See also* RS-232-C standard.

noise *n.* **1.** Any interference that affects the operation of a device. **2.** Unwanted electrical signals, produced either naturally or by the circuitry, that distort or degrade the quality or performance of a communications channel. *See also* distortion.

nonbreaking space *n.* A character that replaces the standard space character in order to keep two words together on one line rather than allowing a line to break between them.

noncompetes *n.* An agreement between employer and employee that states that the employee will not accept work with a competing company for a specified length of time after leaving the employer's company. Noncompete agreements are common in high-tech companies and are typically requested to help maintain company secrets and retain valuable employees.

nonconductor *n.* *See* insulator.

noncontiguous data structure *n.* In programming, a data structure whose elements are not stored contiguously in memory. Data structures such as graphs and trees, whose elements are connected by pointers, are noncontiguous data structures. *Compare* contiguous data structure.

nondedicated server *n.* A computer on a network that can function as both a client and a server; typically, a desktop machine on a peer-to-peer network. *Compare* dedicated server.

nondestructive readout *n.* A reading operation that does not destroy the data read, either because the storage technology is capable of retaining the data or because the reading operation is accompanied by a data refresh (update) function. *Acronym:* NDR, NDRO. *Compare* destructive read.

nonexecutable statement *n.* **1.** A program statement that cannot be executed because it lies outside the flow of execution through the program. For example, a statement immediately following a *return()* statement but before the end of the block in C is nonexecutable. **2.** A type definition, variable declaration, preprocessor command, comment, or other statement in a program that is not translated into executable machine code.

nonimpact printer *n.* Any printer that makes marks on the paper without striking it mechanically. The most common types are ink-jet, thermal, and laser printers. *See also* ink-jet printer, laser printer, thermal printer. *Compare* impact printer.

noninterlaced *adj.* Pertaining to a display method on raster-scan monitors in which the electron beam scans each line of the screen once during each refresh cycle. *Compare* interlaced.

nonmaskable interrupt *n.* A hardware interrupt that bypasses and takes priority over interrupt requests generated by software and by the keyboard and other such devices. A nonmaskable interrupt cannot be overruled (masked) by another service request and is issued to the microprocessor only in disastrous circumstances, such as severe memory errors or impending power failures. *Acronym:* NMI. *Compare* maskable interrupt.

nonprocedural language *n.* A programming language that does not follow the procedural paradigm of executing statements, subroutine calls, and control structures sequentially but instead describes a set of facts and relationships and then is queried for specific results. *Compare* procedural language.

nonreturn to zero *n.* **1.** In data transmission, a method of encoding data in which the signal representing binary digits alternates between positive and negative voltage when there is a change in digits from 1 to 0 or vice versa. In other words, the signal does not return to a zero, or neutral, level after transmission of each bit. Timing is used to distinguish one bit from the next. **2.** In the recording of data on a magnetic surface, a method in which one magnetic state represents a 1 and, usually, the opposite state represents a 0. *Acronym:* NRZ.

nontrivial *adj.* Being either difficult or particularly meaningful. For example, a complicated programmed procedure to handle a difficult problem would represent a nontrivial solution.

Non-Uniform Memory Access *n.* *See* NUMA.

nonuniform memory architecture *n.* A system architecture designed for Sequent's Non-Uniform Access Memory, a type of distributed shared memory using a number of shared memory segments instead of a single centralized physical memory. *Acronym:* NUMA.

nonvolatile memory *n.* A storage system that does not lose data when power is removed from it. Intended to refer to core memory, ROM, EPROM, flash memory, bubble memory, or battery-backed CMOS RAM, the term is occasionally used in reference to disk subsystems as well. *See also* bubble memory, CMOS RAM, core, EPROM, flash memory, ROM.

NO-OP *n.* *See* no-operation instruction.

