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optimum performance. Peripherals can be connected while the computer is running (*hot plugging*) and are automatically assigned a unique address (auto-addressing). Developed by Digital Equipment Corporation, the ACCESS.bus competes with Intel's USB. *See also* bidirectional, bus, daisy chain, hot plugging, input/output port, peripheral. *Compare* USB.

access code \ak'ses kōd\ *n.* *See* password.

access control \ak'ses kən-trōl\ *n.* The mechanisms for limiting access to certain items of information or to certain controls based on users' identity and their membership in various predefined groups. Access control is typically used by system administrators for controlling user access to network resources, such as servers, directories, and files. *See also* access privileges, system administrator.

access control list \ak'ses kən-trōl' list\ *n.* A list associated with a file that contains information about which users or groups have permission to access or modify the file. *Acronym:* ACL (A`C-L`).

accessibility \ak-ses`ə-bil`ə-tē\ *n.* The quality of a system incorporating hardware or software that makes it usable by people with one or more physical disabilities, such as restricted mobility, blindness, or deafness.

access mechanism \ak'ses mek`ə-niz-əm\ *n.*

1. The disk drive components that move the read/write head(s) to the proper track of a magnetic disk or optical disc. **2.** A circuit that allows one part of a computer system to send signals to another part. *See also* disk controller. **3.** In programming, the means by which an application can read from or write to a resource. *Also called* access method.

access method \ak'ses meth`əd\ *n.* *See* access mechanism (definition 3).

access number \ak'ses num`bər\ *n.* The telephone number used by a subscriber to gain access to an online service.

accessory \ak-ses`ər-ē\ *n.* *See* peripheral.

access path \ak'ses path\ *n.* The route followed by an operating system to find the location of a stored file. The access path begins with a drive or volume (disk) designator, continues through a chain of directories and subdirectories, if any, and

ends with the filename. C:\books\diction\start.exe is an example of an access path.

access privileges \ak'ses priv`ə-lə-jəz, priv`lə-jəz\ *n.* The type of operations permitted a given user for a certain system resource on a network or a file server. A variety of operations, such as the ability to access a server, view the contents of a directory, open or transfer files, and create, modify, or delete files or directories, can be allowed or disallowed by the system administrator. Assigning access privileges to users helps the system administrator to maintain security on the system, as well as the privacy of confidential information, and to allocate system resources, such as disk space. *See also* file protection, file server, permission, system administrator, write access.

access provider \ak'ses prə-vī`dər\ *n.* *See* ISP.

access rights \ak'ses rīts\ *n.* The permission to view, enter, or modify a file, folder, or system.

access speed \ak'ses spēd\ *n.* *See* access time.

access time \ak'ses tīm\ *n.* **1.** The amount of time it takes for data to be delivered from memory to the processor after the address for the data has been selected. **2.** The time needed for a read/write head in a disk drive to locate a track on a disk. Access time is usually measured in milliseconds and is used as a performance measure for hard disks and CD-ROM drives. *See also* read/write head, seek time, settling time, wait state. *Compare* cycle time.

account \ə-kount\ *n.* **1.** A record-keeping arrangement used by the vendor of an online service to identify a subscriber and to maintain a record of customer usage for billing purposes. **2.** A record kept by local area networks and multi-user operating systems for each authorized user of the system for identification, administration, and security purposes.

accounting file \ə-koun`tēng fīl\ *n.* A file generated by a printer controller that keeps track of the number of pages printed per job as well as the user that requested the print job.

accounting machine \ə-koun`tēng mə-shēn\ *n.*

1. One of the earliest applications of automatic data processing, used in business accounting primarily during the 1940s and 1950s. The first accounting machines were nonelectronic and

licts that lower the performance of the system, make some programs inoperable, or crash the computer. *See also* boot¹, crash² (definition 1), operating system.

clean install \klēn` in-stāl\ *n.* Reinstallation of software in a manner that ensures that no application or system files from a previous installation will remain. The procedure prevents “smart” installer programs from skipping file installations where a file already exists, which could potentially keep a problem from being removed.

clean interface \klēn` in-tər-fās\ *n.* A user interface with simple features and intuitive commands. *See also* user interface.

clean room \klēn` rōōm\ *n.* A room in which dust and other small particles are filtered from the air and in which protective clothing is worn to avoid contaminating electronic components and other delicate, sensitive equipment.

Clear key \klēr` kē\ *n.* A key in the upper left corner of the numeric keypad on some keyboards. In many applications, it clears the currently selected menu choice or deletes the current selection.

Clear To Send \klēr` tə send\ *n.* *See* CTS.

click \klik\ *vb.* To press and release a mouse button once without moving the mouse. Clicking is usually performed to select or deselect an item or to activate a program or program feature. *See also* right click. *Compare* double-click, drag.

clickable maps \klik`ə-bl maps\ *n.* *See* image map.

click speed \klik` spēd\ *n.* The maximum interval between the first and second time a user presses a button on a mouse or other pointing device that will still identify these actions as a double-click to the computer as opposed to two single-clicks. *See also* double-click, mouse, pointing device.

clickstream \klik`strēm\ *n.* The path a user takes while browsing a Web site. Each distinct selection made on a Web page adds one click to the stream. The further down the clickstream the user goes without finding the sought item, the more likely he or she is to depart to another Web site. Analysis of usage patterns helps Web site designers create user-friendly site structures, links, and search facilities. *See also* Web site.

client \klī`ənt\ *n.* **1.** In object-oriented programming, a member of a class (group) that uses the

services of another class to which it is not related. *See also* inheritance (definition 1). **2.** A process, such as a program or task, that requests a service provided by another program—for example, a word processor that calls on a sort routine built into another program. The client process uses the requested service without having to “know” any working details about the other program or the service itself. *Compare* child (definition 1), descendant (definition 2). **3.** On a local area network or the Internet, a computer that accesses shared network resources provided by another computer (called a *server*). *See also* client/server architecture, server.

client error \klī`ənt ār`ər\ *n.* A problem reported by the Hypertext Transfer Protocol (HTTP) client module as the result of difficulty in interpreting a command or the inability to connect properly to a remote host.

client/server architecture \klī`ənt-sər-vər ār`kə-tek-chur\ *n.* An arrangement used on local area networks that makes use of distributed intelligence to treat both the server and the individual workstations as intelligent, programmable devices, thus exploiting the full computing power of each. This is done by splitting the processing of an application between two distinct components: a “front-end” client and a “back-end” server. The client component is a complete, stand-alone personal computer (not a “dumb” terminal), and it offers the user its full range of power and features for running applications. The server component can be a personal computer, a minicomputer, or a mainframe that provides the traditional strengths offered by minicomputers and mainframes in a time-sharing environment: data management, information sharing between clients, and sophisticated network administration and security features. The client and server machines work together to accomplish the processing of the application being used. Not only does this increase the processing power available over older architectures but it also uses that power more efficiently. The client portion of the application is typically optimized for user interaction, whereas the server portion provides the centralized, multiuser functionality. *See also* distributed intelligence.

CP/M \C`P-M` \ *n.* Acronym for **C**ontrol **P**rogram/**M**onitor. A line of operating systems from Digital Research, Inc., for microcomputers based on Intel microprocessors. The first system, CP/M-80, was the most popular operating system for 8080- and Z80-based microcomputers. Digital Research also developed CP/M-86 for 8086/8088-based computers, CP/M-Z8000 for Zilog Z8000-based computers, and CP/M-68K for Motorola 68000-based computers. When the IBM PC and MS-DOS were introduced, common use of CP/M by end users dwindled. DRI continues to enhance the CP/M line, supporting multitasking with the Concurrent CP/M and MP/M products. *See also* MP/M.

cps \C`P-S` \ *n.* *See* characters per second.

CPSR \C`P-S-R` \ *n.* Acronym for **C**omputer **P**rofessionals for **S**ocial **R**esponsibility. A public advocacy organization of computer professionals. CPSR was originally formed out of concern over the use of computer technology for military purposes but has extended its interest to such issues as civil liberties and the effect of computers on workers.

CPU \C`P-U` \ *n.* *See* central processing unit.

CPU-bound \C`P-U`bound` \ *adj.* *See* computation-bound.

CPU cache \C`P-U` kash` \ *n.* A section of fast memory linking the central processing unit (CPU) and main memory that temporarily stores data and instructions the CPU needs to execute upcoming commands and programs. Considerably faster than main memory, the CPU cache contains data that is transferred in blocks, thereby speeding execution. The system anticipates the data it will need through algorithms. *Also called* cache memory, memory cache. *See also* cache, central processing unit, VCACHE.

CPU cycle \C`P-U` sī-kl` \ *n.* **1.** The smallest unit of time recognized by the central processing unit (CPU)—typically a few hundred-millionths of a second. **2.** The time required for the CPU to perform the simplest instruction, such as fetching the contents of a register or performing a no-operation instruction (NOP). *Also called* clock tick.

CPU fan \C`P-U` fan` \ *n.* An electric fan usually placed directly on a central processing unit (CPU) or on the CPU's heat sink to help dissipate heat from the chip by circulating air around it. *See also* central processing unit, heat sink.

CPU speed \C-P-U` spēd` \ *n.* A relative measure of the data-processing capacity of a particular central processing unit (CPU), usually measured in megahertz. *See also* central processing unit.

CPU time \C`P-U` tīm` \ *n.* In multiprocessing, the amount of time during which a particular process has active control of the central processing unit (CPU). *See also* central processing unit, multiprocessing.

.cr \dot`C-R` \ *n.* On the Internet, the major geographic domain specifying that an address is located in Costa Rica.

CR \C-R` \ *n.* *See* carriage return.

cracker \krak`ər` \ *n.* A person who overcomes the security measures of a computer system and gains unauthorized access. The goal of some crackers is to obtain information illegally from a computer system or use computer resources. However, the goal of the majority is to merely break into the system. *See also* hacker (definition 2).

crash¹ \krash` \ *n.* The failure of either a program or a disk drive. A program crash results in the loss of all unsaved data and can leave the operating system unstable enough to require restarting the computer. A disk drive crash, sometimes called a disk crash, leaves the drive inoperable and can cause loss of data. *See also* abend, head crash.

crash² \krash` \ *vb.* **1.** For a system or program, to fail to function correctly, resulting in the suspension of operation. *See also* abend. **2.** For a magnetic head, to hit a recording medium, with possible damage to one or both.

crash recovery \krash` rə-kəv`ər-ē` \ *n.* The ability of a computer to resume operation after a disastrous failure, such as the failure of a hard drive. Ideally, recovery can occur without any loss of data, although usually some, if not all, data is lost. *See also* crash¹.

crawler \krä`lər, krō`lər` \ *n.* *See* Web browser, spider.

Cray-1 \krā-wən` \ *n.* An early supercomputer developed in 1976 by Seymour Cray. Extremely powerful in its day, the 64-bit Cray-1 ran at 75 MHz and was capable of executing 160 million floating-point operations per second. *See also* supercomputer.

CRC \C`R-C` \ *n.* Acronym for **c**yclical (or **c**yclic) **r**edundancy **c**heck. A procedure used in checking for errors in data transmission. CRC error checking

uses a complex calculation to generate a number based on the data transmitted. The sending device performs the calculation before transmission and sends its result to the receiving device. The receiving device repeats the same calculation after transmission. If both devices obtain the same result, it is assumed that the transmission was error-free. The procedure is known as a redundancy check because each transmission includes not only data but extra (redundant) error-checking values. Communications protocols such as XMODEM and Kermit use cyclical redundancy checking.

creator \krē-ā'tər\ *n.* On the Apple Macintosh, the program that creates a file. Files are linked to their creators by creator codes; this link enables the operating system to open the creator application when a document file is opened.

creeping featurism \krē'pēng fē'chur-iz-əm\ *n.* The process by which features are added to a new version of a program by software developers until the program becomes unduly cumbersome and difficult to use. Generally, creeping featurism occurs as developers attempt to enhance the competitiveness of the program with each new release by adding new features.

crippled version \krip'ld vər'zhən\ *n.* A scaled-down or functionally reduced version of hardware or software, distributed for demonstration purposes. *See also* demo.

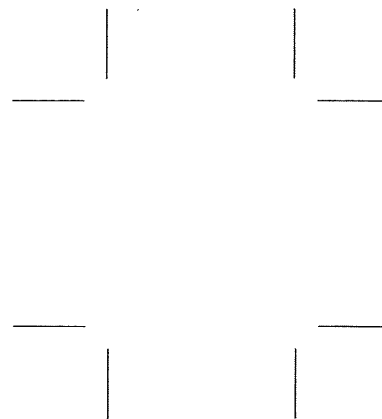
critical error \krit'i-kəl ār'ər\ *n.* An error that suspends processing until the condition can be corrected either by software or by user intervention (for example, an attempt to read to a nonexistent disk, an out-of-paper condition on the printer, or a checksum fault in a data message).

critical-error handler \krit-i-kəl-ār'ər hand'lər\ *n.* A software routine that attempts to correct or achieve a graceful exit from a critical or threatening error. *See also* critical error, graceful exit.

critical path method \krit'i-kəl path' meth'əd\ *n.* A means of evaluating and managing a large project by isolating tasks, milestone events, and schedules and by showing interrelationships among them. The critical path for which this method is named is a line connecting crucial events, any of which, if delayed, affects subsequent events and, ultimately, completion of the project. *Acronym:* CPM (C'P-M').

crop \krop\ *vb.* In computer graphics, to cut off part of an image, such as unneeded sections of a graphic or extra white space around the borders. As in preparing photographs or illustrations for traditional printing, cropping is used to refine or clean up a graphic for placement in a document.

crop marks \krop' märks\ *n.* **1.** Lines drawn at the edges of pages to mark where the paper will be cut to form pages in the final document. *See the illustration. See also* registration marks. **2.** Lines drawn on photographs or illustrations to indicate where they will be cropped, or cut. *See also* crop.



Crop marks.

cross-assembler \kros'ə-sem'blər\ *n.* An assembler that executes on one hardware platform but generates machine code for another. *See also* assembler, compiler, cross-compiler, cross development.

cross-check \kros'chek\ *vb.* To check the accuracy of a calculation by using another method to verify the result. *Compare* cross-foot.

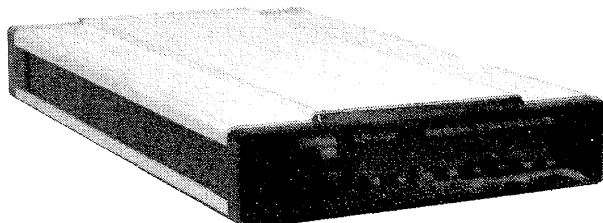
cross-compiler \kros'kəm-pī'lər\ *n.* A compiler that executes on one hardware platform but generates object code for another. *See also* assembler, compiler, cross-assembler, cross development.

cross development \kros' də-vel'əp-mənt\ *n.* The use of one system to develop programs for a different type of system, often because the software development tools of the development system are superior to those of the target system.

cross-foot \kros'fōōt\ *vb.* To check the accuracy of a total, as on a ledger sheet, by adding across columns and down rows, all figures contributing to the total.

data/fax modem \dā'tə-faks' mō'dəm, dat'ə\ *n.*

A modem that can handle both serial data and facsimile images to either send or receive transmissions. See the illustration.



Data/fax modem.

data field \dā'tə fēld', dat'ə\ *n.* A well-defined portion of a data record, such as a column in a database table.

data field masking \dā'tə fēld ma'skēng, dat'ə\ *n.* The process of filtering or selecting part of a data field to control the way it is returned and displayed.

data file \dā'tə fīl', dat'ə\ *n.* A file consisting of data in the form of text, numbers, or graphics, as distinct from a program file of commands and instructions. *Compare* program file.

data flow or **dataflow** \dā'tə flō', dat'ə\ *n.* **1.** The movement of data through a system, from entry to destination. **2.** In parallel processing, a design in which a calculation is made either when all necessary data is available (data-driven processing) or when other processors request the data (demand-driven processing). *See also* parallel processing.

data fork \dā'tə fōrk', dat'ə\ *n.* In Macintosh files, the part of a stored document that contains user-supplied information, such as the text of a word-processing document. A Macintosh file can have a data fork, a resource fork (which contains information such as program code, font data, digitized sound, or icons), and a header. All three parts are used by the operating system in file management and storage. *See also* resource (definition 2), resource fork.

data format \dā'tə fōr'mat, dat'ə\ *n.* The structure applied to data by an application program to provide a context in which the data can be interpreted.

data frame \dā'tə frām', dat'ə\ *n.* A packet of information transmitted as a unit on a network. Data frames are defined by the network's data-

link layer and exist only on the wire between network nodes. *See also* data-link layer, frame (definition 2).

data glove \dā'tə glōv', dat'ə\ *n.* A data input device or controller in the form of a glove fitted with sensors that convert movement of the hand and fingers into commands. *See also* virtual reality.

datagram \dā'tə-gram', dat'ə-gram'\ *n.* One packet, or unit, of information, along with relevant delivery information such as the destination address, that is sent through a packet-switching network. *See also* packet switching.

data independence \dā'tə in-də-pen'dəns, dat'ə\ *n.* The separation of data in a database from the programs that manipulate it. Data independence makes stored data as accessible as possible.

data integrity \dā'tə in-te'grā-tē, dat'ə\ *n.* The accuracy of data and its conformity to its expected value, especially after being transmitted or processed.

data interchange format \dā'tə in'tər-chānj fōr-mat, dat'ə\ *n.* A format consisting of ASCII codes in which database, spreadsheet, and similar documents can be structured to facilitate their use by and transfer to other programs. *Acronym:* DIF (D'I-F'). *See also* ASCII.

data item \dā'tə ī'təm, dat'ə\ *n.* *See* data element.

data library \dā'tə lī'brār-ē, dat'ə\ *n.* A cataloged collection of data files on disk or in another storage medium.

data link \dā'tə lēnk', dat'ə\ *n.* A connection between any two devices capable of sending and receiving information, such as a computer and a printer or a main computer and a terminal. Sometimes the term is extended to include equipment, such as a modem, that enables transmission and receiving. Such devices follow protocols that govern data transmission. *See also* communications protocol, data-link layer, DCE, DTE.

data link escape \dā'tə lēnk' ə-skāp', dat'ə\ *n.* In data transmission, a control character that changes the meaning of the characters immediately following it.

data-link layer \dā'tə-lēnk lār', dat'ə-, lā'ər\ *n.* The second of seven layers in the ISO/OSI model for standardizing computer-to-computer communications. The data-link layer is one layer above the physical layer. Its concern is packaging and

digital linear tape \dij`i-təl lin`ē-ər tāp` \ *n.* A magnetic storage medium used to back up data. Digital linear tape allows for faster transfer of data compared with other tape technologies. *Acronym:* DLT (D`L-T`).

Digital Micromirror Display \dij`i-təl mī`krō-mēr-ər dis-plā` \ *n.* The circuit technology behind Texas Instruments' Digital Projection System. An array of individually addressable mirrors on a chip, each less than 0.002 mm wide, rotate to reflect light into the lens of the projection system, creating a bright, full-color display. Displays can be combined to create high-definition systems of $1,920 \times 1,035$ (1,987,200) pixels with 64 million colors. *Acronym:* DMD (D`M-D`).

digital photography \dij`i-təl fə-to`grə-fē` \ *n.* Photography by means of a digital camera. Digital photography differs from conventional photography in that a digital camera does not use a silver halide-based film to capture an image. Instead, a digital camera captures and stores each image electronically. *See also* digital camera.

digital proof \dij`i-təl prōōf` \ *n.* *See* direct digital color proof.

digital recording \dij`i-təl rə-kōr`dēng` \ *n.* The storage of information in binary-encoded (digital) format. Digital recording converts information—text, graphics, sound, or pictures—to strings of 1s and 0s that can be physically represented on a storage medium. Digital recording media include computer disks and tapes, optical (or compact) discs, and ROM cartridges of the type used for some software and many computer games.

digital signal \dij`i-təl sig`nəl` \ *n.* A signal, such as one transmitted within or between computers, in which information is represented by discrete states—for example, high and low voltages—rather than by fluctuating levels in a continuous stream, as in an analog signal.

digital signal processor \dij`i-təl sig`nəl pros`es-ər` \ *n.* An integrated circuit designed for high-speed data manipulation and used in audio, communications, image manipulation, and other data acquisition and data control applications. *Acronym:* DSP (D`S-P`).

digital signature \dij`i-təl sig`nə-chur` \ *n.* A personal authentication method based on encryption

and secret authorization codes used for “signing” electronic documents.

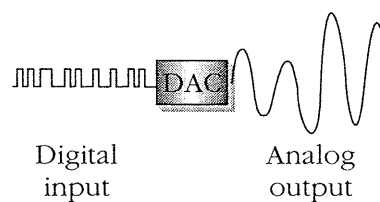
Digital Simultaneous Voice and Data \dij`i-təl sī`mul-tā`nē-əs vois and dā`tə, dat`ə\ \ *n.* A modem technology, patented by Multi-Tech Systems, Inc., that allows a single telephone line to be used for conversation together with data transfer. This is accomplished by switching to packet-mode communications when the need for voice transfer is detected; digitized voice packets are then transferred along with data and command packets. *Acronym:* DSVD (D`S-V-D`).

digital sort \dij`i-təl sōrt` \ *n.* A type of ordering process in which record numbers or their key values are sorted digit by digit, beginning with the least significant (rightmost) digit. *Also called* radix sort.

digital speech \dij`i-təl spēch` \ *n.* *See* speech synthesis.

digital subscriber line \dij`i-təl sub-skrī`bər līn` \ *n.* An ISDN BRI (Basic Rate Interface) line or channel. *Acronym:* DSL (D`S-L`). *See also* BRI, ISDN.

digital-to-analog converter \dij`i-təl-tōō-an`ə-log kən-vər`-tər` \ *n.* A device that translates digital data to an analog signal. A digital-to-analog converter takes a succession of discrete digital values as input and creates an analog signal whose amplitude corresponds, moment by moment, to each digital value. *See* the illustration. *Acronym:* DAC (D`A-C`). *Compare* analog-to-digital converter.



Digital-to-analog converter.

digital versatile disc \dij`i-təl vər`sə-təl disk` \ *n.* *See* digital video disc.

digital video disc \dij`i-təl vid`ē-ō disk` \ *n.* The next generation of optical disc storage technology. With digital video disc technology, video, audio, and computer data can be encoded onto a compact disc (CD). A digital video disc can store greater amounts of data than a traditional CD. A standard single-layer, single-sided digital video

equipped with a disk drive and that uses files stored in a file server. *See also* file server.

disk memory \disk' mem`ər-ē\ *n.* *See* virtual memory.

disk mirroring \disk' mēr`ər-ēng\ *n.* A technique in which all or part of a hard disk is duplicated onto one or more other hard disks, each of which ideally is attached to its own controller. With disk mirroring, any change made to the original disk is simultaneously made to the other disks, so that if the original disk becomes damaged or corrupted, the mirror disks will contain a current, undamaged collection of the data from the original disk. *Also called* disk duplexing. *See also* fault tolerance.

disk operating system \disk' op`ər-ā-tēng sī`stəm\ *n.* *See* DOS.

disk pack \disk' pak\ *n.* A collection of disks in a protective container. Used primarily with mini-computers and mainframe computers, a disk pack is a removable medium, generally a stack of 14-inch disks in a plastic housing.

disk partition \disk' pār-tish`ən\ *n.* A logical compartment on a physical disk drive. A single disk might have two or more logical disk partitions, each of which would be referenced with a different disk drive name. Multiple partitions are divided into a primary (boot) partition and one or more extended partitions.

disk server \disk' sər`vər\ *n.* A node on a local area network that acts as a remote disk drive shared by network users. Unlike a file server, which performs the more sophisticated tasks of managing network requests for files, a disk server functions as a storage medium on which users can read and write files. A disk server can be divided into sections (volumes), each of which appears to be a separate disk. *Compare* file server.

disk striping \disk' strī`pēng\ *n.* The procedure of combining a set of same-size disk partitions that reside on separate disks (from 2 to 32 disks) into a single volume, forming a virtual "stripe" across the disks that the operating system recognizes as a single drive. Disk striping enables multiple I/O operations in the same volume to proceed concurrently, thus offering enhanced performance. *See also* disk striping with parity, input/output.

disk striping with parity \disk' strī-pēng with pār`ə-tē\ *n.* The technique of maintaining parity

information across a disk stripe so that if one disk partition fails, the data on that disk can be re-created using the information stored across the remaining partitions in the disk stripe. *See also* disk striping, fault tolerance, parity.

disk unit \disk' yōō`nit\ *n.* A disk drive or its housing.

dispatcher \di`spach`ər\ *n.* In some multitasking operating systems, the set of routines responsible for allocating central processing unit (CPU) time to various applications.

dispatch table \di`spach tā`bl\ *n.* A table of identifiers and addresses for a certain class of routines such as interrupt handlers (routines carried out in response to certain signals or conditions). *Also called* interrupt vector table, jump table, vector table. *See also* interrupt handler.

disperse \di-spərs` \ *vb.* To break up and place in more than one location—for example, to disperse results among several sets of data or to disperse items (such as fields in records) so that they appear in more than one place in the output. *Compare* distribute.

dispersion \di-spər`shən, di-spər`zhən\ *n.* The degree to which, at any given time, data in a distributed (interconnected) system of computers is stored at different locations or on different devices.

display \di-splā\ *n.* The visual output device of a computer, which is commonly a CRT-based video display. With portable and notebook computers, the display is usually an LCD-based or a gas plasma-based flat-panel display. *See also* flat-panel display, liquid crystal display, video adapter, video display.

display adapter \di-splā' ə-dap`tər\ *n.* *See* video adapter.

display attribute \di-splā' a`tri-byōōt\ *n.* A quality assigned to a character or image displayed on the screen. Display attributes include such features as color, intensity, and blinking. Users of applications can control display attributes when programs allow them to change color and other screen elements.

display background \di-splā' bak`ground\ *n.* In computer graphics, the portion of an on-screen image that remains static while other elements change; for example, window borders on a screen,

PCs that allows for increasing memory beyond the Intel 80x86 microprocessor real-mode limit of 1 megabyte. In earlier versions of microprocessors, EMS bypassed this memory board limit with a number of 16-kilobyte banks of RAM that could be accessed by software. In later versions of Intel microprocessors, including the 80386 and 80486 models, EMS is converted from extended memory by software memory managers, such as EMM386 in MS-DOS 5. Now EMS is used mainly for older MS-DOS applications because Windows and other applications running in protected mode on 80386 and higher microprocessors are free of the 1-MB limit. *Also called* LIM EMS. *See also* expanded memory, protected mode. *Compare* conventional memory, extended memory.

em space \em´ spās\ *n.* A typographical unit of measure that is equal in width to the point size of a particular font. For many fonts, this is equal to the width of a capital M, from which the em space takes its name. *Compare* en space, fixed space, thin space.

emulate \e´myō-lāt\ *vb.* For a hardware or software system to behave in the same manner as another hardware or software system. In a network, for example, microcomputers often emulate mainframes or terminals so that two machines can communicate.

emulation \e´myā-lā´shən\ *n.* The process of a computer, device, or program imitating the function of another computer, device, or program.

emulator \e´myā-lā´tər\ *n.* Hardware or software designed to make one type of computer or component act as if it were another. By means of an emulator, a computer can run software written for another machine. In a network, microcomputers might emulate mainframes or terminals so that two machines can communicate.

emulsion laser storage \ē-mul´shən lā´zər stōr-`əj\ *n.* A method for recording data in film by selective heating with a laser beam.

enable \e-nā´bl\ *vb.* To activate or turn on. *Compare* disable.

encapsulate \en-kap´sə-lāt\ *vb.* To treat a collection of structured information as a whole without affecting or taking notice of its internal structure. In communications, a message or packet constructed according to one protocol, such as a TCP/IP

IP packet, may be taken with its formatting data as an undifferentiated stream of bits that is then broken up and packaged according to a lower-level protocol (for example, as ATM packets) to be sent over a particular network; at the destination, the lower-level packets are assembled, re-creating the message as formatted for the encapsulated protocol. In object-oriented programming, the implementation details of a class are encapsulated in a separate file whose contents do not need to be known by a programmer using that class. *See also* ATM (definition 1), object-oriented programming, TCP/IP.

Encapsulated PostScript \en-kap´sə-lā-təd pōst´skript\ *n.* *See* EPS.

encapsulated type \en-kap´sə-lā-təd tīp\ *n.* *See* abstract data type.

encipher \en-sī´fər\ *vb.* *See* encryption.

encode \en-kōd\ *vb.* **1.** In data security, to encrypt. *See also* encryption. **2.** In programming, to put something into code, which frequently involves changing the form—for example, changing a decimal number to binary-coded form. *See also* binary-coded decimal, EBCDIC.

encryption \en-krip´shən\ *n.* The process of encoding data to prevent unauthorized access, especially during transmission. Encryption is usually based on a key that is essential for decoding. The U.S. National Bureau of Standards created a complex encryption standard, Data Encryption Standard (DES), which provides almost unlimited ways to encrypt documents. *See also* DES.

encryption key \en-krip´shən kē\ *n.* A sequence of data that is used to encrypt other data and that, consequently, must be used for the data's decryption. *See also* decryption, encryption.

end-around carry \end`ə-round kâr`ē\ *n.* A special type of end-around shift operation on a binary value that treats the carry bit as an extra bit; that is, the carry bit is moved from one end of the value to the other. *See also* carry, end-around shift, shift.

end-around shift \end`ə-round shift\ *n.* An operation performed on a binary value in which a bit is shifted out of one end and into the other end. For example, a right-end shift on the value 00101001 yields 10010100. *See also* shift.

en dash \en´ dash\ *n.* A punctuation mark (–) used to show ranges of dates and numbers, as in

troller and display mode design, introduced by IBM in 1990. This standard supports 640×480 resolution with 65,536 colors, or $1,024 \times 768$ resolution with 256 colors, and is used mainly on workstation-level systems. *Acronym:* XGA (X`G-A`).

Extended Industry Standard Architecture \eks-ten`dəd in`du-strē stan-dərd ār`kə-tek-chur\
n. See EISA.

extended memory \eks-ten`dəd mem`ər-ē\
n. System memory beyond 1 megabyte in computers based on the Intel 8086 processors. This memory is accessible only when an 80386 or higher-level processor is operating in protected mode or in emulation on the 80286. To use extended memory, MS-DOS programs need the aid of software that temporarily places the processor into protected mode or by the use of features in the 80386 or higher-level processors to remap portions of extended memory into conventional memory. Programs running under Microsoft Windows, OS/2, and other operating systems that run on Intel processors and use the protected mode of the 80386 and higher-level processors can access all system memory in the same way. *See also* EMS, extended memory specification, protected mode.

extended memory specification \eks-ten`dəd mem`ər-ē spes`-ə-fə-kā`shən\
n. A specification developed by Lotus, Intel, Microsoft, and AST Research that defines a software interface allowing real-mode applications to use extended memory and areas of memory not managed by MS-DOS. Memory is managed by an installable device driver, the Expanded Memory Manager (EMM). The application must use the driver to access the additional memory. *Acronym:* XMS (X`M-S`). *See also* Expanded Memory Manager, extended memory.

extended VGA \eks-ten`dəd V-G-A`\
n. An enhanced set of Video Graphics Array (VGA) standards that is capable of displaying an image of from 800×600 pixels to 1600×1200 pixels and that can support a palette of up to 16.7 million (2^{24}) colors. This palette approaches the 19 million colors that a normal person can distinguish, so it is considered a digital standard for color realism that parallels analog television. *Also called* Super VGA, SVGA. *See also* analog-to-digital converter, CRT, VGA.

extender board \eks-ten`dər bōrd`\
n. *See* expansion board.

extensible language \eks-ten`sə-bl lang`wəj\
n. A computer language that allows the user to extend or modify the syntax and semantics of the language. In the strict sense, the term relates to only a few of the languages actually used, such as Forth, that allow the programmer to change the language itself. *See also* computer language, semantics (definition 1), syntax.

extension \eks`-ten`shən\
n. **1.** A set of characters added to a filename that serves to extend or clarify its meaning or to identify a file as a member of a category. An extension may be assigned by the user or by a program, as, for example, .com or .exe for executable programs that MS-DOS can load and run. **2.** A supplemental set of codes used to include additional characters in a particular character set. **3.** A program or program module that adds functionality to or extends the effectiveness of a program. **4.** On the Macintosh, a program that alters or augments the functionality of the operating system. There are two types: system extensions, such as QuickTime, and Chooser extensions, such as printer drivers. When a Macintosh is turned on, the extensions in the Extensions folder within the System folder are loaded into memory. *See also* Chooser extension, QuickTime, System folder.

extension manager \eks-ten`shən man`ə-jər\
n. On the Macintosh, a utility that allows the user to determine which extensions are loaded when the computer is turned on. *See also* extension (definition 4).

extent \eks-tent`\
n. On a disk or other direct-access storage device, a continuous block of storage space reserved by the operating system for a particular file or program.

external command \eks-tər`nəl kə-mand`\
n. A program included in an operating system that is loaded into memory and executed only when its name is entered at the system prompt. Although an external command is a program in its own right, it is called a command because it is included with the operating system. *See also* XCMD. *Compare* internal command.

external function \eks-tər`nəl funk`shən\
n. *See* XFCN.

External Gateway Protocol \eks-tər`nəl gāt`wā prō`tə-kol\
n. A protocol for distributing information regarding availability to the routers and gate-



fan-in \fan'in\ *n.* The maximum number of signals that can be fed to a given electronic device, such as a logic gate, at one time without risking signal corruption. The fan-in rating of a device depends on its type and method of construction. *Compare* fan-out.

fan-out \fan'out\ *n.* The maximum number of electronic devices that can be fed by a given electronic device, such as a logic gate, at one time without the signal becoming too weak. The fan-out rating of a device depends on its type and method of construction. *Compare* fan-in.

fanzine \fan'zēn\ *n.* A magazine, distributed online or by mail, that is produced by and devoted to fans of a particular group, person, or activity. *See also* ezine.

FAQ \fak, F'A-Q\ *n.* Acronym for **f**requently **a**sksed **q**uestions. A document listing common questions and answers on a particular subject. FAQs are often posted on Internet newsgroups where new participants ask the same questions that regular readers have answered many times.

farad \fâr'ad\ *n.* Abbreviated F. The unit of capacitance (the ability to hold a charge). A 1-farad capacitor holds a charge of 1 coulomb with a potential difference of 1 volt between its plates. In practical use, a farad is an extremely large amount of capacitance; capacitance is usually expressed in terms of microfarads (10^{-6}) or picofarads (10^{-12}).

FARNET \fâr'net, F-A-R'net\ *See* Federation of American Research Networks.

Fast Ethernet \fast' ē'thər-net\ *n.* Ethernet capable of supporting 100 megabits per second. *See also* Ethernet (definition 1).

fast Fourier transform \fast fōōr'ē-ā trans'fōrm\ *n.* A set of algorithms used to compute the discrete Fourier transform of a function, which in turn is used for solving series of equations, performing spectral analysis, and carrying out other signal-processing and signal generation tasks. *Acronym:* FFT (F'F-T'). *See also* Fourier transform.

fast infrared port \fast' in'frə-red pōrt\ *n.* *See* FIR port.

fast packet \fast' pak'et\ *n.* A standard for high-speed network technology that utilizes fast switching of fixed-length cells or packets for real-time transmission of data. *Also called* Asynchronous

Transfer Mode, ATM. *See also* packet (definition 2), packet switching.

Fast SCSI \fast' skuz'ē, S'C-S-I\ *n.* A form of the SCSI-2 interface that can transfer data 8 bits at a time at up to 10 megabytes per second. The Fast SCSI connector has 50 pins. *Also called* Fast SCSI-2. *See also* SCSI, SCSI-2. *Compare* Fast/Wide SCSI, Wide SCSI.

Fast/Wide SCSI \fast'wīd skuz'ē, S'C-S-I\ *n.* A form of the SCSI-2 interface that can transfer data 16 bits at a time at up to 20 megabytes per second. The Fast/Wide SCSI connector has 68 pins. *Also called* Fast/Wide SCSI-2. *See also* SCSI, SCSI-2. *Compare* Fast SCSI, Wide SCSI.

FAT \fat, F'A-T\ *n.* *See* file allocation table.

fatal error \fā'təl âr'ər\ *n.* An error that causes the system or application program to crash—that is, to fail abruptly with no hope of recovery.

fat application \fat' a-plə-kā'shən\ *n.* An application that can be used on both PowerPC processor-based Macintosh computers and 68K-based Macintosh computers.

fat binary \fat' bī'nər-ē\ *n.* An application format that supports both PowerPC processor-based Macintosh computers and 68K-based Macintosh computers.

fatbits \fat'bits\ *n.* **1.** Originally (as FatBits), a feature of the Apple MacPaint program in which a small portion of a drawing can be enlarged and modified one pixel (FatBit) at a time. **2.** A similar feature in any program that allows pixel-by-pixel modification through a zoom feature.

fat client \fat' clī'ənt\ *n.* In a client/server architecture, a client machine that performs most or all of the processing, with little or none performed by the server. The client handles presentation and functions, and the server manages data and access to it. *See also* client (definition 3), client/server architecture, server (definition 2), thin server. *Compare* fat server, thin client.

FAT file system \fat' fil' si-stəm, F'A-T\ *n.* The system used by MS-DOS to organize and manage files. The FAT (file allocation table) is a data structure that MS-DOS creates on the disk when the disk is formatted. When MS-DOS stores a file on a formatted disk, the operating system places information about the stored file in the FAT so that MS-DOS can retrieve the file later when requested.



The FAT is the only file system MS-DOS can use; OS/2, Windows NT, and Windows 95 operating systems can use the FAT file system in addition to their own file systems (HPFS, NTFS, and VFAT, respectively). *See also* file allocation table, HPFS, NTFS, OS/2, VFAT, Windows 95, Windows NT.

father \fāˈdhər\ *n.* *See* generation (definition 1).

father file \fāˈdhər fīl\ *n.* A file that is the last previously valid set of a changing set of data. The father file is immediately preceded by a grandfather file and immediately succeeded by its son. The pairs *father* and *son*, *parent* and *child* (or *descendant*), and *independent* and *dependent* are synonymous. *See also* generation (definition 1).

fat server \fatˈ sərˈvər\ *n.* In a client/server architecture, a server machine that performs most of the processing, with little or none performed by the client. Applications logic and data reside on the server, and presentation services are handled by the client. *See also* client (definition 3), client/server architecture, server (definition 2), thin client. *Compare* fat client, thin server.

fatware \fatˈwâr\ *n.* Software that monopolizes hard disk space and power due to an overabundance of features or inefficient design. *Also called* bloatware.

fault \fält, fôlt\ *n.* A physical defect, such as a loose connection, that prevents a system or device from operating as it should.

fault tolerance \fältˈ tolˈər-ens, fôlt\ *n.* The ability of a computer or an operating system to respond to a catastrophic event or fault, such as a power outage or a hardware failure, in a way that ensures that no data is lost and any work in progress is not corrupted. This can be accomplished with a battery-backed power supply, backup hardware, provisions in the operating system, or any combination of these. In a fault-tolerant network, the system has the ability either to continue the system's operation without loss of data or to shut the system down and restart it, recovering all processing that was in progress when the fault occurred.

favorite \fāˈvər-īt, fāˈvrət\ *n.* In Microsoft Internet Explorer, a user-defined shortcut to a page on the World Wide Web, analogous to a bookmark in Netscape Navigator. *See also* Favorites folder, hotlist. *Compare* bookmark (definition 2).

Favorites folder \fāˈvər-its fōlˈdər, fāˈvrəts\ *n.* In Microsoft Internet Explorer, a collection of shortcuts to Web sites that a user has selected for future reference. Other Web browsers refer to this collection by other names, such as bookmarks or hotlists. *See also* bookmark file (definition 1), Internet Explorer, URL. *Compare* bookmark (definition 2), hotlist.

fax \faks\ *n.* Short for facsimile. The transmission of text or graphics over telephone lines in digitized form. Conventional fax machines scan an original document, transmit an image of the document as a bit map, and reproduce the received image on a printer. Resolution and encoding are standardized in the CCITT Groups 1–4 recommendations. Fax images can also be sent and received by microcomputers equipped with fax hardware and software. *See also* CCITT Groups 1–4.

fax machine \faksˈ mə-shēn\ *n.* Short for facsimile machine. A device that scans pages, converts the images of those pages to a digital format consistent with the international facsimile standard, and transmits the image through a telephone line. A fax machine also receives such images and prints them on paper. *See the illustration.* *See also* scan (definition 2).



Fax machine.

fax modem \faksˈ mōˈdəm\ *n.* A modem that sends (and possibly receives) data encoded in a fax format (typically CCITT fax format), which a fax machine or another modem decodes and converts to an image. The image must already have been encoded on the host computer. Text

.fidonet.org \dot-fī`dō-net-dot-ōrg` \ *n.* On the Internet, the major domain specifying that an address is located on Fidonet.

field \fēld\ *n.* **1.** A location in a record in which a particular type of data is stored. For example, EMPLOYEE-RECORD might contain fields to store Last-Name, First-Name, Address, City, State, Zip-Code, Hire-Date, Current-Salary, Title, Department, and so on. Individual fields are characterized by their maximum length and the type of data (for example, alphabetic, numeric, or financial) that can be placed in them. The facility for creating these specifications usually is contained in the data definition language (DDL). In relational database management systems, fields are called *columns*. **2.** A space in an on-screen form where the user can enter a specific item of information.

field-effect transistor \fēld`ə-fekt tranz-i`stər\ *n.* See FET.

field-programmable logic array \fēld`prō-gram-ə-bl loj`ik ə-r-ā`\ *n.* An integrated circuit containing an array of logic circuits in which the connections between the individual circuits, and thus the logic functions of the array, can be programmed after manufacture, typically at the time of installation in the field. Programming can be performed only once, typically by passing high current through fusible links on the chip. *Acronym:* FPLA (F`P-L-A`). Also called PLA, programmable logic array.

field separator \fēld`sep`ər-ā-tər\ *n.* Any character that separates one field of data from another. See also delimiter, field (definition 1).