N

circumstances. Patching is a common means of adding a feature or a function to a program until the next version of the software is released. *Compare* hack (definition 2), kludge (definition 2).

path *n.* **1.** In communications, a link between two nodes in a network. **2.** A route through a structured collection of information, as in a database, a program, or files stored on disk. **3.** In programming, the sequence of instructions a computer carries out in executing a routine. **4.** In information processing, such as the theory underlying expert (deductive) systems, a logical course through the branches of a tree of inferences leading to a conclusion. **5.** In file storage, the route followed by the operating system through the directories in finding, sorting, and retrieving files on a disk. **6.** In graphics, an accumulation of line segments or curves to be filled or drawn.

path menu *n.* In windowed environments, the menu or drop box used to enter the universal naming convention path to a shared network resource.

pathname *n.* In a hierarchical filing system, a listing of the directories or folders that lead from the current directory to a file. *Also called:* directory path.

pattern recognition *n.* **1.** A broad technology describing the ability of a computer to identify patterns. The term usually refers to computer recognition of visual images or sound patterns that have been converted to arrays of numbers. **2.** The recognition of purely mathematical or textual patterns.

Pause key *n.* **1.** A key on a keyboard that temporarily stops the operation of a program or a command. The Pause key is used, for example, to halt scrolling so that a multi-screen listing or document can be read. **2.** Any key that creates a pause in an operation. For example, many game programs have a Pause key, often simply the P key, that temporarily suspends the game.

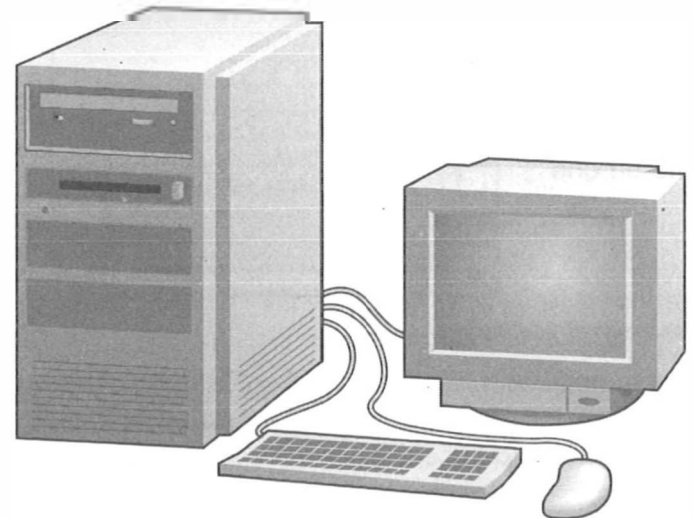
payload *n.* The effects caused by a virus or other malicious code. The payload of a virus may include moving, altering, overwriting, and deleting files, or other destructive activity. A virus or worm may contain more than one payload, each with a separate trigger.

PB *n.* *See* petabyte.

PB SRAM *n.* *See* pipeline burst static RAM.

PBX *n.* Acronym for **Private Branch Exchange**. An automatic telephone switching system that enables users within an organization to place calls to each other without going through the public telephone network. Users can also place calls to outside numbers.

PC *n.* **1.** A microcomputer that conforms to the standard developed by IBM for personal computers, which uses a microprocessor in the Intel 80x86 family (or compatible) and can execute the BIOS. *See* the illustration. *See also* 8086, BIOS, clone, IBM PC. **2.** A computer in IBM's Personal Computer line. *Also called:* IBM PC. *See also* PC-compatible (definition 1), personal computer.



PC.

PCB *n.* *See* printed circuit board.

PC board *n.* *See* printed circuit board.

PC Card *n.* An add-in card that conforms to the PCMCIA specification. A PC Card is a removable device, approximately the same size as a credit card, that is designed to plug into a PCMCIA slot. Release 1 of the PCMCIA specification, introduced in June 1990, specified a Type I card that is 3.3 millimeters thick and is intended to be used primarily as a memory-related peripheral. Release 2 of the PCMCIA specification, introduced in September 1991, specifies both a 5-millimeter-thick Type II card and a 10.5-millimeter-thick Type III card. Type II cards accommodate devices such as modem, fax, and network cards. Type III cards accommodate devices that require more space, such as wireless communications devices and rotating storage media (such as hard disk*). *See also* PCMCIA, PCMCIA slot.