FIFO \fī`fō, F`I-F-O`\ *n.* See first in, first out.

fifth-generation computer \fifth`jen-ər-ā`shən kəm-pyōō`tər\ *n.* See computer.

fifth normal form \fifth`nōr`məl fōrm`\ *n.* Abbreviated 5NF. See normal form (definition 1).

file \fīl\ *n.* A complete, named collection of information, such as a program, a set of data used by a program, or a user-created document. A file is the basic unit of storage that enables a computer to distinguish one set of information from another. A file is the “glue” that binds a conglomeration of instructions, numbers, words, or images into a coherent unit that a user can retrieve, change, delete, save, or send to an output device.

file allocation table \fīl`al-ə-kā`shən tā`bl\ *n.* A table or list maintained by some operating systems

to manage disk space used for file storage. Files on a disk are stored, as space allows, in fixed-size groups of bytes (characters) rather than from beginning to end as contiguous strings of text or numbers. A single file can thus be scattered in pieces over many separate storage areas. A file allocation table maps available disk storage space so that it can mark flawed segments that should not be used and can find and link the pieces of a file. In MS-DOS, the file allocation table is commonly known as the FAT. See also FAT file system.

file attribute \fīl`a`trə-byōōt\ *n.* A restrictive label attached to a file that describes and regulates its use—for example, hidden, system, read-only, archive, and so forth. In MS-DOS, this information is stored as part of the file’s directory entry.

file backup \fīl`bak`up\ *n.* See backup.

file compression \fīl`kəm-presh`ən\ *n.* The process of reducing the size of a file for transmission or storage. See also data compression.

file control block \fīl`kən-trōl`blok\ *n.* A small block of memory temporarily assigned by a computer’s operating system to hold information about an opened file. A file control block typically contains such information as the file’s identification, its location on disk, and a pointer that marks the user’s current (or last) position in the file. *Acronym:* FCB (F`C-B`).

file conversion \fīl`kən-vər`zhən\ *n.* The process of transforming the data in a file from one format to another without altering its contents—for example, converting a file from a word processor’s format to its ASCII equivalent.

file extension \fīl`eks-ten`shən\ *n.* See extension (definition 1).

file extent \fīl`eks-tent`\ *n.* See extent.

file format \fīl`fōr`mat\ *n.* The structure of a file that defines the way it is stored and laid out on the screen or in print. The format can be fairly simple and common, as are files stored as “plain” ASCII text, or it can be quite complex and include various types of control instructions and codes used by programs, printers, and other devices. Examples include RTF (Rich Text Format), DCA (Document Content Architecture), PICT, DIF (Data Interchange Format), DXF, TIFF (Tagged Image File Format), and EPSF (Encapsulated PostScript Format).

file fragmentation \fīl' frag-mən-tā'shən\ *n.* **1.**

The breaking apart of files into small, separate segments for storage on disk. The condition is a natural consequence of enlarging files and saving them on a crowded disk that no longer contains contiguous blocks of free space large enough to hold them. File fragmentation is not an integrity problem, although it can eventually slow read and write access times if the disk is very full and storage is badly fragmented. Software products are available for redistributing (optimizing) file storage to reduce fragmentation. **2.** In a database, a situation in which records are not stored in their optimal access sequence because of accumulated additions and deletions of records. Most database systems offer or contain utility programs that resequence records to improve efficiency of access and to aggregate free space occupied by deleted records.

file gap \fīl' gap\ *n.* See block gap.

file handle \fīl' han'dl\ *n.* In MS-DOS, OS/2, and Windows, a token (number) that the system uses to identify or refer to an open file or, sometimes, to a device.

file-handling routine \fīl'hand-lēng rōō-tēn'\ *n.* Any routine designed to assist in creating, opening, accessing, and closing files. Most high-level languages have built-in file-handling routines, although more sophisticated or complex file-handling routines in an application are often created by the programmer.

file header \fīl' hed'ər\ *n.* See header (definition 2).

file layout \fīl' lā'out\ *n.* In data storage, the organization of records within a file. Frequently, descriptions of the record structure are also included within the file layout.

file librarian \fīl' lī-brār'ē-ən\ *n.* A person or process responsible for maintaining, archiving, copying, and providing access to a collection of data.

file maintenance \fīl' mān'tə-nəns\ *n.* Broadly, the process of changing information in a file, altering a file's control information or structure, or copying and archiving files. A person using a terminal to enter data, the program accepting the data from the terminal and writing it to a data file, and a database administrator using a utility to alter

the format of a database file are all forms of file maintenance.

file manager \fīl' man'ə-jər\ *n.* A module of an operating system or environment that controls the physical placement of and access to a group of program files.

filename \fīl'nām\ *n.* The set of letters, numbers, and allowable symbols assigned to a file to distinguish it from all other files in a particular directory on a disk. A filename is the handle by which a computer user saves and requests a block of information. Both programs and data have filenames and often extensions that further identify the type or purpose of the file. Naming conventions, such as maximum length and allowable characters of a filename, vary from one operating system to another. See also directory, path (definition 5).

filename extension \fīl'nām eks-ten'shən\ *n.* See extension (definition 1).

file protection \fīl' prə-tek'shən\ *n.* A process or device by which the existence and integrity of a file are maintained. Methods of file protection range from allowing read-only access and assigning passwords to covering the write-protect notch on a disk and locking away floppy disks holding sensitive files.

file recovery \fīl' rə-kəv'ər-ē\ *n.* The process of reconstructing lost or unreadable files on disk. Files are lost when they are inadvertently deleted, when on-disk information about their storage is damaged, or when the disk is damaged. File recovery involves the use of utility programs that attempt to rebuild on-disk information about the storage locations of deleted files. Because deletion makes the file's disk space available but does not remove the data, data that has not yet been overwritten can be recovered. In the case of damaged files or disks, recovery programs read whatever raw data they can find, and save the data to a new disk or file in ASCII or numeric (binary or hexadecimal) form. In some instances, however, such reconstructed files contain so much extraneous or mixed information that they are unreadable. The best way to recover a file is to restore it from a backup copy.

file retrieval \fīl' rə-trē'vəl\ *n.* The act of transferring a data file from a storage location to the machine where it is to be used.

file server \fīl' sər'vər\ *n.* A file-storage device on a local area network that is accessible to all users on the network. Unlike a disk server, which appears to the user as a remote disk drive, a file server is a sophisticated device that not only stores files but manages them and maintains order as network users request files and make changes to them. To deal with the tasks of handling multiple—sometimes simultaneous—requests for files, a file server contains a processor and controlling software as well as a disk drive for storage. On local area networks, a file server is often a computer with a large hard disk that is dedicated only to the task of managing shared files. *Compare* disk server.

file sharing \fīl' shâr'ēng\ *n.* The use of computer files on networks, wherein files are stored on a central computer or a server and are requested, reviewed, and modified by more than one individual. When a file is used with different programs or different computers, file sharing can require conversion to a mutually acceptable format. When a single file is shared by many people, access can be regulated through such means as password protection, security clearances, or file locking to prohibit changes to a file by more than one person at a time.

file size \fīl' sīz\ *n.* The length of a file, typically given in bytes. A computer file stored on disk actually has two file sizes, logical size and physical size. The logical file size corresponds to the file's actual size—the number of bytes it contains. The physical size refers to the amount of storage space allotted to the file on disk. Because space is set aside for a file in blocks of bytes, the last characters in the file might not completely fill the block (allocation unit) reserved for them. When this happens, the physical size is larger than the logical size of the file.

filespec \fīl'spek\ *n.* *See* file specification (definition 1).

file specification \fīl' spes'ə-fə-kā'shən\ *n.* **1.** Abbreviated filespec. The path to a file, from a disk drive through a chain of directory files to the filename that serves to locate a particular file. **2.** A filename containing wildcard characters that indicate which files among a group of similarly named files are requested. **3.** A document that describes the organization of data within a file.

file structure \fīl' struk'chur\ *n.* A description of a file or group of files that are to be treated together for some purpose. Such a description includes file layout and location for each file under consideration.

file system \fīl' si'stəm\ *n.* In an operating system, the overall structure in which files are named, stored, and organized. A file system consists of files, directories, and the information needed to locate and access these items. The term can also refer to the portion of an operating system that translates requests for file operations from an application program into low-level, sector-oriented tasks that can be understood by the drivers controlling the disk drives. *See also* driver.

file transfer \fīl' trans'fər\ *n.* The process of moving or transmitting a file from one location to another, as between two programs or over a network.

File Transfer Protocol \fīl' trans-fər prō'tə-kol\ *n.* *See* FTP¹ (definition 1).

file type \fīl' tīp\ *n.* A designation of the operational or structural characteristics of a file. A file's type is often identified in the filename. With MS-DOS, a file's type is usually reflected in the filename extension. *See also* file format.

fill \fil\ *n.* In computer graphics, to “paint” the inside of an enclosed figure, such as a circle, with color or a pattern. The portion of the shape that can be colored or patterned is the fill area. Drawing programs commonly offer tools for creating filled or nonfilled shapes; the user can specify color or pattern.

film at 11 \film' at ə-lev'ən\ A phrase sometimes seen in newsgroups. An allusion to a brief newsbreak on TV that refers to a top news story that will be covered in full on the 11 o'clock news, it is used sarcastically to ridicule a previous article's lack of timeliness or newsworthiness. *See also* newsgroup.

film recorder \film' rə-kōr'dər\ *n.* A device for capturing on 35-mm film the images displayed on a computer screen.

film ribbon \film' rib'ən\ *n.* *See* carbon ribbon.

filter \fil'tər\ *n.* **1.** A program or set of features within a program that reads its standard or designated input, transforms the input in some desired way, and then writes the output to its standard or

designated output destination. A database filter, for example, might flag information of a certain age.

2. In communications and electronics, hardware or software that selectively passes certain elements of a signal and eliminates or minimizes others. A filter on a communications network, for example, must be designed to transmit a certain frequency but attenuate (dampen) frequencies above it (a low-pass filter), those below it (a highpass filter), or those above and below it (a bandpass filter). **3.** A pattern or mask through which data is passed to weed out specified items. For instance, a filter used in e-mail or in retrieving newsgroup messages can allow users to filter out messages from other users. *See also* e-mail filter, mask. **4.** In computer graphics, a special effect or production effect that is applied to bitmapped images; for example, shifting pixels within an image, making elements of the image transparent, or distorting the image. Some filters are built into a graphics program, such as a paint program or an image editor. Others are separate software packages that plug into the graphics program. *See also* bitmapped graphics, image editor, paint program.

filtering program \fil'tər-ēng prō'gram\ *n.* A program that filters information and presents only results that match the qualifications defined in the program.

FilterKeys \fil'tər-kēz\ *n.* A Windows 95 accessibility control panel feature that enables users with physical disabilities to use the keyboard. With FilterKeys, the system ignores brief and repeated keystrokes that result from slow or inaccurate finger movements. *See also* accessibility. *Compare* MouseKeys, ShowSounds, SoundSentry, StickyKeys, ToggleKeys.

Final-Form-Text DCA \fī'nəl-fōrm-tekst` D-C-A\ *n.* A standard in Document Content Architecture (DCA) for storing documents in ready-to-print form for interchange between dissimilar programs. A related standard is Revisable-Form-Text DCA (RFTDCA). *Acronym:* FFTDCA (F'F-T'D-C-A'). *See also* DCA (definition 1). *Compare* Revisable-Form-Text DCA.

find \fīnd\ *vb.* *See* search².

Finder \fīn'dər\ *n.* The standard interface to the Macintosh operating system, allowing the user to view the contents of directories (folders); to move,

copy, and delete files; and to launch applications. Items in the system are often represented as icons, and a mouse or similar pointing device is used to manipulate these items. The Finder was the first commercially successful graphical user interface, and it helped launch a wave of interest in icon-based systems. *See also* MultiFinder.

finger¹ \fēng'ər\ *n.* An Internet utility, originally limited to UNIX but now available on many other platforms, that enables a user to obtain information on other users who may be at other sites (if those sites permit access by finger). Given an e-mail address, finger returns the user's full name, an indication of whether or not the user is currently logged on, and any other information the user has chosen to supply as a profile. Given a first or last name, finger returns the logon names of users whose first or last names match.

finger² \fēng'ər\ *vb.* To obtain information on a user by means of the finger program.

fingerprint reader \fēng'ər-print rē'dər\ *n.* A scanner that reads human fingerprints for comparison to a database of stored fingerprint images.

FIPS \fips, F'I-P-S\ *n.* *See* Federal Information Processing Standards.

firewall \fīr'wāl\ *n.* A security system intended to protect an organization's network against external threats, such as hackers, coming from another network, such as the Internet. A firewall prevents computers in the organization's network from communicating directly with computers external to the network and vice versa. Instead, all communication is routed through a proxy server outside of the organization's network, and the proxy server decides whether it is safe to let a particular message or file pass through to the organization's network.

firmware \fərm'wâr\ *n.* Software routines stored in read-only memory (ROM). Unlike random access memory (RAM), read-only memory stays intact even in the absence of electrical power. Startup routines and low-level input/output instructions are stored in firmware. It falls between software and hardware in terms of ease of modification. *See also* RAM, ROM.

FIR port \F'I-R' pōrt\ *n.* Short for **fast infrared port**. A wireless I/O port, most common on a portable computer, that exchanges data with an

series of bits 01111110, used to start and end a transmission frame (message unit). *See also* HDLC.

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

flame² \flām\ *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 \flāmˈbāt\ *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 \flāmˈfest\ *n.* A series of inflammatory messages or articles in a newsgroup or other online conference.

flamer \flāˈmər\ *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 \flāmˈwōr\ *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 memory \flashˈmemər-ē\ *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.

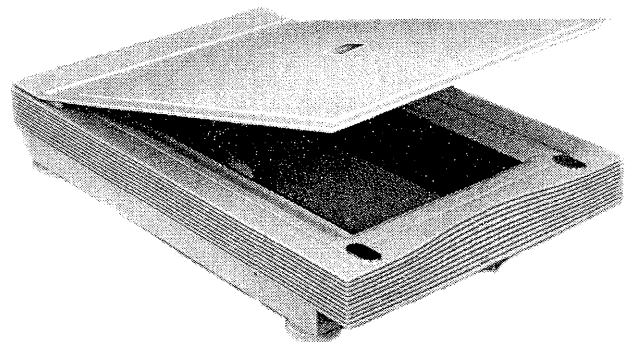
flash ROM \flashˈrom, R-O-M\ *n.* *See* flash memory.

flat address space \flatˈaˈdres spās, ə-dres\ *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 \flatˈbed plotər\ *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 \flatˈbed skanər\ *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.



Flatbed scanner.

flat file \flatˈfīl\ *n.* A file consisting of records of a single record type in which there is no embedded structure information that governs relationships between records.

flat-file database \flatˈfīl dāˈtə-bās\ *n.* A database that takes the form of a table, where only one table can be used for each database. A flat-file database can only work with one file at a time. *Compare* relational database.

flat file directory \flatˈfīlˈdər-ekˈtər-ē\ *n.* A directory that cannot contain subdirectories but

two parts, a mantissa and an exponent. The mantissa specifies the digits in the number, and the exponent specifies the magnitude of the number (the position of the decimal point). For example, the numbers 314,600,000 and 0.0000451 are expressed respectively as 3146E5 and 451E-7 in floating-point notation. Most microprocessors do not directly support floating-point arithmetic; consequently, floating-point calculations are performed either by using software or with a special floating-point processor. *Also called* exponential notation. *See also* fixed-point notation, floating-point processor, integer.

floating-point number \flō`tēng-point` num`bər\
n. A number represented by a mantissa and an exponent according to a given base. The mantissa is usually a value between 0 and 1. To find the value of a floating-point number, the base is raised to the power of the exponent, and the mantissa is multiplied by the result. Ordinary scientific notation uses floating-point numbers with 10 as the base. In a computer, the base for floating-point numbers is usually 2.

floating-point operation \flō`tēng-point` op-ər-ā`shən\
n. An arithmetic operation performed on data stored in floating-point notation. Floating-point operations are used wherever numbers may have either fractional or irrational parts, as in spreadsheets and computer-aided design (CAD). Therefore, one measure of a computer's power is how many millions of floating-point operations per second (MFLOPS or megaflops) it can perform. *Acronym:* FLOP (flop, F`L-O-P`). *Also called* floating-point operation. *See also* floating-point notation, MFLOPS.

floating-point processor \flō`tēng-point` pros`es-ər\
n. A coprocessor for performing arithmetic on floating-point numbers. Adding a floating-point processor to a system can speed up the processing of math and graphics dramatically if the software is designed to recognize and use it. The i486DX and 68040 and higher microprocessors have built-in floating-point processors. *Also called* math coprocessor, numeric coprocessor. *See also* floating-point notation, floating-point number.

floating-point register \flō`tēng-point` rej`ə-stər\
n. A register designed to store floating-point values. *See also* floating-point number, register.

FLOP \flop, F`L-O-P\
n. *See* floating-point operation.

floppy disk \flop`ē disk\
n. A round piece of flexible plastic film coated with ferric oxide particles that can hold a magnetic field. When placed inside a disk drive, the floppy disk rotates to bring different areas, or sectors, of the disk surface under the drive's read/write head, which can detect and alter the orientation of the particles' magnetic fields to represent binary 1s and 0s. A floppy disk 5.25 inches in diameter is encased in a flexible plastic jacket and has a large hole in the center, which fits around a spindle in the disk drive; such a disk can hold from a few hundred thousand to over one million bytes of data. A 3.5-inch disk encased in rigid plastic is also called a floppy disk or a microfloppy disk. In addition, 8-inch floppy disks were common in DEC and other minicomputer systems. *See also* 3.5-inch floppy disk, 5.25-inch floppy disk, microfloppy disk.

floppy disk controller \flop`ē disk kən-trō`lər\
n. *See* disk controller.

floppy disk drive \flop`ē disk` drīv\
n. An electromechanical device that reads data from and writes data to floppy or microfloppy disks. *See also* floppy disk.

FLOPS \flops, F`L-O-P-S\
n. Acronym for **floating-point operations per second**. A measure of the speed at which a computer can perform floating-point operations. *See also* floating-point operation, MFLOPS. *Compare* MIPS.

floptical \flop`tə-kəl\
adj. Using a combination of magnetic and optical technology to achieve a very high data density on special 3.5-inch disks. Data is written to and read from the disk magnetically, but the read/write head is positioned optically by means of a laser and grooves on the disk. The term was coined by and is a registered trademark of Insite Peripherals.

flow analysis \flō`ə-nal`ə-sis\
n. A method of tracing the movement of different types of information through a computer system, especially with regard to security and the controls applied to ensure the integrity of the information. *See also* flowchart.

flowchart \flō`chärt\
n. A graphic map of the path of control or data through the operations in a program or an information-handling system. Symbols such as squares, diamonds, and ovals represent

is the U.S. Army phrase FUBAR (an acronym which, in discreet language, represents Fouled Up Beyond All Recognition/Repair). However, other origins have been claimed. *Compare* fred (definition 2).

footer \fōōt'ər\ *n.* One or more identifying lines printed at the bottom of a page. A footer may contain a folio (page number), a date, the author's name, and the document title. *Also called* running foot. *Compare* header (definition 1).

footprint \fōōt'print\ *n.* The surface area occupied by a personal computer or other device.

force \fōrs\ *vb.* In programming, to perform a particular action that would normally not occur. The term is most often used in the context of forcing data to be within a particular range of values—for example, forcing a divisor to be nonzero. *See also* cast.

foreground¹ \fōr'ground\ *adj.* Currently having control of the system and responding to commands issued by the user. *See also* multitasking. *Compare* background¹.

foreground² \fōr'ground\ *n.* **1.** The color of displayed characters and graphics. *Compare* background² (definition 1). **2.** The condition of the program or document currently in control and affected by commands and data entry in a windowing environment. *Compare* background² (definition 4).

fork¹ \fōrk\ *n.* One of the two parts of a file recognized by the Mac OS. A Macintosh file has a data fork and a resource fork. Most or all of a typical user-produced document is in the data fork; the resource fork usually contains application-oriented information, such as fonts, dialog boxes, and menus. *See also* data fork, resource fork.

fork² \fōrk\ *vb.* To initiate a child process in a multitasking system after a parent process has been started. *See also* multitasking.

FOR loop \fōr' lōōp\ *n.* A control statement that executes a section of code a specified number of times. Actual syntax and usage vary from language to language. In most cases, the value of an index variable moves through a range of values, being assigned a different (and usually consecutive) value each time the program moves through the section of code. *See also* iterative statement, loop¹ (definition 1). *Compare* DO loop.

form \fōrm\ *n.* **1.** A structured document with spaces reserved for entering information and often containing special coding as well. **2.** In some applications (especially databases), a structured window, box, or other self-contained presentation element with predefined areas for entering or changing information. A form is a visual “filter” for the underlying data it is presenting, generally offering the advantages of better data organization and greater ease of viewing. **3.** In optical media, a data storage format used in compact disc technology. **4.** In programming, a metalanguage (such as Backus-Naur form) used to describe the syntax of a language. *See also* Backus-Naur form.

formal language \fōr'məl lang'wəj\ *n.* A combination of syntax and semantics that completely defines a computer language. *See also* Backus-Naur form, semantics (definition 1), syntax.

formal logic \fōr'məl loj'ik\ *n.* A study of the logical expressions, sequences, and overall construction of a valid argument, without regard to the truth of the argument. Formal logic is used in proving program correctness.

format¹ \fōr'mat\ *n.* **1.** In general, the structure or appearance of a unit of data. **2.** The arrangement of data within a document file that typically permits the document to be read or written by a certain application. Many applications can store a file in a more generic format, such as plain ASCII text. **3.** The layout of data storage areas (tracks and sectors) on a disk. **4.** The order and types of fields in a database. **5.** The attributes of a cell in a spreadsheet, such as its being alphabetic or numeric, the number of digits, the use of commas, and the use of currency signs. **6.** The specifications for the placement of text on a page or in a paragraph.

format² \fōr'mat\ *vb.* **1.** To change the appearance of selected text or the contents of a selected cell in a spreadsheet. **2.** To prepare a disk for use by organizing its storage space into a collection of data “compartments,” each of which can be located by the operating system so that data can be sorted and retrieved. When a previously used disk is formatted, any preexisting information on it is lost.

format bar \fōr'mat bär'\ *n.* A toolbar within an application used for modifying the format of the

the data wires), in which each device indicates its readiness to send or receive data. A software handshake consists of signals transmitted over the same wires used to transfer data, as in modem-to-modem communications over telephone lines.

hands-on \handz'on\ *adj.* Involving interactive work with a computer or a computer program. A hands-on tutorial, for example, would teach a skill (such as the use of a program) by means of practice sessions and question-and-answer dialogues.

handwriting recognition \hand'ritēng rek-əg-nish'ən\ *n.* **1.** The ability of a computer to identify a user by recognizing features of handwriting, especially a signature. **2.** The ability of a computer to translate handwritten text into character data for input. This technology is still under considerable development, and most handwriting recognition programs require users to form letters and words in a very consistent and clear manner to work adequately. The development of handwriting recognition programs has been spurred by PDAs, which frequently have keyboards that are too small for data entry, and software designed for Asian markets that have languages with numerous characters, which makes keyboards a cumbersome method for entering text. *See also* PDA. *Compare* optical character recognition.

hang \hang\ *vb.* To stop responding. A hung program or computer system does not respond to user input, but the screen looks as if everything is running normally. The program or system might be waiting for something, for example, information from a network, or it might have terminated abnormally. It might resume running normally on its own, or the user might need to terminate and restart the program or reboot the computer. A hung computer system is said to be locked up. *See also* crash² (definition 1).

hanging indent \hang'ēng in'dent\ *n.* Placement of the beginning of the first line of a paragraph farther to the left than the subsequent lines. *Also called* outdent. *Compare* indent.

hard \hārd\ *adj.* **1.** Permanent, fixed, or physically defined; unchangeable by the ordinary operation of a computer system. *See also* hard copy, hard error, hard return, hard-sectored disk. *Compare* soft (definition 1). **2.** Retaining magnetization even

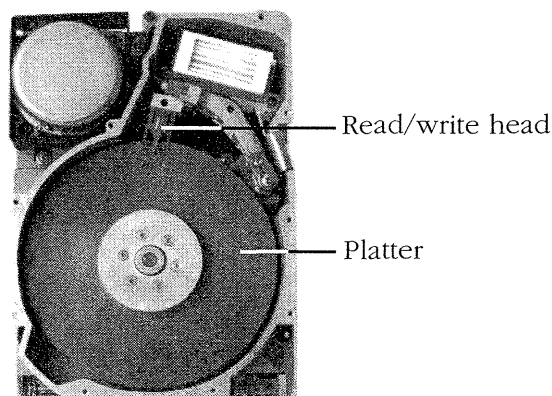
in the absence of an external magnetic field. *Compare* soft (definition 2).

hard card \hārd' kārd\ *n.* A circuit board, carrying a hard disk and containing its controller, that plugs into an expansion slot and uses the expansion bus for power as well as for data and control signals. By contrast, a hard disk in a drive bay communicates with a separate controller card by a ribbon cable and has a direct cable to the computer's main power supply. *See also* controller, drive bay, expansion slot, ribbon cable.

hard-coded \hārd'kō'dəd\ *adj.* **1.** Designed to handle a specific situation only. **2.** Depending on values embedded in the program code rather than on values that can be input and changed by the user.

hard copy \hārd' kop'ē\ *n.* Printed output on paper, film, or other permanent medium. *Compare* soft copy.

hard disk \hārd' disk\ *n.* A device containing one or more inflexible platters coated with material in which data can be recorded magnetically, together with their read/write heads, the head-positioning mechanism, and the spindle motor in a sealed case that protects against outside contaminants. The protected environment allows the head to fly 10 to 25 millionths of an inch above the surface of a platter rotating typically at 3,600 to 7,200 rpm; therefore, much more data can be stored and accessed much more quickly than on a floppy disk. Most hard disks contain from two to eight platters. *See the illustration. Also called* hard disk drive. *Compare* floppy disk.



Hard disk. The cover of this hard disk has been removed to reveal the components within.

L1 cache \L-wən' kash\ *n.* A memory cache built into i486 and higher-level processors. The L1 cache, typically containing 8 KB, can be read in a single clock cycle, so it is tried first. The i486 contains one L1 cache; the Pentium contains two, one for code and one for data. *Also called* level 1 cache, on-chip cache. *See also* cache, i486DX, Pentium. *Compare* L2 cache.

L2 cache \L-tōō' kash\ *n.* A memory cache consisting of static RAM on a motherboard that uses an i486 or higher-level processor. The L2 cache, which typically contains 128 KB to 1 MB, is faster than the system DRAM but slower than the L1 cache built into the CPU chip. *Also called* level 2 cache. *See also* cache, dynamic RAM, i486DX, static RAM. *Compare* L1 cache.

L8R \lā'tər\ *adv.* Abbreviation for "later." As in "See you later," an expression often used in e-mail or Usenet groups as a closing remark.

.la \dot`L-A'\ *n.* On the Internet, the major geographic domain specifying that an address is located in Laos.

label \lā'bəl\ *n.* An identifier. A label can be a physical item, such as a stick-on tag used to identify disks and other computer equipment, or an electronic label added to floppy disks or hard disks. It can also be a word, symbol, or other group of characters used to identify a file, a storage medium, an element defined in a computer program, or a specific item in a document such as a spreadsheet or a chart. *See also* identifier.

label prefix \lā'bəl prē'fiks\ *n.* In a spreadsheet, a character at the beginning of a cell entry that identifies the entry to the program as a label.

lag \lag\ *n.* The time difference between two events. In electronics, a lag is a delay between a change in input and a change in output. On computer displays, a lag is a fading brightness left on the phosphor coating of the screen after an image changes. *See also* persistence.

LAN \lan\ *n.* Acronym for **l**ocal **a**rea **n**etwork. A group of computers and other devices dispersed over a relatively limited area and connected by a communications link that enables any device to interact with any other on the network. LANs commonly include microcomputers and shared resources such as laser printers and large hard disks. The devices on a LAN are known as nodes, and the nodes are connected by cables through which messages are transmitted. *See also* baseband network, broadband network, bus network, collision detection, communications protocol, contention, CSMA/CD, network, ring network, star network, token bus network, token passing, token ring network. *Compare* wide area network.

landscape mode \land'skāp mōd'\ *n.* A horizontal print orientation in which text or images are printed "sideways"—that is, the width of the image on the page is greater than the height. *See the illustration. Compare* portrait mode.

Lorem ipsum solebat somnus complexus est.
Africanus se ostendit es forma quae mihi
imagine elus quam ex isso erat notior. Quem ubi
agnovi, quidem cohorui. Quaesivi tamen
vivertne ipse et Paulus pater et ali quos nos
extintos.

Landscape mode.

landscape monitor \land'skāp mon`ə-tər\ *n.* A monitor that is wider than it is high. Landscape monitors are usually about 33 percent wider than they are high—roughly the same proportion as a

LLC \L`L-C\ *n.* See IEEE 802 standards.

load¹ \lōd\ *n.* **1.** The total computing burden a system carries at one time. **2.** In electronics, the amount of current drawn by a device. **3.** In communications, the amount of traffic on a line.

load² \lōd\ *vb.* To place information from storage into memory for processing, if it is data, or for execution, if it is program code.

load-and-go \lōd`ənd-gō\ *adj.* In reference to a routine, able to begin execution immediately, once loaded. The term is commonly used in reference to compilers and the machine code they generate.

loaded line \lō`dəd līn\ *n.* A transmission cable fitted with loading coils, usually spaced about a mile apart, that reduce amplitude distortion in a signal by adding inductance (resistance to changes in current flow) to the line. Loaded lines minimize distortion within the range of frequencies affected by the loading coils, but the coils also reduce the bandwidth available for transmission.

loader \lō`dər\ *n.* A utility that loads the executable code of a program into memory for execution. On most microcomputers, the loader is an invisible part of the operating system and is automatically invoked when a program is run. See also load module, loader routine.

loader routine \lō`dər rōō-tēn\ *n.* A routine that loads executable code into memory and executes it. A loader routine can be part of an operating system or it can be part of the program itself. See also loader, overlay¹ (definition 1).

load module \lōd`moj`ōōl, mo`dyōōl\ *n.* An executable unit of code loaded into memory by the loader. A program consists of one or more load modules, each of which can be loaded and executed independently. See also loader.

load point \lōd`point\ *n.* The beginning of the valid data area on a magnetic tape.

load sharing \lōd`shār`ēng\ *n.* A method of managing one or more tasks, jobs, or processes by scheduling and simultaneously executing portions of them on two or more microprocessors.

local \lō`kəl\ *adj.* Close at hand or restricted to a particular area. More specifically, in communications, a local device is one that can be accessed directly rather than by means of a communications

line. In information processing, a local operation is one performed by the computer at hand rather than by a remote computer. In programming, a local variable is a variable that is restricted in scope, that is, used in only one part (subprogram, procedure, or function) of a program. Compare remote.

local area network \lō`kəl âr`ē-ə net`wərk\ *n.* See LAN.

local bus \lō`kəl bus\ *n.* A PC architecture designed to speed up system performance by allowing some expansion boards to communicate directly with the microprocessor, bypassing the normal system bus entirely. See also PCI local bus, VL bus.

local bypass \lō`kəl bī`pas\ *n.* A telephone connection used by some businesses that links separate buildings but bypasses the telephone company.

local group \lō`kəl grōōp\ *n.* **1.** In Windows NT, a group that is granted permissions and rights to only those resources on the workstation on which the group resides. Local groups provide a convenient means of allowing users both inside and outside the workstation to use resources found only on the workstation containing the local group. See also group¹. **2.** In Windows NT Advanced Server, a group that is granted permissions and rights to only the resources on the servers of its own domain. Local groups in this context provide a convenient means of allowing users from both inside and outside the domain to use resources found only on the servers of the domain. See also global group, group¹.

localhost \lō`kəl-hōst\ *n.* The name that is used to represent the same computer on which a TCP/IP message originates. An IP packet sent to localhost has the IP address 127.0.0.1 and does not actually go out to the Internet. See also IP address, packet (definition 1), TCP/IP.

localization \lō`kə-lə-zā`shən\ *n.* The process of altering a program so that it is appropriate for the area in which it is used. For example, the developers of a word processing program must localize the sorting tables in the program for different countries or languages because the correct order of characters in one language might be incorrect in another.

local loop \lō`kəl lōōp` \ *n.* A telephone connection that runs from the subscriber to the local telephone exchange.

local memory \lō`kəl mem`ər-ē\ *n.* In multiprocessor systems, the memory on the same card or high-speed bus as a particular processor. Typically, memory that is local to one processor cannot be accessed by another without some form of permission.

local newsgroups \lō`kəl nōōz`grōōps\ *n.* Newsgroups that are targeted toward a geographically limited area such as a city or educational institution. Posts to these newsgroups contain information that is specific to the area, concerning such topics as events, meetings, and sales. *See also* newsgroup.

local reboot \lō`kəl rē`bōōt\ *n.* A reboot of the machine that one is directly working on, rather than a remote host. *See also* reboot.

LocalTalk \lō`kəl-tāk` \ *n.* An inexpensive cabling scheme used by AppleTalk networks to connect Apple Macintosh computers, printers, and other peripheral devices. *See also* AppleTalk.

local variable \lō`kəl vār`ē-ə-bl\ *n.* A program variable whose scope is limited to a given block of code, usually a subroutine. *See also* scope (definition 1). *Compare* global variable.

location \lō-kā`shən\ \ *n.* *See* address¹ (definition 1).

lock \lok\ *n.* **1.** A software security feature that requires a key or dongle in order for the application to run correctly. *See also* dongle. **2.** A mechanical device on some removable storage medium (for example, the write-protect notch on a floppy disk) that prevents the contents from being overwritten. *See also* write-protect notch.

locked file \lokd`fīl\ \ *n.* **1.** A file on which one or more of the usual types of manipulative operation cannot be performed—typically, one that cannot be altered by additions or deletions. **2.** A file that cannot be deleted or moved or whose name cannot be changed.

locked volume \lokd`vol`yōōm\ \ *n.* On the Apple Macintosh, a volume (storage device, such as a disk) that cannot be written to. The volume can be locked either physically or through software.

lockout \lok`out\ \ *n.* The act of denying access to a given resource (file, memory location, I/O port),

usually to ensure that only one program at a time uses that resource.

lock up \lok`up\ \ *n.* A condition in which processing appears to be completely suspended and in which the program in control of the system will accept no input. *See also* crash¹.

log \log\ \ *n.* **1.** A record of transactions or activities that take place on a computer system. **2.** *See* logarithm.

logarithm \log`ər-idh`əm\ \ *n.* Abbreviated log. In mathematics, the power to which a base must be raised to equal a given number. For example, for the base 10, the logarithm of 16 is (approximately) 1.2041 because $10^{1.2041}$ equals (approximately) 16. Both natural logarithms (to the base *e*, which is approximately 2.71828) and common logarithms (to the base 10) are used in programming. Languages such as C and Basic include functions for calculating natural logarithms.

logic \loj`ik\ \ *n.* In programming, the assertions, assumptions, and operations that define what a given program does. Defining the logic of a program is often the first step in developing the program's source code. *See also* formal logic.

logical \loj`ə-kəl\ \ *adj.* **1.** Based on true and false alternatives as opposed to arithmetic calculation of numeric values. For example, a logical expression is one that, when evaluated, has a single outcome, either true or false. *See also* Boolean algebra. *Compare* fuzzy logic. **2.** Of or pertaining to a conceptual piece of equipment or frame of reference, regardless of how it may be realized physically. *Compare* physical.

logical decision \loj`ə-kəl də-sizh`ən\ \ *n.* Any decision that can have one of two outcomes (true/false, yes/no, and so on). *Compare* fuzzy logic.

logical device \loj`ə-kəl də-vīs\ \ *n.* A device named by the logic of a software system, regardless of its physical relationship to the system. For example, a single floppy disk drive can simultaneously be, to the MS-DOS operating system, both logical drive A and drive B.

logical drive \loj`ə-kəl drīv\ \ *n.* *See* logical device.

logical error \loj`ə-kəl âr`ər\ \ *n.* *See* logic error.

logical expression \loj`ə-kəl eks-presh`ən\ \ *n.* *See* Boolean expression.

logical file \loj`ə-kəl fīl\ \ *n.* A file as seen from a conceptual standpoint, without reference to and as

ments, such as Microsoft Windows, a unit of information passed among running programs, certain devices in the system, and the operating environment itself.

message header \mes'əj hed'ər\ *n.* A sequence of bits or bytes at the beginning of a message that usually provides a timing sequence and specifies such aspects of the message structure as its length, data format, and block identification number. *See also* header (definition 2).

message of the day \mes'əj əv dhə dā'\ *n.* A daily bulletin for users of a network, multiuser computer, or other shared system. In most cases, users are shown the message of the day when they log into the system. *Acronym:* MOTD (M'O-T-D).

message queue \mes'əj kyoo'\ *n.* An ordered list of messages awaiting transmission, from which they are taken up on a first in, first out (FIFO) basis.

message reflection \mes'əj rə-flek'shən\ *n.* In object-oriented programming environments, such as Visual C++, OLE, and ActiveX, a function that allows a control to handle its own message. *See also* ActiveX controls, control (definition 2), OCX, VBX.

Message Security Protocol \mes'əj se-kyər'i-tē prō'tə-kol\ *n.* A protocol for Internet messages that is based on the use of encryption and verification to ensure security. It also allows for permissions at the server level for delivery or rejection of e-mail. *Acronym:* MSP (M'S-P).

message switching \mes'əj swich'ēng\ *n.* A technique used on some communications networks in which a message, with appropriate address information, is routed through one or more intermediate switching stations before being sent to its destination. On a typical message-switching network, a central computer receives messages, stores them (usually briefly), determines their destination addresses, and then delivers them. Message switching enables a network both to regulate traffic and to use communications lines efficiently. *Compare* circuit switching, packet switching.

messaging \mes'ə-jēng\ *n.* The use of computers and data communication equipment to convey messages from one person to another, as by e-mail, voice mail, or fax.

messaging application \mes'ə-jēng a-plə-kā'shən\ *n.* An application that enables users to send messages (such as e-mail or fax) to each other.

Messaging Application Programming Interface \mes'ə-jēng a-plə-kā'shən prō'gram-ēng in'tər-fās\ *n.* *See* MAPI.

messaging client \mes'ə-jēng klī'ənt\ *n.* An application program that enables its user to send or receive messages (such as e-mail or fax) to and from other users with the help of a remote server.

metacharacter \met'ə-kâr'ək-tər\ *n.* A character embedded in a program source or a data stream that conveys information about other characters, rather than itself representing a character. A simple example is the backslash (\) character, which, when used in strings in the C programming language, indicates that the letter following the backslash is part of an escape sequence that enables C to display a nongraphic character. *See also* escape character.

metacompiler \met'ə-kəm-pī'lər\ *n.* A compiler that produces compilers. The UNIX utility *yacc* (Yet Another Compiler-Compiler) is a metacompiler. If it is given a language specification, yacc produces a compiler for that language. *See also* compiler (definition 2).

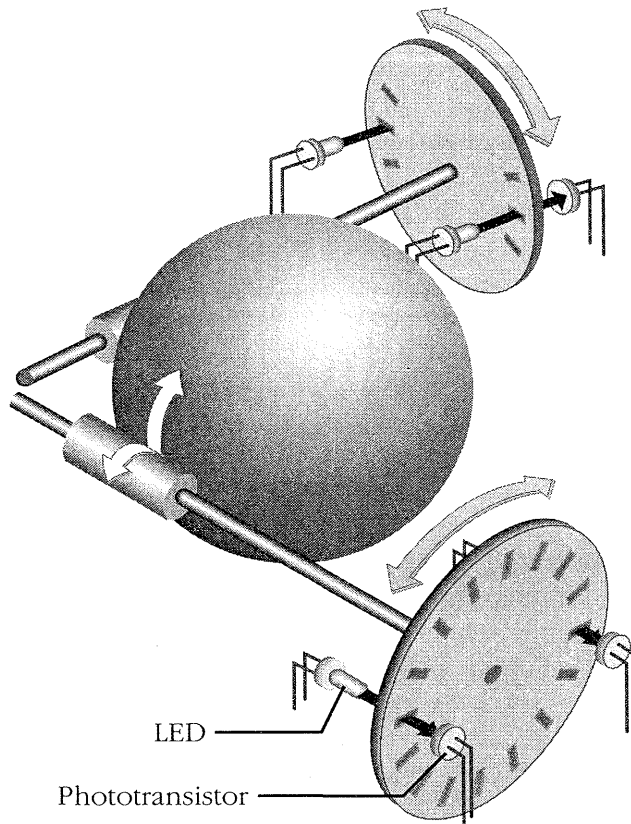
Meta-Content Format \met'ə-kon'tent fôr'mat\ *n.* An open format for describing information about content of a structured body of data such as a Web page, a set of files on a Windows desktop, or a relational database. Meta-Content Format might be used for indexes, data dictionaries, or price lists. *Acronym:* MCF (M'C-F).

meta data or **metadata** \met'ə dā'tə, dat'ə\ *n.* Data about data. For example, the title, subject, author, and size of a file constitute meta data about the file. *See also* data dictionary, repository.

Metadata Interchange Specification \met'ə-dā'tə in'tər-chānj spes-ə-fə-kā'shən\ *n.* A set of specifications dealing with the exchanging, sharing, and managing of meta data. *Acronym:* MDIS (M'D-I-S). *See also* meta data.

metafile \met'ə-fīl\ *n.* A file that contains or defines other files. Many operating systems use metafiles to contain directory information about other files on a given storage device.

cal mice. See the illustration. *See also* mouse. *Compare* mechanical mouse, optical mouse.



Optomechanical mouse. *The interior of an optomechanical mouse.*

OR \ŏr\ *n.* A logical operation for combining two bits (0 or 1) or two Boolean values (false or true). If one or both values are 1 (true), it returns the value 1 (true).

<i>a</i>	<i>b</i>	<i>a OR b</i>
0	0	0
0	1	1
1	0	1
1	1	1

Orange Book \ŏr`anj böök\ *n.* **1.** A U.S. Department of Defense standards document entitled "Trusted Computer System Evaluation Criteria, DOD standard 5200.28-STD, December, 1985," which defines a system of ratings from A1 (most secure) to D (least secure), indicating the ability of a computer system to protect sensitive information. *Compare* Red Book (definition 1). **2.** A specifications book written by the Sony and Philips

Corporations, covering the compact disc write-once formats (CD-R, PhotoCD). *See also* CD-R, ISO 9660, PhotoCD. *Compare* Green Book, Red Book (definition 2).

ORB \ŏrb, Ō`R-B\ *n.* Acronym for **object request broker**. In client/server applications, an interface to which the client makes a request for an object. The ORB directs the request to the server containing the object and then returns the resulting values to the client. *See also* client (definition 1), CORBA.

order¹ \ŏr`dər\ *n.* **1.** In computing, the relative significance of a digit or byte. *High-order* refers to the most significant (usually leftmost) digit or byte; *low-order* refers to the least significant (usually rightmost) digit or byte. **2.** The magnitude of a database in terms of the number of fields it contains. **3.** The sequence in which arithmetic operations are performed.

order² \ŏr`dər\ *vb.* To arrange in a sequence, such as alphabetic or numeric.

ordinal number \ŏr`də-nəl num`bər\ *n.* A number whose form indicates position in an ordered sequence of items, such as first, third, or twentieth. *Compare* cardinal number.

.org \dot-örg', -Ō`R-G\ *n.* In the Internet's Domain Name System, the top-level domain that identifies addresses operated by organizations that do not fit any of the other standard domains. For instance, the Public Broadcasting System (PBS) is neither a commercial, for-profit corporation (.com) nor an educational institution with enrolled students (.edu), so it has the Internet address pbs.org. The designation .org appears at the end of the address. *See also* DNS (definition 1), domain (definition 3). *Compare* .com, .edu, .gov, .mil, .net.

orientation \ŏr`ē-ən-tā`shən\ *n.* *See* landscape mode, portrait mode.

original equipment manufacturer \ər-ij`ən-əl ə-kwip`mənt man`yə-fak`chur-ər\ *n.* The maker of a piece of equipment. In making computers and related equipment, manufacturers of original equipment typically purchase components from other manufacturers of original equipment, integrate them into their own products, and then sell the products to the public. *Acronym:* OEM (Ō`E-M'). *Compare* value-added reseller.

original Macintosh keyboard \ər-ij`ən-əl mak`ən-tosh kē`bōrd\ *n.* The keyboard supplied

authorized users access to a computer system or its files.

paste \pāst\ *vb.* To insert text or a graphic that has been cut or copied from one document into a different location in the same or a different document. *See also* cut, cut and paste.

patch¹ \pach\ *n.* A piece of object code that is inserted in an executable program as a temporary fix of a bug.

patch² \pach\ *vb.* In programming, to repair a deficiency in the functionality of an existing routine or program, generally in response to an unforeseen need or set of operating 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).

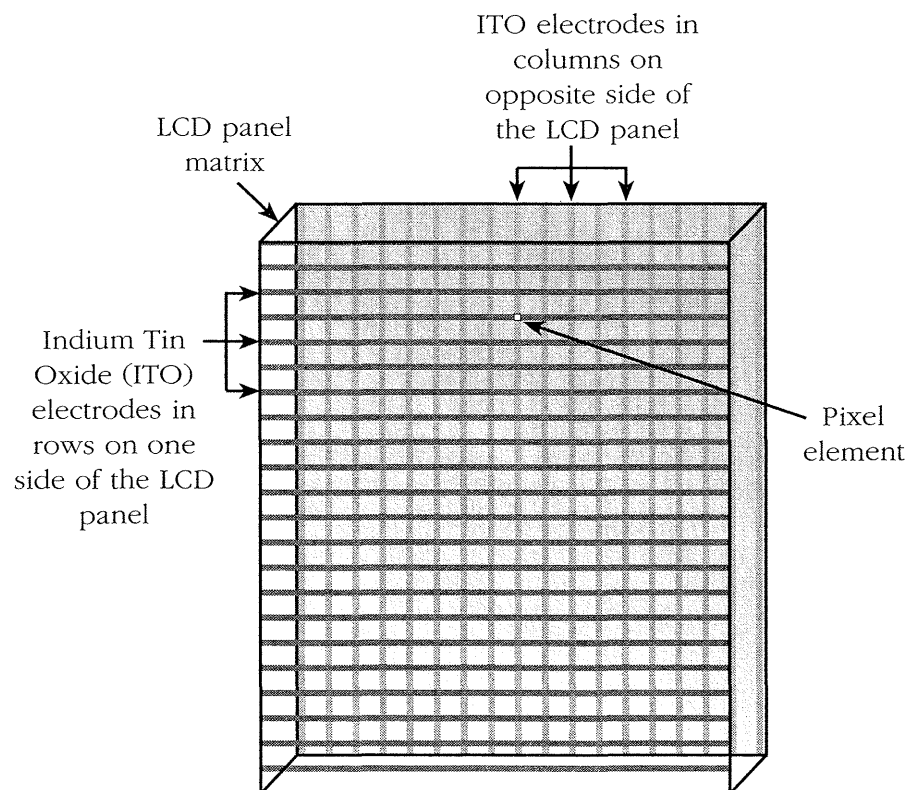
path \path\ *n.* **1.** In communications, a link between two nodes in a network. **2.** A route through a structured collection of information, as in a database, a program, or files stored on disk.