PC Card slot *n.* See PCMCIA slot.

PC-compatible *adj.* Conforming to IBM PC/XT and PC/AT hardware and software specifications, which have been the de facto standard in the computing industry for personal computers that use the Intel 80x86 family or compatible chips. Most PC-compatible computers today are developed outside of IBM; they are still sometimes referred to as clones. *Also called:* IBM PC. *See also* 8086, clone, de facto standard, IBM AT, Wintel.

PC-DOS *n.* Acronym for **P**ersonal **C**omputer **D**isk **O**perating **S**ystem. The version of MS-DOS sold by IBM. MS-DOS and PC-DOS are virtually identical, although filenames of utility programs sometimes differ in the two versions. *See also* MS-DOS.

PC Expo *n.* Annual exposition centering on issues relating to the personal computer industry. PC Expo encompasses product exhibitions and educational events covering a wide range of topics affecting personal computing.

P-channel MOS *n.* See PMOS.

PCI *n.* See PCI local bus.

PCI card *n.* Short for **P**eripheral **C**omponent **I**nterconnect **c**ard. A card that fits into a PCI local bus to add functionality to a PC. Examples of the types of PCI cards available include TV tuner cards, video adapters, and network interface cards. *See also* card, PCI local bus.

PCI expansion slot *n.* A connection socket for a peripheral designed for the Peripheral Component Interconnect (PCI) local bus on a computer motherboard.

PCI Industrial Computer Manufacturers Group *n.* See PICMG.

PCI local bus *n.* Short for **P**eripheral **C**omponent **I**nterconnect **l**ocal **b**us. A specification introduced by Intel Corporation that defines a local bus system that allows up to 10 PCI-compliant expansion cards to be installed in the computer. A PCI local bus system requires the presence of a PCI controller card, which must be installed in one of the PCI-compliant slots. Optionally, an expansion bus controller for the system's ISA, EISA, or Micro Channel Architecture slots can be installed as well, providing increased synchronization over all the system's bus-installed resources. The PCI controller can exchange data with the system's CPU

either 32 bits or 64 bits at a time, depending on the implementation, and it allows intelligent, PCI-compliant adapters to perform tasks concurrently with the CPU using a technique called bus mastering. The PCI specification allows for multiplexing, a technique that permits more than one electrical signal to be present on the bus at one time. *See also* local bus. *Compare* VL bus.

PCIX *n.* **1.** Acronym for **P**eripheral **C**omponent **I**nterconnect **E**xtended. A computer bus technology developed by IBM, Compaq, and Hewlett-Packard that allows data to be transferred at greater speeds. PCIX increases the speed of data from 66 MHz to 133 MHz, but it will not run faster than the connected peripherals or computer processor will allow. PCI and PCIX peripherals are compatible with one another. *Also called:* PCI-X. **2.** Acronym for **P**ermission-based **C**ustomer **I**nformation **E**xchange. A framework for the organization and exchange of information between customer and vendor. PCIX allows different companies to map information into a customer-friendly, permission-based format without changing internal database structures.

PCL *n.* See Printer Control Language.

PCM *n.* See pulse code modulation.

PCMCIA *n.* Acronym for **P**ersonal **C**omputer **M**emory **C**ard **I**nternational **A**ssociation. A group of manufacturers and vendors formed to promote a common standard for PC Card-based peripherals and the slot designed to hold them, primarily on laptop, palmtop, and other portable computers, as well as for intelligent electronic devices. PCMCIA is also the name of the standard for PC Cards, first introduced in 1990 as release 1. *See also* PC Card, PCMCIA slot.

PCMCIA card *n.* See PC Card.

PCMCIA connector *n.* The 68-pin female connector inside a PCMCIA slot designed to hold the 68-pin male connector on a PC Card. *See also* PC Card, PCMCIA slot.

PCMCIA slot *n.* An opening in the housing of a computer, peripheral, or other intelligent electronic device designed to hold a PC Card. *Also called:* PC Card slot. *See also* PC Card, PCMCIA connector.

PC memory card *n.* **1.** An add-in circuit card that increases the amount of RAM in a system. *See also* memory card. **2.** A Type I PC Card as specified by PCMCIA. In

read¹ *n.* The action of transferring data from an input source into a computer's memory or from memory into the CPU (central processing unit). *Compare* write¹.

read² *vb.* To transfer data from an external source, such as from a disk or the keyboard, into memory or from memory into the central processing unit (CPU). *Compare* write².

read-after-write *n.* A feature of certain data storage devices, such as tape drives, in which the device reads data immediately after it is written as a means of verifying data integrity.

reader *n.* *See* card reader.

Reader *n.* *See* Microsoft Reader.

read error *n.* An error encountered while a computer is in the process of obtaining information from storage or from another source of input. *Compare* write error.

README *n.* A file containing information that the user either needs or will find informative and that might not have been included in the documentation. README files are placed on disk in plain-text form (without extraneous or program-specific characters) so that they can be read easily by a variety of word processing programs.

read notification *n.* An e-mail feature providing feedback to the sender that a message has been read by the recipient.

read-only *adj.* Capable of being retrieved (read) but not changed (written). A read-only file or document can be displayed or printed but not altered in any way. Read-only memory (ROM) holds programs that cannot be changed; a read-only storage medium, such as CD-ROM, can be played back but cannot be used for recording information. *Compare* read/write.

read-only attribute *n.* A file attribute, stored with a file's directory entry, indicating whether or not a file may be changed or erased. When the read-only attribute is off, the file can be modified or deleted; when it is on, the file can only be displayed.

read-only memory *n.* *See* ROM.

read-only terminal *n.* *See* RO terminal.

read/write *adj.* Able to be both read from and written to. *Abbreviation:* R/W. *Compare* read-only.

read/write channel *n.* *See* input/output channel.

read/write head *n.* *See* head.

read/write memory *n.* Memory that can be both read from and written to (modified). Semiconductor RAM and core memory are typical read/write memory systems. *Compare* ROM (definition 2).

real address *n.* An absolute (machine) address specifying a physical location in memory. *See also* physical address. *Compare* relative address, virtual address.

RealAudio *n.* Streaming audio technology developed by RealNetworks, Inc., for distributing radio and FM-quality sound files over the Internet in real time. RealAudio is based on two components: client software for decompressing the sound on the fly and server software for delivering it. The client software is free, distributed either as a downloadable program or as part of browser software. *See also* RealPlayer, RealVideo, stream, streaming.

realloc *n.* A function in C that allows the programmer to request a larger portion of heap memory than was previously assigned to a particular pointer. *See also* dynamic memory allocation, heap (definition 1).

reallysafe palette *n.* A color look-up table (CLUT) consisting of 22 colors from the 216-color websafe palette that are completely consistent when viewed with all Web browsers on all major computer platforms. The reallysafe palette arose from an experiment that indicated that most of the colors of the websafe palette shift to some degree in different viewing environments. *See also* browser CLUT, websafe palette.

real mode *n.* An operating mode in the Intel 80x86 family of microprocessors. In real mode, the processor can execute only one program at a time. It can access no more than about 1 MB of memory, but it can freely access system memory and input/output devices. Real mode is the only mode possible in the 8086 processor and is the only operating mode supported by MS-DOS. In contrast, the protected mode offered in the 80286 and higher microprocessors provides the memory management and memory protection needed for multitasking environments such as Windows. *See also* 8086, privileged mode. *Compare* protected mode, virtual real mode.



rlogin¹ *n.* **1.** A protocol used to log in to a networked computer in which the local system automatically supplies the user's login name. *See also* communications protocol, logon. *Compare* telnet¹. **2.** A UNIX command in BSD UNIX that enables a user to log in to a remote computer on a network using the rlogin protocol. *See also* BSD UNIX.

rlogin² *vb.* To connect to a networked computer using the rlogin protocol.