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. *See the illustration.*

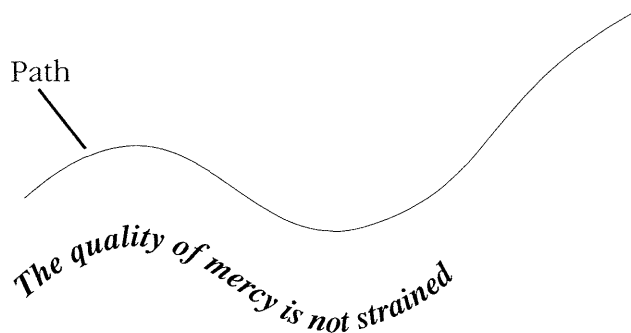
path menu \pathˈmenˈyōō\ *n.* In windows environments, the menu or drop box used to enter the universal naming convention path to a shared network resource.

pathname \pathˈnām\ *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 \patˈərɪn rek-əg-nishˈən\ *n.* **1.** A broad technology describing the ability of a



Passive-matrix display.

**Path.**

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 \pāz´ kē, pōz´\ *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 multiscreen 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.

PBX \P´B-X´\ *n.* Acronym for **P**ri**v**ate **B**ranch **E**xchange. 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 \P-C´\ *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 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). **3.** *See* personal computer.

PCB \P´C-B´\ *n.* *See* printed circuit board.

PC board \P-C´ bōrd´\ *n.* *See* printed circuit board.

PC Card \P-C´ kărd´\ *n.* A trademark of the Personal Computer Memory Card International Association (PCMCIA) that is used to describe add-in cards that conform 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 disks). *See also* PCMCIA, PCMCIA slot.

PC Card slot \P-C´ kărd´ slot´\ *n.* *See* PCMCIA slot.

PC-compatible \P-C´ kəm-pat´ə-bl\ *adj.* **1.** 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. **2.** *See* Wintel.

PC-DOS \P-C´ dos´, -D-O-S´\ *n.* Acronym for **P**er**s**onal **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.

P-channel MOS \P-chan´əl mos´, M-O-S´\ *n.* *See* PMOS.

PCI \P´C-I´\ *n.* *See* PCI local bus.

PCI local bus \P´C-I lō´kəl 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.

PCL \P`C-L` \ *n.* *See* Printer Control Language.

PCM \P`C-M` \ *n.* *See* pulse code modulation.

PCMCIA \P`C-M`C-I-A` \ *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 \P`C-M`C-I-A` kărd` \ *n.* *See* PC card.

PCMCIA connector \P`C-M`C-I-A` kə-nek`tər` \ *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 \P`C-M`C-I-A` 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 \P-C` mem`ər-ē kărd` \ *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 this context,

such a card consists of conventional static RAM chips powered by a small battery and is designed to provide additional RAM to the system. *See also* PC Card. *Compare* flash memory.

p-code \P`kōd` \ *n.* *See* pseudocode.

PCT \P`C-T` \ *n.* Acronym for **p**rogram **c**ompre-hension **t**ool. A software engineering tool that facilitates the process of understanding the structure and/or functionality of computer programs.

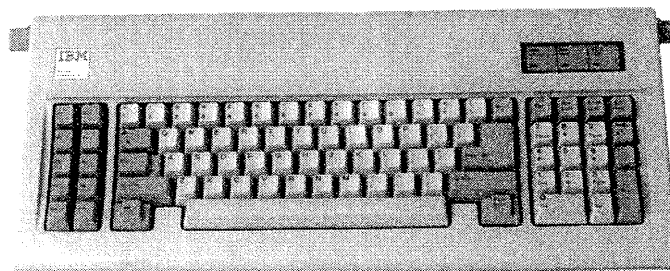
.pcx \dot-P`C-X` \ *n.* The file extension that identifies bitmapped images in the PC Paintbrush file format.

PC/XT \P`C-X-T` \ *n.* The original IBM Personal Computer, introduced in 1981, which used the Intel 8088 CPU. *See also* IBM PC.

PC/XT keyboard \P`C-X-T` kē`bōrd` \ *n.* The original keyboard for the IBM Personal Computer. Strong, reliable, and equipped with 83 keys, the PC/XT keyboard offers a typist an audible click. *See the illustration.* *See also* IBM PC, PC/XT.

PDA \P`D-A` \ *n.* Acronym for **P**ersonal **D**igital **A**ssistant. A lightweight palmtop computer designed to provide specific functions like personal organization (calendar, note taking, database, calculator, and so on) as well as communications. More advanced models also offer multimedia features. Many PDA devices rely on a pen or other pointing device for input instead of a keyboard or mouse, although some offer a keyboard too small for touch typing to use in conjunction with a pen or pointing device. For data storage, a PDA relies on flash memory instead of power-hungry disk drives. *See also* firmware, flash memory, PC Card, pen computer.

PDC \P`D-C` \ *n.* *See* Primary Domain Controller.



PC/XT keyboard.

eventually (in five years or more). *See also* non-volatile memory.

permanent swap file \pər-mə-nənt swäp´ fil\ *n.* In Windows, a file composed of contiguous disk sectors used for virtual memory operations. *See also* swap file, virtual memory.

permanent virtual circuit \pər-mə-nənt vər´chōō-əl sər´kət\ *n.* *See* PVC.

permission \pər-mish´ən\ *n.* In a networked or multiuser computer environment, the ability of a particular user to access a particular resource by means of his or her user account. Permissions are granted by the system administrator or other authorized person; these permissions are stored in the system (often in a file called a *permissions log*) and are checked when a user attempts to access a resource.

perpendicular recording \pər-pən-dik`yə-lər rə-kōr´dēng\ *n.* A method of increasing storage capacity on magnetic media by aligning the magnetic dipoles, whose orientation determines bit values, in a direction that is perpendicular to the recording surface. *Also called* vertical recording.

persistence \pər-si´stəns\ *n.* A characteristic of some light-emitting materials, such as the phosphors used in CRTs, that causes an image to be retained for a short while after being irradiated, as by an electron beam in a CRT. The decay in persistence is sometimes called *luminance decay*.

persistent data \pər-si´stənt dā´tə, dat´əl\ *n.* Data that is stored in a database or on tape so that it is retained by the computer between sessions.

persistent link \pər-si´stənt lēnk´\ *n.* *See* hot link (definition 1).

persistent storage \pər-si´stənt stōr´əj\ *n.* Memory that remains intact when the power to a device is turned off, such as ROM. *See also* memory.

personal computer \pər`sə-nəl kəm-pyōō´tər\ *n.* A computer designed for use by one person at a time. Personal computers do not need to share the processing, disk, and printer resources of another computer. IBM PC-compatible computers and Apple Macintoshes are both examples of personal computers. *Acronym:* PC (P-C´).

Personal Computer \pər`sə-nəl kəm-pyōō´tər\ *n.* *See* IBM PC.

Personal Computer Memory Card International Association \pər`sən-əl kəm-pyōō-tər

mem`ər-ē kărd in-tər-nash`ə-nəl ə-sō`sē-ā´shən\ *n.* *See* PCMCIA.

personal digital assistant \pər`sə-nəl dij`i-təl ə-si´stənt\ *n.* *See* PDA.

personal finance manager \pər`sə-nəl fī´nans man`ə-jər\ *n.* A software application designed to assist the user in performing simple financial accounting tasks, such as balancing checkbooks and paying bills.

personal information manager \pər`sə-nəl in-fər-mā´shən man`ə-jər\ *n.* *See* PIM.

perspective view \pər-spek´tiv vyōō´\ *n.* In computer graphics, a display method that shows objects in three dimensions (height, width, and depth), with the depth aspect rendered according to the desired perspective. An advantage of perspective view is that it presents a more accurate representation of what the human eye perceives. *Compare* isometric view.

peta- \pet´ə\ *prefix* Abbreviated P. Denotes 1 quadrillion (10^{15}). In computing, which is based on the binary (base-2) numbering system, *peta-* has a literal value of 1,125,899,906,842,624, which is the power of 2 (2^{50}) closest to 1 quadrillion.

petabyte \pet´ə-bīt´\ *n.* Abbreviated PB. Either 1 quadrillion bytes or 1,125,899,906,842,624 bytes.

.pg \dot`P-G´\ *n.* On the Internet, the major geographic domain specifying that an address is located in Papua New Guinea.

PGA \P`G-A´\ *n.* *See* pin grid array, Professional Graphics Adapter.

PgDn key \pāj-doun´ kē´\ *n.* *See* Page Down key.

PGP \P`G-P´\ *n.* Acronym for **P**retty **G**ood **P**rivacy. A program for public key encryption, using the RSA algorithm, developed by Philip Zimmermann. PGP software is available in unsupported free versions and supported commercial versions. *See also* privacy, public key encryption, RSA encryption.

PgUp key \pāj-up´ kē´\ *n.* *See* Page Up key.

.ph \dot`P-H´\ *n.* On the Internet, the major geographic domain specifying that an address is located in the Philippines.

phase \fāz\ *n.* A relative measurement that describes the temporal relationship between two signals that have the same frequency. Phase is measured in degrees, with one full oscillation cycle having 360 degrees. The phase of one signal

exists between two points, one point has a positive polarity and the other a negative polarity. Electrons flow from negative to positive; by convention, however, "current" is considered to flow from positive to negative.

polarized component \pō'lar-īzd kəm-pō'nent\ *n.* A circuit component that must be installed with its leads in a particular orientation with respect to the polarity of the circuit. Diodes, rectifiers, and some capacitors are examples of polarized components.

polarizing filter \pō'lar-ī-zēng fil'tər\ *n.* A transparent piece of glass or plastic that polarizes the light passing through it; that is, it allows only waves vibrating in a certain direction to pass through. Polarizing filters are often used to reduce glare on monitor screens. *See also* glare filter.

Polish notation \pō'lish nō-tā'shən\ *n.* *See* prefix notation.

polling \pō'lēng\ *n.* *See* autopolling.

polling cycle \pō'lēng sī'kl\ *n.* The time and sequence required for a program to poll each of its devices or network nodes. *See also* autopolling.

polygon \pol'ē-gon\ *n.* Any two-dimensional closed shape composed of three or more line segments, such as a hexagon, an octagon, or a triangle. Computer users encounter polygons in graphics programs.

polyline \pol'ē-līn\ *n.* An open shape consisting of multiple connected segments. Polyline are used in CAD and other graphics programs. *See also* CAD.

polymorphism \pol'ē-mōr'fiz-əm\ *n.* In an object-oriented programming language, the ability to redefine a routine in a derived class (a class that inherited its data structures and routines from another class). Polymorphism allows the programmer to define a base class that includes routines that perform standard operations on groups of related objects, without regard to the exact type of each object. The programmer then redefines the routines in the derived class for each type, taking into account the characteristics of the object. *See also* class, derived class, object (definition 2), object-oriented programming.

Pong \pong\ *n.* The first commercial video game, a table tennis simulation, created by Nolan Bushnell of Atari in 1972.

pop \pop\ *vb.* To fetch the top (most recently added) element of a stack, removing that element from the stack in the process. *Compare* push (definition 1).

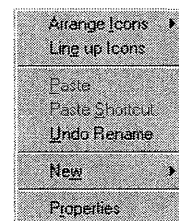
POP \pop\ *n.* *See* point of presence, Post Office Protocol.

POP3 \P'O-P-thrē\ *n.* Acronym for **Post Office Protocol 3**. This is the current version of the Post Office Protocol standard in common use on TCP/IP networks. *See also* Post Office Protocol, TCP/IP.

populate \pop'yə-lāt\ *vb.* **1.** To put chips in the sockets of a circuit board. **2.** To import prepared data into a database from a file using a software procedure rather than by having a human operator enter individual records.

pop-up Help \pop'up help\ *n.* An online help system whose messages appear as pop-up windows when the user clicks on a topic or area of the screen about which help is desired. Typically, a special form of click, such as clicking the right mouse button or Option-clicking, will activate pop-up Help, if it is available. *See also* balloon help.

pop-up menu or **popup menu** \pop'up men'yō\ *n.* In a graphical user interface, a menu that appears on-screen when a user selects a certain item. Pop-up menus can appear anywhere on the screen and generally disappear when the user selects an item in the menu. *See* the illustration. *Also called* popup. *Compare* drop-down menu, pull-down menu.



Pop-up menu.

pop-up messages \pop'up mes'ə-jəz\ *n.* The messages that appear when pop-up Help is used.

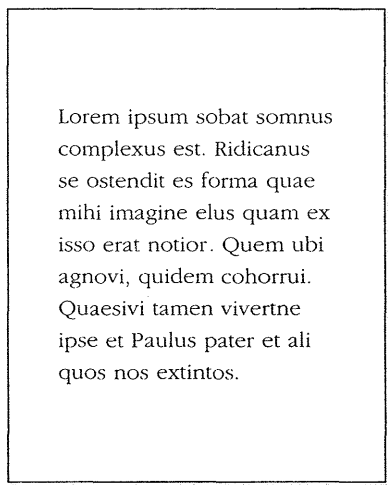
pop-up window \pop'up win'dō\ *n.* A window that appears when an option is selected. Typically, the window remains visible until the mouse button is released. *See* the illustration.

port¹ \pōrt\ *n.* *See* input/output port, port number.

a single port. Although several devices might be connected, only one can use the port at any given moment.

port number \pōrt' num'bər\ *n.* A number that enables IP packets to be sent to a particular process on a computer connected to the Internet. Some port numbers, called “well-known” port numbers, are permanently assigned; for example, e-mail data under SMTP goes to port number 25. A process such as a telnet session receives an “ephemeral” port number when it starts; data for that session goes to that port number, and the port number goes out of use when the session ends. A total of 65,535 port numbers are available for use with TCP, and the same number are available for UDP. *See also* IP, Simple Mail Transfer Protocol, socket (definition 1), TCP, UDP. *Compare* IP address.

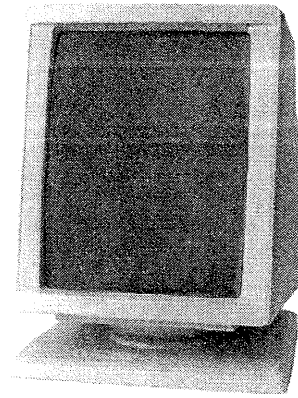
portrait mode \pōr'trət mōd'\ *n.* A vertical print orientation in which a document is printed across the narrower dimension of a rectangular sheet of paper. This is the print mode typical of most letters, reports, and other such documents. *See the illustration. Compare* landscape mode.



Portrait mode.

portrait monitor \pōr'trət mon'i-tər\ *n.* A monitor with a screen shape higher than it is wide. The proportions (but not necessarily the size) of the screen are usually the same as for a sheet of 8½-by-11-inch paper. *See the illustration. Compare* landscape monitor.

POS \P`O-S'\ *n.* Acronym for **point of sale**. The place in a store at which goods are paid for. Com-



Portrait monitor.

puterized transaction systems, such as those in use at automated supermarkets, use scanners for reading tags and bar codes, electronic cash registers, and other special devices to record purchases at this point.

POSIT \poz'it, P`O-S-I-T'\ *n.* Acronym for **Profiles for Open Systems Internetworking Technology**. A set of nonmandatory standards for U.S. government network equipment. POSIT, which recognizes the prevalence of TCP/IP, is the successor to GOSIP. *See also* GOSIP, TCP/IP.

positional notation \pə-zish`ə-nəl nō-tā'shən\ *n.* In mathematics, a form of notation whose meaning relies in part on the relative location of the elements involved. For example, common numeric notation is positional notation. In the decimal number 34, the position of the numeral 3 signifies three 10s and the position of the numeral 4 signifies four 1s.

POSIX \pō'siks, P`O-S`I-X'\ *n.* Acronym for **Portable Operating System Interface for UNIX**. An IEEE standard that defines a set of operating-system services. Programs that adhere to the POSIX standard can be easily ported from one system to another. POSIX was based on UNIX system services, but it was created in a way that allows it to be implemented by other operating systems.

post \pōst\ *vb.* To submit an article in a newsgroup or other online conference. The term is derived from the “posting” of a notice on a physical bulletin board. *See also* newsgroup.

POST \pōst\ *n.* *See* power-on self test.

posterization \pō'stər-ə-zā'shən\ *n.* *See* contouring.

operators appear before the operands. For example, the expression $(a + b) * (c - d)$ would be written in prefix notation as $* + a b - c d$. *Also called* Polish notation. *See also* infix notation, postfix notation.

Prefs \prefs\ *n.* *See* Preferences.

PREP \prep, P`R-E-P\ *n.* *See* Power PC Reference Platform.

preprocessor \prē`pros`es-ər\ *n.* A device or routine that performs preliminary operations on input before passing it on for further processing. *See also* front-end processor (definition 1). *Compare* post-processor.

presentation graphics \prē-zən-tā`shən graf`iks, prez-ən-tā`shən\ *n.* The representation of business information, such as sales figures and stock prices, in chart form rather than as lists of numbers. Presentation graphics are used to give viewers an immediate grasp of business statistics and their significance. Common examples are area charts, bar charts, line charts, and pie charts. *Also called* business graphics.

presentation layer \prē-zən-tā`shən lâ`r, prez-ən-tā`shən, lâ`ər\ *n.* The sixth of the seven layers in the International Organization for Standardization's Open Systems Interconnection (ISO/OSI) model for standardizing computer-to-computer communications. The presentation layer is responsible for formatting information so that it can be displayed or printed. This task generally includes interpreting codes (such as tabs) related to presentation, but it can also include converting encryption and other codes and translating different character sets. *See also* ISO/OSI model.

Presentation Manager \prē-zən-tā`shən man`ə-jər, prez-ən-tā`shən\ *n.* The graphical user interface provided with OS/2 versions 1.1 and later. The Presentation Manager derives from the MS-DOS-based Windows environment and provides similar capabilities. The user sees a graphical, window-oriented interface, and the programmer uses a standard set of routines for handling screen, keyboard, mouse, and printer input and output, no matter what hardware is attached to the system. *See also* OS/2, Windows.

pressure-sensitive \presh`ər-sen`sə-tiv\ *adj.* Of or pertaining to a device in which pressing on a thin surface produces an electrical connection and

causes an event to be registered by the computer. Pressure-sensitive devices include touch-sensitive drawing pens, membrane keyboards, and some touch screens. *See also* touch screen.

Pretty Good Privacy \prit`ē gōōd prī`və-sē\ *n.* *See* PGP.

pretty print \prit`ē print`\ *n.* A feature of some editors used in programming that formats code so that it is easier to read and understand when printed. For example, a pretty-print feature might insert blank lines to set off modules or indent nested routines to make them easier to spot. *See also* code¹ (definition 1), editor, module (definition 1), routine.

preventive maintenance \prə-ven`tiv măn`tə-nəns\ *n.* Routine servicing of hardware intended to keep equipment in good operating condition and to find and correct problems before they develop into severe malfunctions.

preview \prē`vyōō\ *n.* In word processors and other applications, the feature that formats a document for printing but displays it on the video monitor rather than sending it directly to the printer.

primary channel \prī`mâr-ē chan`əl\ *n.* The data-transmission channel in a communications device, such as a modem. *Compare* secondary channel.

Primary Domain Controller \prī`mâr-ē dō-măn`kən-trō`lär\ *n.* **1.** In Windows NT, a database providing a centralized administration site for resources and user accounts. The database allows users to log onto the domain, rather than onto a specific host machine. A separate account database keeps track of the machines in the domain and allocates the domain's resources to users. **2.** In any local area network, the server that maintains the master copy of the domain's user accounts database and that validates logon requests. *Acronym:* PDC (P`D-C`).

primary key \prī`mâr-ē kē`\ *n.* In databases, the key field that serves as the unique identifier of a specific tuple (row) in a relation (database table). *Also called* major key. *See also* alternate key (definition 1), candidate key. *Compare* secondary key.

primary storage \prī`mâr-ē stōr`əj\ *n.* Random access memory (RAM); the main general-purpose storage region to which the microprocessor has direct access. A computer's other storage options,

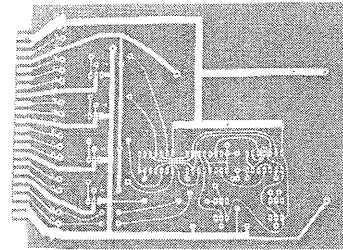
such as disks and tape, are called *secondary storage* or (sometimes) *backing storage*.

primitive \prim'ə-tiv\ *n.* **1.** In computer graphics, a shape, such as a line, circle, curve, or polygon, that can be drawn, stored, and manipulated as a discrete entity by a graphics program. A primitive is one of the elements from which a large graphic design is created. **2.** In programming, a fundamental element in a language that can be used to create larger procedures that do the work a programmer wants to do.

print \print\ *vb.* In computing, to send information to a printer. The word is also sometimes used in the sense of "show me" or "copy this." For example, the PRINT statement in Basic causes output to be displayed (printed) on the screen. Similarly, an application program that can be told to "print" a file to disk interprets the command as an instruction to route output to a disk file instead of to a printer.

print buffer \print' buf'ər\ *n.* A section of memory to which print output can be sent for temporary storage until the printer is ready to handle it. A print buffer can exist in a computer's random access memory (RAM), in the printer, in a separate unit between the computer and the printer, or on disk. Regardless of its location, the function of a print buffer is to free the computer for other tasks by taking print output at high speed from the computer and passing it along at the much slower rate required by the printer. Print buffers vary in sophistication: some simply hold the next few characters to be printed, and others can queue, reprint, or delete documents sent for printing.

printed circuit board \prin'təd sə'r'kət bōrd\ *n.* A flat board made of nonconducting material, such as plastic or fiberglass, on which chips and other electronic components are mounted, usually in predrilled holes designed to hold them. The component holes are connected electrically by predefined conductive metal pathways that are printed on the surface of the board. The metal leads protruding from the electronic components are soldered to the conductive metal pathways to form a connection. A printed circuit board should be held by the edges and protected from dirt and static electricity to avoid damage. See the illustration. *Acronym:* PCB (P'C-B').