RLSD *n.* Acronym for **R**eceived **L**ine **S**ignal **D**etect. *See* DCD.

RMI-IIOP *n.* Acronym for **R**emote **M**ethod **I**nvocation over **I**nternet **I**nter-**O**RB **P**rotocol. A subsystem of the Java 2 Platform, Enterprise Edition (J2EE). It provides the ability to write CORBA applications for the Java platform without learning the CORBA Interface Definition Language (IDL). RMI-IIOP includes the full functionality of a CORBA Object Request Broker and allows the programming of CORBA servers and applications via the RMI application programming interface (API). RMI-IIOP is useful for developers using Enterprise Java Beans (EJBs), since the remote object model for an EJB is RMI-based. *Also called:* RMI over IIOP. *See also* CORBA, Enterprise JavaBeans, J2EE.

RMM *n.* *See* real-mode mapper.

RMON *n.* Acronym for **r**emote **m**onitoring or **r**emote **n**etwork **m**onitoring. A protocol that enables network information to be monitored and analyzed at a central site. The nine management information bases (MIBs) defined by RMON provide statistics about network traffic. *See also* MIB. *Compare* SNMP.

roaming user profile *n.* A server-based user profile that is downloaded to the local computer when a user logs on; it is updated both locally and on the server when the user logs off. A roaming user profile is available from the server when logging on to a workstation or server computer. When logging on, the user can use the local user profile if it is more current than the copy on the server. *See also* local user profile, mandatory user profile, user profile.

robopost *vb.* To post articles to newsgroups automatically, usually by means of a bot. *See also* bot (definition 3), newsgroup, post.

robot *n.* **1.** A machine that can sense and react to input and cause changes in its surroundings with some degree of intelligence, ideally without human supervision. Although robots are often designed to mimic human movements in

carrying out their work, they are seldom humanlike in appearance. Robots are commonly used in manufacturing products such as automobiles and computers. *See also* robotics. **2.** *See* bot, spider.

robotics *n.* The branch of engineering devoted to the creation and training of robots. Roboticists work within a wide range of fields, such as mechanical and electronic engineering, cybernetics, bionics, and artificial intelligence, all toward the end of endowing their creations with as much sensory awareness, physical dexterity, independence, and flexibility as possible. *See also* artificial intelligence, bionics, cybernetics.

robust *adj.* Able to function or to continue functioning well in unexpected situations.

ROFL *n.* Acronym for **r**olling on the floor, **l**aughing. An expression, used mostly in newsgroups and online conferences, to indicate one's appreciation of a joke or other humorous circumstance. *Also called:* ROTFL.

role-playing game *n.* A game that is played on line, such as MUD, in which participants take on the identities of characters who interact with each other. These games often have a fantasy or science fiction setting and a set of rules that all players need to follow. Role-playing games may be similar to adventure games in terms of story line, but also feature management and decision making for the character assumed during the course of the game. *Acronym:* RPG. *See also* MUD. *Compare* adventure game.

rollback *n.* **1.** A return to a previous stable condition, as when the contents of a hard disk are restored from a backup after a destructive hard disk error. **2.** The point in an online transaction when all updates to any databases involved in the transaction are reversed.

rollover *n.* *See* Year 2000 rollover.

ROM *n.* **1.** Acronym for **r**ead-**o**nly **m**emory. A semiconductor circuit into which code or data is permanently installed by the manufacturing process. The use of this technology is economically viable only if the chips are produced in large quantities; experimental designs or small volumes are best handled using PROM or EPROM.