Printed circuit board.

printer \prin'tər\ *n.* A computer peripheral that puts text or a computer-generated image on paper or on another medium, such as a transparency film. Printers can be categorized in any of several ways. The most common distinction is impact versus nonimpact. Impact printers physically strike the paper and are exemplified by pin dot-matrix printers and daisy-wheel printers; non-impact printers include every other type of print mechanism, including laser, ink-jet, and thermal printers. Other possible methods of categorizing printers include (but are not limited to) the following:

- **Print technology:** Chief among these are pin dot-matrix, ink-jet, laser, thermal, and (although somewhat outdated) daisy-wheel or thimble printers. Pin dot-matrix printers can be further classified by the number of pins in the print head: 9, 18, 24, and so on.
- **Character formation:** Fully formed characters made of continuous lines (such as those produced by a daisy-wheel printer) versus dot-matrix characters composed of patterns of dots (such as those produced by standard dot-matrix, ink-jet, and thermal printers). Laser printers, while technically dot-matrix, are generally considered to produce fully formed characters because their output is very clear and the dots are extremely small and closely spaced.
- **Method of transmission:** Parallel (byte-by-byte transmission) versus serial (bit-by-bit transmission). These categories refer to the means by which output is sent to the printer rather than to any mechanical distinctions. Many printers are available in either parallel or serial versions, and still other printers offer both choices, yielding greater flexibility in installation options.

that looks much like a mixture of English and their favorite programming language, such as C or Pascal, and then translate it line by line into the actual language being used.

pseudo compiler \sōō'dō kām-pī'lār\ *n.* A compiler that generates a pseudolanguage. *See also* pseudolanguage.

pseudocomputer \sōō'dō kām-pyōō'tər\ *n.* *See* pseudomachine.

pseudolanguage \sōō'dō-lang'wəj\ *n.* A nonexistent programming language—that is, one for which no implementation exists. The term can refer either to the machine language for a nonexistent processor or to a high-level language for which no compiler exists. *See also* pseudocode.

pseudomachine \sōō'dō-mə-shēn\ *n.* Abbreviated p-machine. A processor that doesn't actually exist in hardware but that is emulated in software. A program written for the pseudomachine can run on several platforms without having to be recompiled. *See also* pseudocode, UCSD p-System.

pseudo-operation \sōō'dō-op-ər-ā'shən\ *n.* Abbreviated pseudo-op. In programming, a program instruction that conveys information to an assembler or compiler but is not translated into a machine language instruction—for example, an instruction that establishes the value of a constant or the manner in which Boolean (logical) expressions are to be evaluated.

PSK \P'S-K\ *n.* *See* phase-shift keying.

PSN \P'S-N\ *n.* Acronym for **packet-switching network**. *See* packet switching.

p-system \P'si'stəm\ *n.* An operating system based on a pseudomachine implemented in software. A program written for the p-system is more portable than one written for a machine-dependent operating system. *See also* UCSD p-System.

.pt \dot'P-T\ *n.* On the Internet, the major geographic domain specifying that an address is located in Portugal.

P-type semiconductor \P'tīp sem'ē-kən-duk-tər, sem'ī-kən-duk-tər\ *n.* Semiconductor material in which electrical conduction is carried by holes ("vacancies" left by electrons). Whether a semiconductor is N-type or P-type depends on the kind of dopant added during manufacture. A dopant with a shortage of electrons results in a P-type semiconductor. *Compare* N-type semiconductor.

/pub \slash-pub\ *n.* Short for **public**. A directory in an anonymous FTP archive that is accessible by the public and that generally contains files available for free download. *See also* anonymous FTP.

pub \pub\ *n.* *See* /pub.

public directory \pu'blik dər-ek'tər-ē\ *n.* A directory on an FTP server that is accessible by anonymous users for the purpose of retrieving or storing files. Often the directory is called /pub. *See also* anonymous FTP, FTP (definition 1), FTP server, /pub.

public domain \pu'blik dō-mān\ *n.* The set of all creative works, such as books, music, or software, that are not covered by copyright or other property protection. Works in the public domain can be freely copied, modified, and otherwise used in any manner for any purpose. Much of the information, texts, and software on the Internet is in the public domain, but putting a copyrighted work on the Internet does not put it in the public domain. *Compare* proprietary.

public-domain software \pu'blik-dō-mān soft'-wār\ *n.* A program donated for public use by its owner or developer and freely available for copying and distribution. *Compare* free software, free-ware, proprietary software, shareware.

public files \pu'blik fīlz\ *n.* Files with no access restrictions.

public folders \pu'blik fōl'dərz\ *n.* The folders that are made accessible on a particular machine or by a particular user in a shared networking environment. *Compare* private folders.

public key \pu'blik kē\ *n.* One of two keys in public key encryption. The user releases this key to the public, who can use it for encrypting messages to be sent to the user and for decrypting the user's digital signature. *See also* public key encryption. *Compare* private key.

public key cryptography \pu'blik kē krip-to'grā-fē\ *n.* *See* public key encryption.

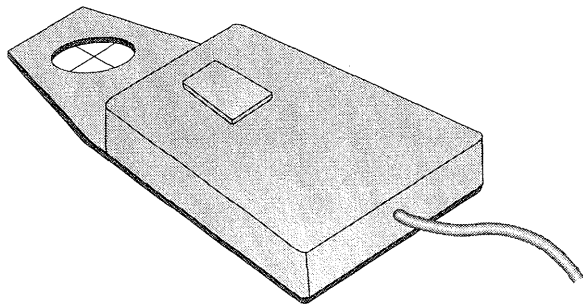
public key encryption \pu'blik kē'en-krip'shən\ *n.* An asymmetric scheme that uses a pair of keys for encryption: the public key encrypts data, and a corresponding secret key decrypts it. For digital signatures, the process is reversed: the sender uses the secret key to create a unique electronic number that can be read by anyone possessing the corresponding public key, which verifies that the



message is truly from the sender. *See also* private key, public key.

public rights \puˈblik rīts\ *n.* In the context of the Internet, the extent to which members of the public are permitted to use (and to place) information on the Internet under intellectual property law. *See also* fair use, public domain, public-domain software.

puck \puk\ *n.* A pointing device used with a graphics tablet. A puck, which is often used in engineering applications, is a mouselike device with buttons for selecting items or choosing commands and a clear plastic section extending from one end with cross hairs printed on it. The intersection of the cross hairs on the puck points to a location on the graphics tablet, which in turn is mapped to a specific location on the screen. Because the puck's cross hairs are on a transparent surface, a user can easily trace a drawing by placing it between the graphics tablet and the puck and moving the cross hairs over the lines of the drawing. *See the illustration. See also* graphics tablet, stylus.



Puck.

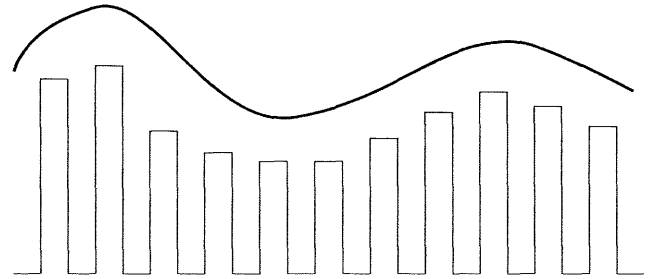
pull \pul\ *vb.* **1.** The process of retrieving data from a network server. *Compare* push (definition 2). **2.** *See* pop.

pull-down menu \pulˈdaʊn menˈyoo\ *n.* A menu that is pulled down from the menu bar and that remains available as long as the user holds it open. *Compare* drop-down menu.

pulse \puls\ *n.* A transient signal, usually brief and with a discrete onset and offset.

pulse amplitude modulation \pulsˈ amˈplə-tōd mo-dyā-lāˈshən, mojˈə-lāˈshən\ *n.* A method of encoding information in a signal by varying the amplitude of pulses. The unmodu-

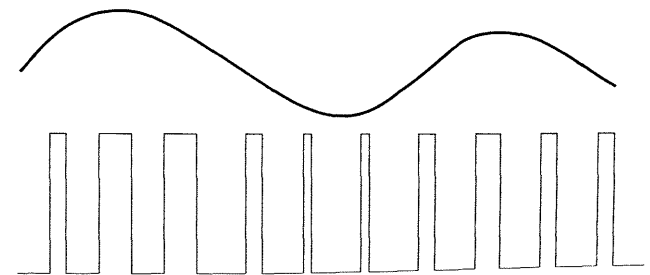
lated signal consists of a continuous train of pulses of constant frequency, duration, and amplitude. During modulation the pulse amplitudes are changed to reflect the information being encoded. *See the illustration. Acronym:* PAM (pam, PˈA-Mˈ). *Compare* pulse code modulation, pulse duration modulation, pulse position modulation.



Pulse amplitude modulation.

pulse code modulation \pulsˈ kōdˈ mo-dyā-lāˈshən, mojˈə-lāˈshən\ *n.* A method of encoding information in a signal by varying the amplitude of pulses. Unlike pulse amplitude modulation (PAM), in which pulse amplitude can vary continuously, pulse code modulation limits pulse amplitudes to several predefined values. Because the signal is discrete, or digital, rather than analog, pulse code modulation is more immune to noise than PAM. *Acronym:* PCM (PˈC-Mˈ). *Compare* pulse amplitude modulation, pulse duration modulation, pulse position modulation.

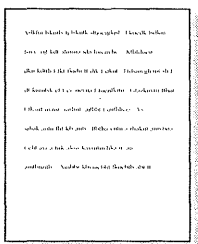
pulse duration modulation \pulsˈ dur-āˈshən mo-dyā-lāˈshən, mojˈə-lāˈshən\ *n.* A method of encoding information in a signal by varying the duration of pulses. The unmodulated signal consists of a continuous train of pulses of constant frequency, duration, and amplitude. During modulation, the pulse durations are changed to



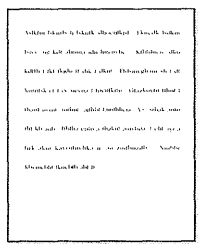
Pulse duration modulation.

rag \rag\ *n.* Irregularity along the left or right edge of a set of lines of text on a printed page. Rag complements justification, in which one or both edges of the text form a straight vertical line. See the illustration. *See also* justify, ragged left, ragged right.

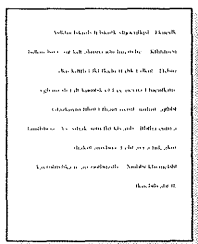
Ragged right



Justified



Ragged left



Rag.

ragged left \rag`əd left\ *adj.* Of, relating to, or being lines of text whose left ends are not vertically aligned but form an irregular edge. Text may be right-justified and have a ragged left margin. Ragged-left text is used infrequently—typically, for visual effect in advertisements. *See also* rag, right-justify.

ragged right \rag`əd rīt\ *adj.* Of, relating to, or being lines of text whose right ends are not vertically aligned but form an irregular edge. Letters and other word-processed documents are commonly left-justified, with ragged-right margins. *See also* left-justify, rag.

RAID \rād, R`A-I-D\ *n.* Acronym for **re**dundant **a**rray of **i**ndependent **d**isks (formerly called **re**dundant **a**rray of **i**nexpensive **d**isks). A data storage method in which data, along with information used for error correction, such as parity bits or Hamming codes, is distributed among two or more hard disk drives in order to improve performance and reliability. The hard disk array is governed by array management software and a disk controller, which handles the error correction. RAID is generally used on network servers. Several defined levels of RAID offer differing trade-offs among access speed, reliability, and cost. *See also* disk controller, error-correction coding, Hamming code, hard disk, parity bit, server (definition 1).

RAID array \rād`ə-rā\, R`A-I-D\ *n.* *See* RAID.

RAM \ram, R`A-M\ *n.* Acronym for **ra**ndom **a**ccess **m**emory. Semiconductor-based memory

that can be read and written by the central processing unit (CPU) or other hardware devices. The storage locations can be accessed in any order. Note that the various types of ROM memory are capable of random access but cannot be written to. The term *RAM*, however, is generally understood to refer to volatile memory that can be written to as well as read. *Compare* core, EPROM, flash memory, PROM, ROM (definition 2).

RAM cache \ram`kash, R`A-M\ *n.* Cache memory that is used by the system to store and retrieve data from the RAM. Frequently accessed segments of data may be stored in the cache for quicker access compared with secondary storage devices such as disks. *See also* cache, RAM.

RAM card \ram`kārd, R`A-M\ *n.* An add-in circuit board containing RAM memory and the interface logic necessary to decode memory addresses.

RAM cartridge \ram`kār`trij, R`A-M\ *n.* *See* memory cartridge.

RAM chip \ram`chip, R`A-M\ *n.* A semiconductor storage device. RAM chips can be either dynamic or static memory. *See also* dynamic RAM, RAM, static RAM.

RAM compression \ram`kəm-presh`ən, R-A-M\ *n.* Short for **ra**ndom **a**ccess **m**emory **co**mpression. This technology was an attempt by a number of software vendors to solve the problem of running out of global memory under Windows 3.x. Compression of the usual contents of RAM may lessen the system's need to read or write to virtual (hard disk-based) memory and thus speed up the system, as virtual memory is much slower than physical RAM. Because of the falling prices of RAM and the introduction of Windows 95 and Windows NT, which handle RAM more effectively, RAM compression is generally used only on older PCs. *See also* compression, RAM, Windows, Windows 95.

RAMDAC \ram`dak, R-A-M`D-A-C\ *n.* Acronym for **ra**ndom **a**ccess **m**emory **d**igital-to-**a**nalog **c**onverter. A chip built into some VGA and SVGA video adapters that translates the digital representation of a pixel into the analog information needed by the monitor to display it. The presence of a RAMDAC chip generally enhances overall video performance. *See also* SVGA, VGA.

RAM disk \ram`disk, R`A-M\ *n.* Short for **ra**ndom **a**ccess **m**emory **d**isk. A simulated disk drive

whose data is actually stored in RAM memory. A special program allows the operating system to read from and write to the simulated device as if it were a disk drive. RAM disks are extremely fast, but they require that system memory be given up for their use. Also, RAM disks usually use volatile memory, so the data stored on them disappears when power is turned off. Many portables offer RAM disks that use battery-backed CMOS RAM to avoid this problem. *See also* CMOS RAM. *Compare* disk cache.

RAM refresh \ram' rē-fresh', R`A-M'\ *n.* *See* refresh (definition 2).

RAM resident \ram' rez`ə-dənt, R-A-M'\ *adj.* *See* memory-resident.

RAM-resident program \ram'rez-ə-dent prō'-gram, R`A-M'\ *n.* *See* terminate-and-stay-resident program.

random access \ran`dəm ak'ses\ *n.* The ability of a computer to find and go directly to a particular storage location without having to search sequentially from the beginning location. The human equivalent of random access would be the ability to find a desired address in an address book without having to proceed sequentially through all the addresses. A computer's semiconductor memory (both RAM and ROM) provides random access. Certain types of files stored on disk under some operating systems also allow random access. Such files are best used for data in which each record has no intrinsic relationship to what comes physically before or after it, as in a client list or an inventory. *Also called* direct access. *See also* RAM, ROM. *Compare* indexed sequential access method, sequential access.

random access memory \ran`dəm ak-ses mem'-ər-ē\ *n.* *See* RAM.

random noise \ran`dəm noiz'\ *n.* A signal in which there is no relationship between amplitude and time and in which many frequencies occur randomly, without pattern or predictability.

random number generation \ran`dəm num'bər jen-ər-ā-shən\ *n.* Production of an unpredictable sequence of numbers in which no number is any more likely to occur at a given time or place in the sequence than any other. Truly random number generation is generally viewed as impossible. The

process used in computers would be more properly called "pseudorandom number generation."

range \rānj\ *n.* **1.** A block of cells selected for similar treatment in a spreadsheet. A range of cells can extend across a row, down a column, or over a combination of the two, but all cells in the range must be contiguous, sharing at least one common border. Ranges allow the user to affect many cells with a single command—for example, to format them similarly, enter the same data into all of them, give them a name in common and treat them as a unit, or select and incorporate them into a formula. **2.** In more general usage, the spread between specified low and high values. Range checking is an important method of validating data entered into an application.

range check \rānj' chek\ *n.* In programming, a limit check of both the upper and lower limits of a value, thus determining whether the value lies within an acceptable range. *See also* limit check.

RARP \R`A-R-P'\ *n.* Acronym for **Reverse Address Resolution Protocol**. A TCP/IP protocol for determining the IP address (or logical address) of a node on a local area network connected to the Internet, when only the hardware address (or physical address) is known. While RARP refers only to finding the IP address and ARP technically refers to the opposite procedure, ARP is commonly used for both senses. *See also* ARP.

RAS \R`A-S'\ *n.* *See* remote access server, Remote Access Service.

raster \ra'stər\ *n.* A rectangular pattern of lines; on a video display, the horizontal scan lines from which the term *raster scan* is derived.

raster display \ra'stər dis-plā'\ *n.* A video monitor (typically a CRT) that displays an image on the screen as a series of horizontal scan lines from top to bottom. Each scan line consists of pixels that can be illuminated and colored individually. Television screens and most computer monitors are raster displays. *See also* CRT, pixel. *Compare* vector display.

raster graphics \ra'stər graf'iks\ *n.* A method of generating graphics that treats an image as a collection of small, independently controlled dots (pixels) arranged in rows and columns. *Compare* vector graphics.

tape machines, the record head is combined with the read head.

record layout \rek'ərd lā'out\ *n.* The organization of data fields within a record. *See also* record¹.

record length \rek'ərd length\ *n.* The amount of storage space required to contain a record, typically given in bytes. *See also* record¹.

record locking \rek'ərd lok'ēng\ *n.* A strategy employed in distributed processing and other multiuser situations to prevent more than one user at a time from writing data to a record. *See also* record¹.

record number \rek'ərd num'bər\ *n.* A unique number assigned to a record in a database in order to identify it. A record number can identify an existing record by its position (for example, the tenth record from the beginning of a database), or it can be assigned to the record to serve as a key (for example, the number 00742 assigned to the tenth record from the beginning of the database). *See also* record¹.

record structure \rek'ərd struk'chur\ *n.* An ordered list of the fields that compose a record, together with a definition of the domain (acceptable values) of each field. *See also* record¹.

recover \rə-kəv'ər\ *vb.* **1.** To return to a stable condition after some error has occurred. A program recovers from an error by stabilizing itself and resuming execution of instructions without user intervention. **2.** To put back into a stable condition. A computer user may be able to recover lost or damaged data by using a program to search for and salvage whatever information remains in storage. A database may be recovered by restoring its integrity after some problem has damaged it, such as abnormal termination of the database management program.

recoverable error \rə-kəv'ər-ə-bl âr'ər\ *n.* An error that can be successfully managed by software. For example, when the user enters a number when a letter is required, the program can simply display an error message and prompt the user again.

recovery \rə-kəv'ər-ē\ *n.* The restoration of lost data or the reconciliation of conflicting or erroneous data, after a system failure. Recovery is often achieved using a disk or tape backup and system logs. *See also* backup.

Recreational Software Advisory Council \re-krē-ā'shə-nəl soft'wâr ad-vī'zər-ē koun'səl\ *n.* An independent, nonprofit organization established in the fall of 1994 by a group of six trade organizations, led by the Software Publishers Association. The Council's goal was to create a new, objective content-labeling rating system for recreational software and other media such as the Internet. *Acronym:* RSAC (R'sak, R'S-A-C').

rectifier \rek'tə-fī'ər\ *n.* A circuit component that passes current flowing in one direction but stops current flowing in the other direction. Rectifiers are used to convert alternating current to direct current.

recto \rek'tō\ *n.* The right-hand page of two facing pages. A recto is characteristically an odd-numbered page. *Compare* verso.

recursion \rə-kur'zhən\ *n.* The ability of a routine to call itself. Recursion enables certain algorithms to be implemented with small, simple routines, but it does not guarantee speed or efficiency. Erroneous use of recursion can cause a program to run out of stack space during execution, causing the program, and sometimes the entire system, to crash. *See also* call¹ (definition 2), routine.

Recycle Bin \rē-sī'kl bin\ *n.* A folder in Windows 95, represented by an icon on the screen resembling a basket decorated with the recycling logo. To remove a file, the user drags its icon to the Recycle Bin. However, a file in the Recycle Bin is not actually deleted from the disk until the user opens the Recycle Bin, selects the file, and presses the Del key; until then, the user can retrieve it. *Compare* Trash.

Red Book \red' bōok\ *n.* **1.** The standards documents of the U.S. National Security Agency entitled "Trusted Network Interpretation of the Trusted Computer System Evaluation Criteria (NCSC-TG-005)" and "Trusted Network Interpretation (NCS-TG-011)." These documents define a system of ratings from A1 (most secure) to D (nonsecure), indicating the ability of a computer network to protect sensitive information. *Compare* Orange Book (definition 1). **2.** A specifications book written by the Sony and Philips corporations and endorsed by ISO, covering audio compact discs. *Compare* Green Book, Orange Book (definition 2). **3.** Telecommunications standards published by the CCITT.

RJ-11 connector \R`J-ə-lev`ən kə-nek`tər\ *n.* See phone connector.

RJ-11 jack \R`J-ə-lev`ən jak\ *n.* See phone connector.

RLIN \R`lin, R`L-I-N`\ *n.* See Research Libraries Information Network.

RLI encoding \R`L-L` en-kō-dēng\ *n.* See run-length limited encoding.

rlogin¹ \R`log`in\ *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 \R`log`in\ *vb.* To connect to a networked computer using the rlogin protocol.

RLSD \R`L-S-D`\ *n.* Acronym for **Received Line Signal Detect**. See DCD.