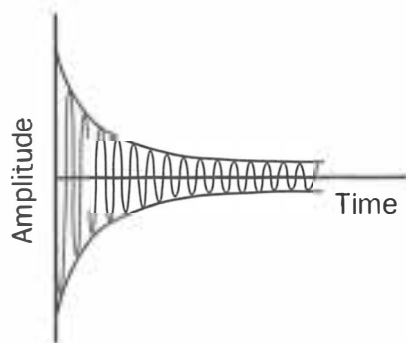
2. Acronym for **r**ead-**o**nly **m**emory. Any semiconductor circuit serving as a memory that contains instructions or data that can be read but not modified (whether placed there by manufacturing or by a programming process, as in PROM and EPROM). *See also* EEPROM, EPROM, PROM.

entry *n.* **1.** A unit of information treated as a whole by a computer program. **2.** The process of inputting information.

entry point *n.* A place in a program where execution can begin.

enumerated data type *n.* A data type consisting of a sequence of named values given in a particular order.

envelope *n.* **1.** In communications, a single unit of information that is grouped with other items, such as error-checking bits. **2.** The shape of a sound wave, caused by changes in amplitude. See the illustration.



Envelope.

envelope delay *n.* In communications, the difference in travel times of different frequencies in a signal. If the frequencies reach their destination at different times, signal distortion and errors can result. *Also called:* delay distortion.

environment *n.* **1.** The configuration of resources available to the user. *Environment* refers to the hardware and the operating system running on it. For example, Windows and Macintosh are called windowing environments because they are based on screen regions called windows. **2.** In microcomputing, *environment* refers to a definition of the specifications, such as command path, that a program operates in.

EOF *n.* See end-of-file (definition 1).

EOL *n.* Acronym for end of line. A control (nonprinting) character that signals the end of a data line in a data file.

EOT *n.* See end-of-transmission.

EPIC *n.* **1.** Short for Explicitly Parallel Instruction Computing. A technology developed jointly by Intel and Hewlett-Packard as the foundation of the 64-bit instruction set architecture incorporated in IA-64, the basis of the Merced chip. EPIC technology is designed to enable IA-64 processors to execute instructions efficiently and extremely quickly. Core elements include explicit parallelism based on software identification of instructions that the processor

can execute concurrently; improved execution of branch paths; and earlier loads from memory. *See also* IA-64, Merced. **2.** Short for Electronic Privacy Information Center. A public-interest research center based in Washington, D.C., dedicated to directing public attention toward civil liberties and online privacy related to electronic communication, cryptography, and related technologies.

epitaxial layer *n.* In semiconductors, a layer that has the same crystal orientation as the underlying layer.

EPP *n.* Acronym for Enhanced Parallel Port, a high-speed port for peripheral devices other than printers and scanners—that is, for devices such as external drives. Specified in the IEEE 1284 standard, EPP describes bidirectional parallel ports that provide data throughput of 1 Mbps or more, as opposed to the 100 Kbps to 300 Kbps typical of the older, de facto standard Centronics ports. *See also* IEEE 1284, input/output port. *Compare* ECP.

EPP IEEE standard *n.* An IEEE standard relating to the Enhanced Parallel Port (EPP) protocol. This protocol was originally developed by Intel, Xircom, and Zenith Data Systems as a means to provide a high-performance parallel port link that would still be compatible with the standard parallel port. This protocol capability was implemented by Intel in the 386SL chip set (82360 I/O chip), prior to the establishment of the IEEE 1284 committee and the associated standards work. The EPP protocol offered many advantages to parallel port peripheral manufacturers and was quickly adopted by many as an optional data transfer method. A loose association of about 80 interested manufacturers was formed to develop and promote the EPP protocol. This association became the EPP Committee and was instrumental in helping to get this protocol adopted as one of the IEEE 1284 advanced modes. *See also* communications protocol, IEEE 1284, parallel port.