RMM \R`M-M`\ *n.* See real-mode mapper.

.ro \dot`R-O`\ *n.* On the Internet, the major geographic domain specifying that an address is located in Romania.

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

robot \rō`bot\ *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 \rō-bot`iks\ *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 \rō-bust`\ *adj.* Able to function or to continue functioning well in unexpected situations.

ROFL \R`O-F-L`\ Acronym for **rolling on the floor, laughing**. 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 \rōl`plā-ēng gām`\ *n.* A game that is played online such as a MUD, in which participants take on the identities of characters that interact with each other. Often these games have a fantasy or science fiction setting and have a set of rules that all players need to follow. See also MUD.

rollback \rōl`bak\ *n.* 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.

ROM \rom, R`O-M`\ *n.* **1.** Acronym for **read-only memory**. 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 **read-only memory**. 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.

roman \rō`mən\ *adj.* Having upright rather than slanted characters in a typeface. See also font family. *Compare* italic.

ROM Basic \rom` bā`sik, R-O-M`\ *n.* A Basic interpreter stored in ROM (read-only memory) so that the user can start programming after simply turning on the machine without having to load Basic from a disk or tape. ROM Basic was a feature of many early home computers.

ROM BIOS \rom` bī`ōs, R-O-M`\ *n.* Acronym for **read-only memory basic input/output system**. See BIOS.

ROM card \rom` kārd, R`O-M`\ *n.* A plug-in module that contains one or more printer fonts, programs, or games or other information stored in ROM (read-only memory). A typical ROM card is about the size of a credit card and several times thicker. It stores information directly in integrated circuit boards. Also called font card, game card. See also ROM (definition 1), ROM cartridge.

database. *See also* primary key, secondary key.

2. The value that is to be searched for in a document or any collection of data.

search string \sərch' strēng\ *n.* The string of characters to be matched in a search—typically (but not necessarily) a text string.

seat¹ \sēt\ *n.* One workstation or computer, in the context of software licensing on a per-seat basis. *See also* license agreement, workstation (definition 1).

seat² \sēt\ *vb.* To insert a piece of hardware fully and position it correctly in a computer or affiliated equipment, as in seating a single inline memory module (SIMM) in its socket.

secondary channel \sek'an-dâr-ē chan'al\ *n.* A transmission channel in a communications system that carries testing and diagnostic information rather than actual data. *Compare* primary channel.

secondary key \sek'an-dâr-ē kē'\ *n.* A field that is to be sorted or searched within a subset of the records having identical primary key values. *See also* alternate key (definition 1), candidate key. *Compare* primary key.

secondary service provider \sek'an-dâr-ē sər'vis prə-vī'dər\ *n.* An Internet service provider that provides a Web presence but not direct connectivity. *See also* ISP.

secondary storage \sek'an-dâr-ē stōr'əj\ *n.* Any data storage medium other than a computer's random access memory (RAM)—typically tape or disk. *Compare* primary storage.

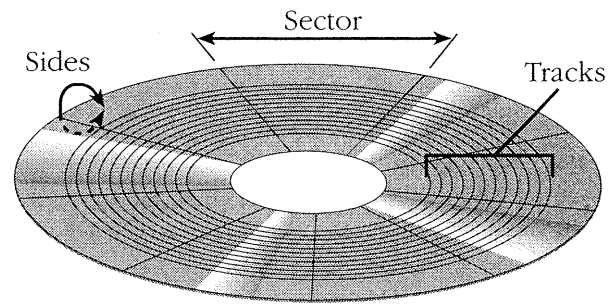
second normal form \sek'ənd nōr'məl fōrm'\ *n.* *See* normal form (definition 1).

secret channel \sē'krət chan'al\ *n.* *See* private channel.

sector \sek'tər\ *n.* A portion of the data storage area on a disk. A disk is divided into sides (top and bottom), tracks (rings on each surface), and sectors (sections of each ring). Sectors are the smallest physical storage units on a disk and are of fixed size; typically, they are capable of holding 512 bytes of information apiece. *See* the illustration.

sector interleave \sek'tər in'tər-lēv\ *n.* *See* interleave.

sector map \sek'tər map'\ *n.* **1.** A map that indicates the unusable sectors on a disk. **2.** A table used to translate the sector numbers that are requested by the operating system into physical



Sector.

sector numbers. The sector map represents a different method of performing sector interleaving. When a sector map is used, the sectors are formatted on the disk in sequential order. The mapping enables the system to read sectors in a nonsequential order. For example, using a 3-to-1 sector interleaving map, a system request for sectors 1 through 4 will result in the disk driver reading physical sectors 1, 4, 7, and 10. *See also* interleave.

secure channel \se-kyər' chan'al\ *n.* A communications link that has been protected against unauthorized access, operation, or use by means of isolation from the public network, encryption, or other forms of control. *See also* encryption.

Secure Electronics Transactions protocol \sə-kyər' ə-lek-tron'iks tranz-ak'shənz prō'tə-kol\ *n.* Protocol for conducting secure transactions on the Internet, the result of a joint effort by GTE, IBM, MasterCard, Microsoft, Netscape, SAIC, Terisa Systems, VeriSign, and Visa. *Acronym:* SET (S'E-T').

Secure Hash Algorithm \sə-kyər' hash' al'gə-ridh'am, se-kyōr'\ *n.* *See* SHA.

Secure HTTP \se-kyər' H'T-T-P'\ *n.* *See* S-HTTP.

Secure Hypertext Transfer Protocol \se-kyər' hī'pər-tekst trans'fər prō'tə-kol\ *n.* *See* S-HTTP.

Secure/Multipurpose Internet Mail Extensions \se-kyər' mul'tē-pur-pəs in'tər-net māl' eks-ten'shənz, mul'tī-pur-pəs\ *n.* *See* S/MIME.

secure site \sə-kyər' sīt'\ *n.* A Web site having the capability of providing secure transactions, ensuring that credit card numbers and other personal information will not be accessible to unauthorized parties.

Secure Sockets Layer \se-kyər' sok'əts lā'ər, lār'\ *n.* A proposed open standard developed by Netscape Communications for establishing a secure

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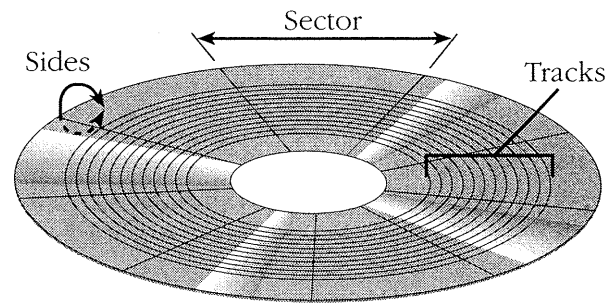
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communications channel to prevent the interception of critical information, such as credit card numbers. The primary purpose of Secure Sockets Layer is to enable secure electronic financial transactions on the World Wide Web, although it is designed to work with other Internet services as well. This technology, which uses public key encryption, is incorporated into the Netscape Navigator Web browser and Netscape's commerce servers. *Acronym:* SSL (S`S-L`). *See also* commerce server, open standard, public key encryption. *Compare* S-HTTP.

Secure Transaction Technology \se-kyər` tranz-ak`shən tek-nol`ə-jē\ *n.* The use of the Secure Sockets Layer (SSL), Secure HTTP (S-HTTP), or both in online transactions, such as form transmission or credit card purchases. *Acronym:* STT (S`T-T`). *See also* Secure Sockets Layer, S-HTTP.

secure wide area network \se-kyər` wīd` ār-ē-ə net`wərk\ *n.* A set of computers that communicate over a public network, such as the Internet, but use security measures, such as encryption, authentication, and authorization, to prevent their communications from being intercepted and understood by unauthorized users. *Acronym:* S/WAN (swän, S`wan, S`-W-A-N`). *See also* authentication, authorization, encryption, virtual private network (definition 1).

security \se-kyər`ə-tē\ *n.* Protection of a computer system and its data from harm or loss. A major focus of computer security, especially on systems that are accessed by many people or through communications lines, is the prevention of system access by unauthorized individuals.

security kernel \se-kyər`ə-tē ker`nəl\ *n.* An operating-system kernel that is protected from unauthorized use. *See also* kernel.

security log \se-kyər`ə-tē log`\ *n.* A log, generated by a firewall or other security device, that lists events that could affect security, such as access attempts or commands, and the names of the users involved. *See also* firewall, log (definition 1).

seed \sēd\ *n.* A starting value used in generating a sequence of random or pseudorandom numbers. *See also* random number generation.

seek \sēk\ *n.* The process of moving the read/write head in a disk drive to the proper site, typically for a read or write operation.

seek time \sēk` tīm\ *n.* The time required to move a disk drive's read/write head to a specific location on a disk. *See also* access time (definition 2).

segment \seg`mənt\ *n.* A section of a program that, when compiled, occupies a contiguous address space and that is usually position independent; that is, it can be loaded anywhere in memory. With Intel-based microcomputers, a native-mode segment is a logical reference to a 64-KB contiguous portion of RAM in which the individual bytes are accessed by means of an offset value. Collectively, the segment:offset values reference a single physical location in RAM. *See also* overlay¹ (definition 1), real mode, segmentation.

segmentation \seg`mən-tā`shən\ *n.* The act of breaking up a program into several sections, or segments. *See also* segment.

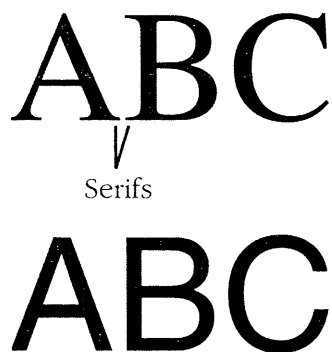
segmented addressing architecture \seg`men-təd a`dres-ēng ār`kə-tek-chur, ə-dres`ēng\ *n.* A memory-access technique typified by Intel 80x86 processors. Memory is divided into 64-KB segments in this architecture for addressing locations under the 16-bit address scheme; 32-bit schemes can address memory in segments as large as 4 GB. *Also called* segmented instruction addressing, segmented memory architecture. *Compare* linear addressing architecture.

segmented address space \seg`men-təd a`dres spās`, ə-dres`\ *n.* An address space that is logically divided into chunks called segments. To address a given location, a program must specify both a segment and an offset within that segment. (The offset is a value that references a specific point within the segment, based on the beginning of the segment.) Because segments may overlap, addresses are not unique; there are many logical ways to access a given physical location. The Intel 80x86 real-mode architecture is segmented; most other microprocessor architectures are flat. *See also* segment. *Compare* flat address space.

segmented instruction addressing \seg`men-təd in-struk`shən ə-dres`ēng, a`dres-ēng\ *n.* *See* segmented addressing architecture.

segmented memory architecture \seg`men-təd mem-ər-ē ār`kə-tek-chur\ *n.* *See* segmented addressing architecture.

select \sə-lekt`\ *vb.* **1.** In general computer use, to specify a block of data or text on screen by high-



Serif. A serif typeface (top) and a sans serif typeface (bottom).

serif² \sâr'if\ *n.* Any of the short lines or ornaments at the ends of the strokes that form a typeface character.

server \sər'vər\ *n.* **1.** On a local area network (LAN), a computer running administrative software that controls access to the network and its resources, such as printers and disk drives, and provides resources to computers functioning as workstations on the network. **2.** On the Internet or other network, a computer or program that responds to commands from a client. For example, a file server may contain an archive of data or program files; when a client submits a request for a file, the server transfers a copy of the file to the client. *See also* client/server architecture. *Compare* client (definition 3).

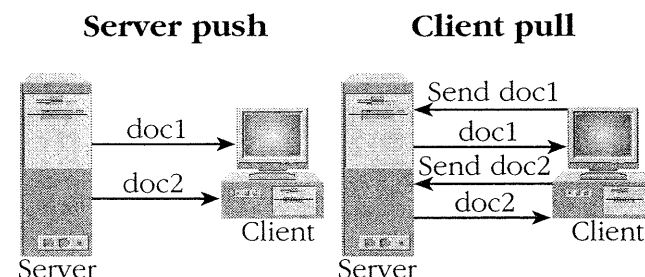
server-based application \sər'vər-bāsd a-plə-kā'shən\ *n.* A program that is shared over a network. The program is stored on the network server and can be used at more than one client machine at a time.

server cluster \sər'vər klu'stər\ *n.* A group of independent computers that work together as a single system. A server cluster presents the appearance of a single server to a client.

server error \sər'vər âr'ər\ *n.* A failure to complete a request for information through HTTP that results from an error at the server rather than an error by the client or the user. Server errors are indicated by HTTP status codes beginning with 5. *See also* HTTP, HTTP status codes.

server push-pull \sər'vər pōōsh'pul', pōōl'\ *n.* A combination of Web client/server techniques individually called "server push" and "client pull." In server push, the server loads data to the client, but

the data connection stays open. This allows the server to continue sending data to the browser as necessary. In client pull, the server loads data to the client, but the data connection does not stay open. The server sends an HTML directive to the browser telling it to reopen the connection after a certain interval to get more data or possibly to open a new URL. *See the illustration. See also* HTML, server (definition 2), URL.



Server push-pull.

server-side includes \sər'vər-sīd in-klōōdz'\ *n.* A mechanism for including dynamic text in World Wide Web documents. Server-side includes are special command codes that are recognized and interpreted by the server; their output is placed in the document body before the document is sent to the browser. Server-side includes can be used, for example, to include the date/time stamp in the text of the file. *See also* server (definition 2).

service \sər'vəs\ *n.* **1.** A customer-based or user-oriented function, such as technical support or network provision. **2.** In reference to programming and software, a program or routine that provides support to other programs, particularly at a low (close to the hardware) level. *See also* utility.

Service Advertising Protocol \sər'vəs ad'vər-tī-zēng prō'tə-kol\ *n.* A method used by a service-providing node in a network (such as a file server or application server) to notify other nodes on the network that it is available for access. When a server boots, it uses the protocol to advertise its service; when the same server goes offline, it uses the protocol to announce that it is no longer available. *Acronym:* SAP (S`A-P`). *See also* server (definition 1).

service bureau \sər'vis byər'ō\ *n.* **1.** A company that provides various services related to publishing, such as prepress production, desktop pub-

.sgml \dot`S-G-M-L` n. The file extension that identifies files encoded in Standard Generalized Markup Language. *See also* SGML.

SGML \S`G-M-L` n. Acronym for **Standard Generalized Markup Language**. An information management standard adopted by the International Organization for Standardization (ISO) in 1986 as a means of providing platform- and application-independent documents that retain formatting, indexing, and linked information. SGML provides a grammarlike mechanism for users to define the structure of their documents and the tags they will use to denote the structure in individual documents. *See also* ISO.

.sh \dot`S-H` n. On the Internet, the major geographic domain specifying that an address is located in Saint Helena.

sh \S`H` n. *See* Bourne shell.

SHA \S`H-A` n. Acronym for **Secure Hash Algorithm**. A technique that computes a 160-bit condensed representation of a message or data file, called a *message digest*. The SHA is used by the sender and the receiver of a message in computing and verifying a digital signature, for security purposes. *See also* algorithm, digital signature.

shade¹ \shād` n. A particular color variation produced by mixing black with a pure color. *See also* brightness, IRGB.

shade² \shād` vb. To give added dimension to an image by including changes in appearance caused by light and shadow. *See also* color model.

shadow memory \shad`ō mem`ər-ē` n. A technique employed by the BIOS in some 80x86-based computers to copy the system's ROM BIOS routines into an unused section of RAM during the computer's startup process. This helps boost system performance by diverting system requests for the BIOS routines to their "shadow" copies. *Also called* shadow RAM, shadow ROM.

shadow print \shad`ō print` n. A style applied to text in which a duplicate of each character is shifted, typically down and to the right, to create a shadow effect. *See the illustration.*

shadow RAM \shad`ō ram`, R-A-M` n. *See* shadow memory.

shadow ROM \shad`ō rom`, R-O-M` n. *See* shadow memory.

Shadows

Shadows

Shadow print.

share \shâr` vb. To make files, directories, or folders accessible to other users over a network.

shared directory \shârd` dər-ek`tər-ē` n. *See* network directory.

shared folder \shârd` fōl`dər` n. On a Macintosh computer connected to a network and running System 6.0 or higher, a folder that a user has made available to others on the network. A shared folder is analogous to a network directory on a PC. *See also* network directory.

shared logic \shârd` loj`ik` n. The use, by multiple circuits or software routines, of common circuits or routines to implement an operation.

shared memory \shârd` mem`ər-ē` n. **1.** Memory accessed by more than one program in a multitasking environment. **2.** A portion of memory used by parallel-processor computer systems to exchange information. *See also* parallel processing.

shared network directory \shârd` net`wərk dər-ek`tər-ē` n. *See* network directory.

shared printer \shârd` prin`tər` n. A printer that receives input from more than one computer.

shared resource \shârd` rē`sōrs, rə-sōrs` n. **1.** Any device, data, or program used by more than one device or program. **2.** In Windows NT, any resource made available to network users, such as directories, files, and printers.

shareware \shâr`wâr` n. Copyrighted software that is distributed on a try-before-you-buy basis. Users who want to continue using the program after the trial period are encouraged to send a payment to the program's author. *Compare* free software, freeware, public-domain software.

sharpness \shärp`nəs` n. *See* resolution (definition 1).

sheet-fed scanner \shēt`fed skan`ər` n. A scanner with a single-sheet feed mechanism, in which

small caps \smäl kaps\ *n.* A font of capital letters that are smaller than the standard capital letters in that typeface. THIS TEXT IS IN SMALL CAPS.

Small Computer System Interface \smäl kəm-pyōōtər siʹstəm inʹtər-fās\ *n.* See SCSI.

small model \smäl modʹəl\ *n.* A memory model of the Intel 80x86 processor family that allows only 64 kilobytes (KB) for code and 64 KB for data. See also memory model.

small-scale integration \smäl skāl inʹtə-grāʹshən\ *n.* A concentration of fewer than 10 components on a single chip. *Acronym:* SSI (SʹS-Iʹ). See also integrated circuit.

Smalltalk \smäl tāk\ *n.* An object-oriented language and development system developed at Xerox Palo Alto Research Center (PARC) in 1980. Smalltalk pioneered many language and user interface concepts that are now widely used in other environments, such as the concept of an object that contains data and routines and on-screen icons that the user can choose to make the computer perform certain tasks. See also object-oriented programming.

smart \smärt\ *adj.* A synonym for intelligent. See intelligence.

smart cable \smärt kāʹbl\ *n.* See intelligent cable.

smart card \smärt kārd\ *n.* **1.** In computers and electronics, a circuit board with built-in logic or firmware that gives it some kind of independent decision-making ability. **2.** In banking and finance, a credit card that contains an integrated circuit that gives it a limited amount of "intelligence" and memory.

smart linkage \smärt lēnkʹəj\ *n.* A feature of programming languages that guarantees that routines will always be called with correct parameter types. See also link (definition 1).

smart quotes \smärt kwōts\ *n.* In word processors, a function that automatically converts the ditto marks (") produced by most computer keyboards to the inverted commas (" and ") used in typeset text.

SMART system \smärt siʹstəm, SʹM-A-R-Tʹ\ *n.* Short for **self-monitoring analysis and reporting technology system**. A system by which technology is used to monitor and predict device performance and reliability. A SMART system employs various diagnostic tests to detect problems with

devices, with the object of increasing productivity and protecting data.

smart terminal \smärt tərʹmə-nəl\ *n.* A terminal that contains a microprocessor and random access memory (RAM) and that does some rudimentary processing without intervention from the host computer. Compare dumb terminal.

SMDS \SʹM-D-Sʹ\ *n.* Acronym for **Switched Multi-megabit Data Services**. A very high-speed, switched data transport service that connects local area networks and wide area networks through the public telephone network.

smiley \smīlē\ *n.* See emoticon.

S/MIME \Sʹmīm, Sʹ-M-I-M-Eʹ\ *n.* Acronym for **Secure/Multipurpose Internet Mail Extensions**. An Internet e-mail security standard that makes use of public key encryption. See also public key encryption.

SMIS \SʹM-I-Sʹ\ *n.* Acronym for **Society for Management Information Systems**. See Society for Information Management.

smoke test \smōk test\ *n.* The testing of a piece of hardware after assembly or repairs by turning it on. The device fails the test if it produces smoke, explodes, or has some other unexpected violent or dramatic reaction, even if it appears to work.

smooth \smōōdh\ *vb.* **1.** To eliminate irregularities in statistical data by some process such as continuous averaging or by removing random (irrelevant) values. **2.** In graphics, to remove jagged edges from a figure or line. See also anti-aliasing.

SMP \SʹM-Pʹ\ *n.* Acronym for **symmetric multiprocessing**. A computer architecture in which multiple processors share the same memory, which contains one copy of the operating system, one copy of any applications that are in use, and one copy of the data. Because the operating system divides the workload into tasks and assigns those tasks to whatever processors are free, SMP reduces transaction time. See also architecture, multiprocessing.

SMP server \SʹM-Pʹ sər-vər\ *n.* Short for **symmetric multiprocessing server**. A computer that is designed with the SMP architecture to improve its performance as a server in client/server applications. See also SMP.

SMT \SʹM-Tʹ\ *n.* See surface-mount technology.

SMTP \SʹM-T-Pʹ\ *n.* See Simple Mail Transfer Protocol.

SRAM \S`ram, S`R-A-M\ *n.* See static RAM.

SRAPI \S`R-A-P-I\ *n.* Acronym for **Speech Recognition Application Programming Interface**. A cross-platform application programming interface for speech recognition and text-to-speech functions supported by a consortium of developers including Novell, IBM, Intel, and Philips Dictation Systems. See also application programming interface, speech recognition.

SSA \S`S-A\ *n.* Acronym for **Serial Storage Architecture**. An interface specification from IBM in which devices are arranged in a ring topology. In SSA, which is compatible with SCSI devices, data can be transferred at up to 20 megabytes per second in each direction. See also SCSI device.

SSD \S`S-D\ *n.* Acronym for **solid-state disk**. See solid-state disk drive.

SSI \S`S-I\ *n.* See small-scale integration.

SSL \S`S-L\ *n.* See Secure Sockets Layer.

.st \dot`S-T\ *n.* On the Internet, the major geographic domain specifying that an address is located in Sao Tomé and Príncipe.