EPROM *n.* Acronym for erasable programmable read-only memory. A nonvolatile memory chip that is programmed after it is manufactured. EPROMs can be reprogrammed by removing the protective cover from the top of the chip and exposing the chip to ultraviolet light. Though EPROMs are more expensive than PROM chips, they can be more cost-effective if many changes are required. *Also called:* reprogrammable read-only memory (RPM). *See also* EEPROM, PROM, ROM.

.eps *n.* The file extension that identifies Encapsulated PostScript files. *See also* EPS.

programming requires a similarly logical approach to designing, writing (coding), testing, and debugging a program. Low-level languages, such as assembly language, also require familiarity with the capabilities of a microprocessor and the basic instructions built into it. In the modular approach advocated by many programmers, a project is broken into smaller, more manageable modules—stand-alone functional units that can be designed, written, tested, and debugged separately before being incorporated into the larger program. *See also* algorithm, kludge (definition 2), modular design, object-oriented programming, spaghetti code, structured programming.

programming language *n.* Any artificial language that can be used to define a sequence of instructions that can ultimately be processed and executed by the computer. Defining what is or is not a programming language can be tricky, but general usage implies that the translation process—from the source code expressed using the programming language to the machine code that the computer needs to work with—be automated by means of another program, such as a compiler. Thus, English and other natural languages are ruled out, although some subsets of English are used and understood by some fourth-generation languages. *See also* 4GL, compiler (definition 2), natural language, program.

Programming Language I *n.* *See* PL/I.

program specification *n.* In software development, a statement of the goals and requirements of a project, as well as the relation of the project to other projects.

program state *n.* The condition of a program (stack contents, memory contents, instruction being executed) at a given moment.

program statement *n.* The statement defining the name, briefly describing the operation, and possibly giving other information about a program. Some languages, such as Pascal, have an explicit program statement; others do not, or they use other forms (such as the `main( )` function in C).

progressive JPEG *n.* An enhancement to the JPEG graphics file format that gradually displays a photo-realistic picture in a Web browser, showing increasingly detailed versions of the picture until the entire file has finished downloading.

progressive scanning *n.* 1. A display technique used on computer monitors in which the image is created, line by line, in a single top-to-bottom sweep of the electron gun.

The resulting image is of higher quality than is possible with the interlace scanning used for television sets. Progressive scanning might be used on next-generation digital television equipment. It does, however, require twice the signal bandwidth of interlace scanning. *Compare* interlace scanning. 2. A line-by-line (rather than every-other-line) technique used with some video cameras to capture images of moving objects. Such cameras are used primarily for tasks such as monitoring assembly lines and traffic flow.

project *n.* An operator in the relational algebra used in database management. Given relation (table) A, the *project* operator builds a new relation containing only a specified set of attributes (columns) of A.

Project 802 *n.* The IEEE project to define networking standards that resulted in the 802.x specifications. *See also* IEEE, IEEE 802.x.

Project Gutenberg *n.* A project that makes the texts of books that are in the public domain available over the Internet. The files for the books are in plain ASCII, to make them accessible to as many people as possible. Project Gutenberg, based at the University of Illinois at Urbana-Champaign, can be reached at mrcnext.cso.uiuc.edu via FTP or through the Web page <http://www.promo.net/pg/>. *See also* ASCII.

projection-join normal form *n.* *See* normal form (definition 1).

project life cycle *n.* A sequence of preplanned stages for taking a project from beginning to end.

project management *n.* The process of planning, monitoring, and controlling the course and development of a particular undertaking.

Prolog *n.* Short for **Programming in Logic**. A language designed for logic programming. Prolog evolved during the 1970s in Europe (primarily France and Scotland), and the first Prolog compiler was developed in 1972 by Philippe Roussel, at the University of Marseilles. The language has subsequently attained wide use in the field of artificial intelligence. Prolog is a compiled language that works with the logical relationship between pieces of data rather than mathematical relationships. *See also* artificial intelligence.

PROM *n.* Acronym for **programmable read-only memory**. A type of read-only memory (ROM) that allows data to be written into the device with hardware called a PROM programmer. After a PROM has been programmed, it is

dedicated to that data, and it cannot be reprogrammed. *See also* EEPROM, EPROM, ROM (definition 2).

PROM blaster *n.* *See* PROM programmer.

PROM blower *n.* *See* PROM programmer.

promiscuous-mode transfer *n.* In network communications, a transfer of data in which a node accepts all packets regardless of their destination address.

PROM programmer *n.* A hardware device that records instructions or data on a PROM (programmable read-only memory) chip or an EPROM (erasable programmable read-only memory) chip. *Also called:* PROM blaster, PROM blower. *See also* EPROM, PROM.

prompt *n.* **1.** In command-driven systems, one or more symbols that indicate where users are to enter commands. For instance, in MS-DOS, the prompt is generally a drive letter followed by a greater than symbol (C>). In UNIX, it is usually %. *See also* command-driven system, DOS prompt. **2.** Displayed text indicating that a computer program is waiting for input from the user.

propagated error *n.* An error used as input to another operation, thus producing another error.

propagation *n.* Travel of a signal, such as an Internet packet, from its source to one or more destinations. Propagation of messages over different paths with different lengths can cause messages to appear at a user's computer with varying delivery times. *See also* propagation delay.

propagation delay *n.* The time needed by a communications signal to travel between two points; in satellite links, a noticeable delay of between one-quarter second and one-half second, caused by the signal traveling through space.

propeller head *n.* Slang for a person who is obsessed with computers or other technology; a geek. The name refers to a child's beanie cap topped by a spinning propeller.

property *n.* In Windows 9x, a characteristic or parameter of an object or device. Properties of a file, for example, include type, size, and creation date and can be identified by accessing the file's property sheet. *See also* property sheet.

property sheet *n.* A type of dialog box in Windows 9x, accessed by choosing Properties in the File menu or by right-clicking on an object and selecting Properties, that lists the attributes or settings of an object such as a file, application, or hardware device. A property sheet presents the user with a tabbed, index-card-like selection of prop-

erty pages, each of which features standard dialog-style controls for customizing parameters.

proportional font *n.* A set of characters in a particular style and size in which a variable amount of horizontal space is allotted to each letter or number. In a proportional font, the letter *i*, for example, is allowed less space than the letter *m*. *Compare* monospace font.

proportional spacing *n.* A form of character spacing in which the horizontal space each character occupies is proportional to the width of the character. The letter *w*, for example, takes up more space than the letter *i*. *Compare* monospacing.

proprietary *adj.* Of, pertaining to, or characteristic of something that is privately owned. Generally, the term refers to technology that has been developed by a particular corporation or entity, with specifications that are considered by the owner to be trade secrets. Proprietary technology may be legally used only by a person or entity purchasing an explicit license. Also, other companies are unable to duplicate the technology, both legally and because its specifications have not been divulged by the owner. *Compare* public domain.

proprietary software *n.* A program owned or copyrighted by an individual or a business and available for use only through purchase or by permission of the owner. *Compare* open source, public-domain software.

protected *n.* A keyword in a programming language (such as Java or C++) used in a method or variable declaration. It signifies that the method or variable can be accessed only by elements residing in its class, subclasses, or classes in the same package. *See also* class, declaration, method, package, variable.

protected mode *n.* An operating mode of the Intel 80286 and higher microprocessors that supports larger address spaces and more advanced features than real mode. When started in protected mode, these CPUs provide hardware support for multitasking, data security, and virtual memory. The Windows (version 3.0 and later) and OS/2 operating systems run in protected mode, as do most versions of UNIX for these microprocessors. *Compare* real mode.

protocol *n.* *See* communications protocol.

protocol analyzer *n.* A management tool designed to identify and diagnose computer network problems. A protocol analyzer looks at LAN (local area network) or WAN (wide area network) traffic and finds protocol errors, connection delays, and other network faults. The protocol

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