ST506 interface \S`T-fiv`ō-siks in`tar-fās\ *n.* The hardware signal specification developed by Seagate Technologies for hard-disk-drive controllers and connectors. The ST506/412 version of this interface has become a de facto standard.

stack \stak\ *n.* A region of reserved memory in which programs store status data such as procedure and function call addresses, passed parameters, and sometimes local variables. See also pop, push (definition 1). Compare heap (definition 1).

stack pointer \stak`poin`tər\ *n.* A register that contains the current address of the top element of the stack. See also pointer (definition 1), stack.

stackware \stak`wâr\ *n.* A HyperCard application consisting of a HyperCard data stack and HyperCard programming. See also HyperCard.

stairstepping \stâr`step`ēng\ *n.* A rough outline like the steps of a stair in a graphic line or curve that should be smooth. Also called aliasing, jaggies.

stale link \stāl lēnk\ *n.* A hyperlink to an HTML document that has been deleted or moved, rendering the hyperlink useless. See also HTML document, hyperlink.

stale pointer bug See aliasing bug.

stand-alone \stand`ə-lōn\ *adj.* Of, pertaining to, or being a device that does not require support

from another device or system, for example, a computer that is not connected to a network.

standard \stan`dārd\ *n.* **1.** A de jure technical guideline advocated by a recognized noncommercial or government organization that is used to establish uniformity in an area of hardware or software development. The standard is the result of a formal process, based on specifications drafted by a cooperative group or committee after an intensive study of existing methods, approaches, and technological trends and developments. The proposed standard is later ratified or approved by a recognized organization and adopted over time by consensus as products based on the standard become increasingly prevalent in the market. Standards of this type are numerous, including the ASCII character set, the RS-232-C standard, the SCSI interface, and ANSI-standard programming languages, such as C and FORTRAN. See also ANSI, convention, RS-232-C standard, SCSI. **2.** A de facto technical guideline for hardware or software development that occurs when a product or philosophy is developed by a single company and, through success and imitation, becomes so widely used that deviation from the norm causes compatibility problems or limits marketability. This type of highly informal standard setting is exemplified by Hayes-compatible modems and IBM PC-compatible computers. See also compatibility (definition 3).

standard deviation \stan`dārd dē-vē-ā`shən\ *n.* In statistics, a measure of the dispersion of a group of measurements relative to the mean (average) of that group. Each score's difference from the mean is squared, and the standard deviation is defined as the square root of the average of these squared values.

standard disclaimer \stan`dārd dis-klā`mər\ *n.* A phrase placed in an e-mail message or news article that is intended to replace the statement required by some businesses and institutions that the contents of the message or article do not necessarily represent the opinions or policies of the organization from whose e-mail system the message originated.

standard function \stan`dārd funk`shən\ *n.* A function that is always available within a particular programming language. See also function (definition 1).



video RAM \vid'ē-ō ram', R-A-M' *n.* A special type of dynamic RAM (DRAM) used in high-speed video applications. Video RAM uses separate pins for the processor and the video circuitry, providing the video circuitry with a "back door" to the video RAM. The video circuitry can access the video RAM serially (bit by bit), which is more appropriate for transferring pixels to the screen than is the parallel access provided by conventional DRAM. *Acronym:* VRAM (V'ram, V'R-A-M'). *See also* dynamic RAM.

video server \vid'ē-ō sər'vər' *n.* A server designed to deliver digital video-on-demand and other broadband interactive services to the public over a wide area network.

video signal \vid'ē-ō sig'nəl' *n.* The signal sent from a video adapter or other video source to a raster display. The signal can include horizontal and vertical synchronization signals, as well as image information. *See also* composite video display, RGB monitor.

video terminal \vid'ē-ō tər'mə-nəl' *n.* *See* terminal (definition 1).

videotex \vid'ē-ō-tek's' *n.* An interactive information retrieval service designed to be accessed by subscribers over telephone lines. Information can be displayed on a home television screen or a videotex terminal. Subscribers use keypads to choose from menus and to request specific screens, or pages. *Also called* videotext.

videotext \vid'ē-ō-tekst' *n.* *See* videotex.

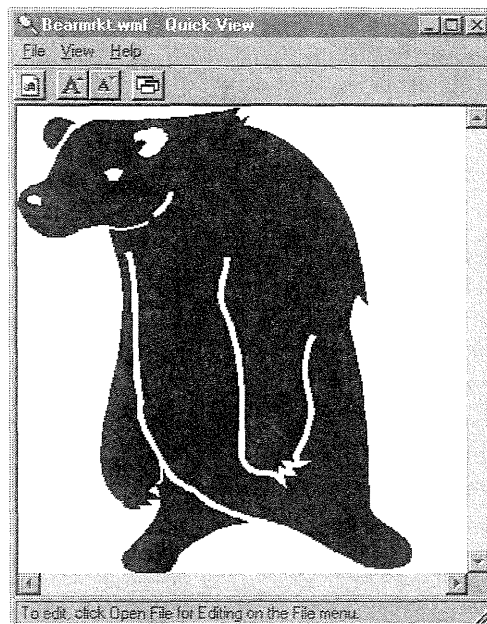
Vienna Definition Language \vē-en'ə def-ə-nish'ən lang'wəj' *n.* *See* VDL.

view¹ \vyōō' *n.* **1.** The display of data or an image from a given perspective or location. **2.** In relational database management systems, a logical table created through the specification of one or more relational operations on one or more tables. A view is equivalent to a divided relation in the relational model. *See also* relational database, relational model.

view² \vyōō' *vb.* To cause an application to display information on a computer screen.

viewer \vyōō'ər' *n.* An application that displays or otherwise outputs a file in the same way as the application that created the file. An example of a viewer is a program to display the images stored

in GIF or JPEG files. *See the illustration. See also* GIF, JPEG.



Viewer.

viewport \vyōō'pōrt' *n.* In computer graphics, a view of a document or image. A viewport is similar to the view in a window, but usually only part of the document or graphical image is visible. *Compare* window.

vine \vīn' *n.* A means of distributing audiotape copies that is similar to a tape tree. Because vine tapes are digital in format, there is no degradation of sound quality as tapes are copied down the vine from one participant to the next. *Compare* tape tree.

virgule \vər'gyōōl' *n.* The forward slash (/) character. *Compare* backslash.

virtual \vər'chōō-əl' *adj.* Of or pertaining to a device, service, or sensory input that is perceived to be what it is not in actuality, usually as more "real" or concrete than it actually is.

virtual 8086 mode \vər'chōō-əl āt'ō-āt-siks' mōd' *n.* *See* virtual real mode.

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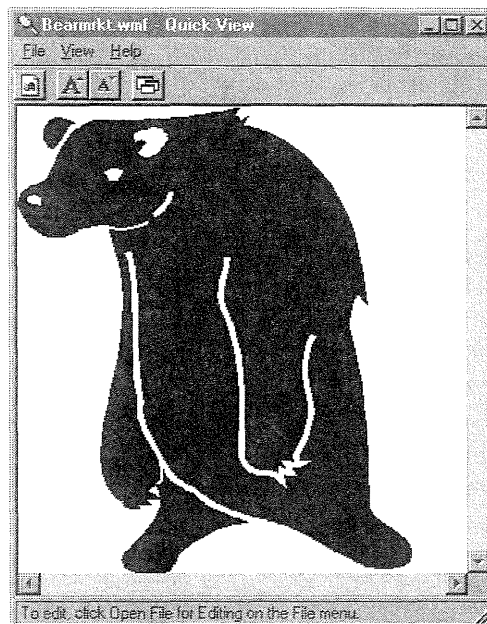
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virtual address \vər'chōō-əl ā'dres, ə-dres' *n.* In a virtual memory system, the address that the

application uses to reference memory. The memory management unit (MMU) translates this address into a physical address before the memory is actually read or written to. *See also* physical address, virtual memory. *Compare* real address.

virtual channel \vərˈchōō-əl chanˈəl\ *n.* In Asynchronous Transfer Mode (ATM), the path taken by data sent from one sender to one receiver. *See also* ATM (definition 1), virtual path (definition 2).

virtual circuit \vərˈchōō-əl sərˈkət\ *n.* A communications link that appears to be a direct connection between sender and receiver, although physically the link can be routed through a more circuitous path.

virtual community \vərˈchōō-əl kə-myōōˈnə-tē\ *n.* *See* online community.

Virtual Control Program Interface \vərˈchōō-əl kən-trōlˈ prōˈgram inˈtər-fās\ *n.* A specification for MS-DOS programs to allow access to extended memory under a multitasking environment (for example, Microsoft Windows) for 386 and higher-level processors. *Acronym:* VCPI (VˈC-P-Iˈ). *See also* 80386DX, extended memory, multitasking. *Compare* protected mode.

virtual desktop \vərˈchōō-əl deskˈtɒp\ *n.* A desktop enhancement tool that provides access to the desktop when it is covered by open windows or that expands the size of the working desktop. *See also* desktop.

virtual device \vərˈchōō-əl də-vīsˈ\ *n.* A device that can be referenced but that does not physically exist. Virtual-memory addressing, for example, uses magnetic disk storage to simulate memory larger than that physically available.

virtual device driver \vərˈchōō-əl də-vīsˈ drīˈvər\ *n.* Software in Windows 95 that manages a hardware or software system resource. If a resource retains information from one access to the next that affects the way it behaves when accessed (for example, a disk controller with its status information and buffers), a virtual device driver must exist for it. Virtual device drivers are described using three-letter abbreviations beginning with V and ending with D; the middle letter indicates the type of device, such as D for a display, P for a printer, T for a timer, and *x* when the type of device is not under discus-

sion. *Acronym:* VxD (Vˈ-X-Dˈ). *See also* device driver.

virtual disk \vərˈchōō-əl diskˈ\ *n.* *See* RAM disk.

virtual display device driver \vərˈchōō-əl disˈplāˈ de-vīsˈ drīˈvər\ *n.* *See* virtual device driver.

Virtual File Allocation Table \vərˈchōō-əl fīlˈ al-ə-kāˈshən tāˈbl\ *n.* *See* VFAT.

virtual image \vərˈchōō-əl imˈəj\ *n.* An image that is stored in computer memory but is too large to be shown in its entirety on the screen. Scrolling and panning are used to bring unseen portions of the image into view. *See also* virtual screen.

virtual-image file \vərˈchōō-əl imˈəj fīl\ *n.* A file that specifies the material to be recorded onto a CD-ROM. A virtual-image file generally contains pointers to files that are distributed across a hard disk rather than gathered in one area. Since a complete copy of the material is not assembled, problems may occur in writing the CD-ROM due to delays in assembling the material from a scattered group of files. *See also* CD-ROM. *Compare* physical-image file.

virtual LAN \vərˈchōō-əl lanˈ, L-A-Nˈ\ *n.* Short for **virtual local area network**. A local area network consisting of groups of hosts that are on physically different segments but that communicate as though they were on the same wire. *See also* LAN.

virtual machine \vərˈchōō-əl mə-shēnˈ\ *n.* Software that mimics the performance of a hardware device, such as a program that allows applications written for an Intel processor to be run on a Motorola chip. *Acronym:* VM (V-Mˈ).

virtual memory \vərˈchōō-əl memˈər-ē\ *n.* Memory that appears to an application to be larger and more uniform than it is. Virtual memory may be partially simulated by secondary storage such as a hard disk. Applications access memory through virtual addresses, which are translated (mapped) by special hardware and software onto physical addresses. *Acronym:* VM (V-Mˈ). *Also called* disk memory. *See also* paging, segmentation.

virtual monitor \vərˈchōō-əl monˈə-tər\ *n.* An enhanced monitor viewing system for visually impaired users that uses a virtual-reality headset to move enlarged text across the screen in a direction opposite to head motion. *See also* virtual reality.

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virtual name space \vərˈchōō-əl nāmˈ spās\ *n.*

The set of all hierarchical sequences of names that can be used by an application to locate objects. One such sequence of names defines a path through the virtual name space, regardless of whether the hierarchy of names reflects the actual arrangement of objects around the system. For example, the virtual name space of a Web server consists of all possible URLs on the network on which it runs. *See also* URL.

virtual network \vərˈchōō-əl netˈwərk\ *n.* A part of a network that appears to a user to be a network of its own. For example, an Internet service provider can set up multiple domains on a single HTTP server so that each one can be addressed with its company's registered domain name. *See also* domain name, HTTP server (definition 1), ISP.

virtual path \vərˈchōō-əl path\ *n.* **1.** A sequence of names that is used to locate a file and that has the same form as a pathname in the file system but is not necessarily the actual sequence of directory names under which the file is located. The part of a URL that follows the server name is a virtual path. For example, if the directory *c:\bar\sinister\forces\distance* on the server *miles* is shared on the local area network at *foo.com* under the name *\\miles\baz* and contains the file *elena.html*, that file might be returned by a Web request for *http://miles.foo.com/baz/elena.html*. **2.** In Asynchronous Transfer Mode (ATM), a set of virtual channels that are switched together as a unit through the network. *See also* ATM (definition 1), virtual channel.

virtual peripheral \vərˈchōō-əl pər-ɪfˈər-əl\ *n.* A peripheral that can be referenced but does not physically exist. For example, an application might treat a serial port through which data is being transmitted as a printer, but the device receiving the data might be another computer instead.

virtual printer \vərˈchōō-əl prinˈtər\ *n.* A feature in many operating systems that allows printer output to be saved to a file until a printer becomes available.

virtual printer device driver \vərˈchōō-əl prinˈtər de-vīsˈ drīˈvər\ *n.* *See* virtual device driver.

virtual private network \vərˈchōō-əl prīˈvət netˈwərk\ *n.* **1.** A set of nodes on a public network such as the Internet that communicate among

themselves using encryption technology so that their messages are as safe from being intercepted and understood by unauthorized users as if the nodes were connected by private lines. **2.** A wide area network formed of permanent virtual circuits (PVCs) on another network, especially a network using technologies such as ATM or frame relay. *Acronym:* VPN (VˈP-Nˈ). *See also* ATM (definition 1), frame relay, PVC.

virtual reality \vərˈchōō-əl rē-alˈə-tē\ *n.* A simulated 3-D environment that a user can experience and manipulate as if it were physical. The user sees the environment on display screens, possibly mounted in a special pair of goggles. Special input devices, such as gloves or suits fitted with motion sensors, detect the user's actions. *Acronym:* VR (V-Rˈ).

Virtual Reality Modeling Language \vərˈchōō-əl rē-alˈə-tē modˈə-lēng langˈwəj\ *n.* *See* VRML.

virtual real mode \vərˈchōō-əl rēlˈ mōd\ *n.* A feature of the Intel 80386 (SX and DX) and higher microprocessors that allows them to emulate several 8086 (real-mode) environments at the same time. The microprocessor provides a set of virtual registers and virtual memory space to each virtual 8086 environment. A program running in a virtual 8086 environment is completely protected from other virtual 8086 environments in the system and behaves as if it had control of the entire system. *Also called* V86 mode, virtual 8086 mode, virtual 86 mode. *See also* real mode.

virtual root \vərˈchōō-əl rōōtˈ, rōōt\ *n.* The root directory that a user sees when connected to an Internet server, such as an HTTP or FTP server. The virtual root is actually a pointer to the physical root directory, which may be in a different location, such as another server. The advantages of using a virtual root include being able to create a simple URL for the Internet site and to move the root directory without affecting the URL. *Also called* v-root. *See also* pointer (definition 1), root directory, server (definition 2), URL.

virtual route \vərˈchōō-əl rōōtˈ, rout\ *n.* *See* virtual circuit.

virtual screen \vərˈchōō-əl skrēn\ *n.* An image area that extends beyond the dimensions of the physical screen on the monitor, allowing manipulation of large documents or of multiple documents

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The set of all hierarchical sequences of names that can be used by an application to locate objects. One such sequence of names defines a path through the virtual name space, regardless of whether the hierarchy of names reflects the actual arrangement of objects around the system. For example, the virtual name space of a Web server consists of all possible URLs on the network on which it runs. *See also* URL.

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virtual peripheral \vərˈchōō-əl pər-ɪfˈər-əl\ *n.* A peripheral that can be referenced but does not physically exist. For example, an application might treat a serial port through which data is being transmitted as a printer, but the device receiving the data might be another computer instead.

virtual printer \vərˈchōō-əl prinˈtər\ *n.* A feature in many operating systems that allows printer output to be saved to a file until a printer becomes available.

virtual printer device driver \vərˈchōō-əl prinˈtər de-vīsˈ drɪˈvər\ *n.* *See* virtual device driver.

virtual private network \vərˈchōō-əl prɪˈvət netˈwɜrk\ *n.* **1.** A set of nodes on a public network such as the Internet that communicate among

themselves using encryption technology so that their messages are as safe from being intercepted and understood by unauthorized users as if the nodes were connected by private lines. **2.** A wide area network formed of permanent virtual circuits (PVCs) on another network, especially a network using technologies such as ATM or frame relay. *Acronym:* VPN (VˈP-Nˈ). *See also* ATM (definition 1), frame relay, PVC.

virtual reality \vərˈchōō-əl rē-alˈə-tē\ *n.* A simulated 3-D environment that a user can experience and manipulate as if it were physical. The user sees the environment on display screens, possibly mounted in a special pair of goggles. Special input devices, such as gloves or suits fitted with motion sensors, detect the user's actions. *Acronym:* VR (V-Rˈ).

Virtual Reality Modeling Language \vərˈchōō-əl rē-alˈə-tē modˈə-lēng langˈwəj\ *n.* *See* VRML.

virtual real mode \vərˈchōō-əl rēlˈ mōd\ *n.* A feature of the Intel 80386 (SX and DX) and higher microprocessors that allows them to emulate several 8086 (real-mode) environments at the same time. The microprocessor provides a set of virtual registers and virtual memory space to each virtual 8086 environment. A program running in a virtual 8086 environment is completely protected from other virtual 8086 environments in the system and behaves as if it had control of the entire system. *Also called* V86 mode, virtual 8086 mode, virtual 86 mode. *See also* real mode.

virtual root \vərˈchōō-əl rōōtˈ, rōōt\ *n.* The root directory that a user sees when connected to an Internet server, such as an HTTP or FTP server. The virtual root is actually a pointer to the physical root directory, which may be in a different location, such as another server. The advantages of using a virtual root include being able to create a simple URL for the Internet site and to move the root directory without affecting the URL. *Also called* v-root. *See also* pointer (definition 1), root directory, server (definition 2), URL.

virtual route \vərˈchōō-əl rōōtˈ, rout\ *n.* *See* virtual circuit.

virtual screen \vərˈchōō-əl skrēn\ *n.* An image area that extends beyond the dimensions of the physical screen on the monitor, allowing manipulation of large documents or of multiple documents

that lie partially outside the normal screen view. *See also* monitor.

virtual server \vərˈchōō-əl sərˈvər\ *n.* A virtual machine that resides on an HTTP server but has the appearance to the user of being a separate HTTP server. Several virtual servers can reside on one HTTP server, each capable of running its own programs and each with individualized access to input and peripheral devices. Each virtual server has its own domain name and IP address and appears to the user as an individual Web site. Some Internet service providers use virtual servers for those clients who want to use their own domain names. *See also* domain name, HTTP server (definition 2), IP address.

virtual storefront \vərˈchōō-əl stōrˈfrənt\ *n.* A company's point of presence on the Web, providing opportunities for online sales. *Also called* electronic storefront.

virtual terminal \vərˈchōō-əl tərˈmā-nəl\ *n.* *See* terminal emulation.

virtual timer device driver \vərˈchōō-əl tīˈmər de-vīsˈ drī vər\ *n.* *See* virtual device driver.

virtual world \vərˈchōō-əl wɜrld\ *n.* **1.** A 3-D modeled environment, often created in VRML, where a user can interact with the viewer to change variables. *See also* viewer, VRML. **2.** An electronic environment that has no basis in the physical world. Multiuser dungeons (MUDs), talkers, and chat rooms are often considered virtual worlds. *See also* chat¹ (definition 1), MUD, talker.

virus \vīˈrʊs\ *n.* An intrusive program that infects computer files by inserting in those files copies of itself. The copies are usually executed when the file is loaded into memory, allowing them to infect still other files, and so on. Viruses often have damaging side effects—sometimes intentionally, sometimes not. For example, some viruses can destroy a computer's hard disk or take up memory space that could otherwise be used by programs. *See also* Good Times virus, Trojan horse, worm.

virus signature \vīˈrʊs sigˈnə-chʊr\ *n.* A portion of unique computer code contained in a virus. Antivirus programs search for known virus signatures to identify infected programs and files. *See also* virus.

visible page \vizˈə-bl pāj\ *n.* In computer graphics, the image that is being displayed on the

screen. Screen images are written into display memory in sections called pages, each of which contains one screen display.

Visual Basic \vizhˈōō-əl bāˈsik\ *n.* A high-level, visual-programming version of Basic. Visual Basic was developed by Microsoft for building Windows-based applications. *See also* Basic, Visual Basic for Applications, Visual Basic, Scripting Edition, visual programming.

Visual Basic for Applications \vizhˈōō-əl bāˈsik fər əˈplə-kāˈshənz\ *n.* A macro-language version of Visual Basic that is used to program many Windows 95 applications and is included with several Microsoft applications. *Acronym:* VBA (V-B-A). *See also* macro language, Visual Basic.

Visual Basic Script \vizhˈōō-əl bāˈsik skript\ *n.* *See* Visual Basic, Scripting Edition.

Visual Basic, Scripting Edition \vizhˈōō-əl bāˈsik skripˈtēŋ əˈdishˈən\ *n.* A subset of the Visual Basic for Applications programming language, optimized for Web-related programming. As with JavaScript, code for Visual Basic, Scripting Edition is embedded in HTML documents. This version is included with the Internet Explorer Web browser. *Also called* VBScript, Visual Basic Script. *See also* Visual Basic for Applications.

Visual C++ \vizhˈōō-əl Cˈplus-plus\ *n.* A Microsoft application development system for the programming language C++ that runs under MS-DOS and Windows. Visual C++ is a visual programming environment. *See also* visual programming. *Compare* Visual Basic, Visual J++.

visual interface \vizhˈōō-əl inˈtər-fās\ *n.* *See* graphical user interface.

visualization \vizhˈōō-əl ə-zāˈshən\ *n.* A feature of an application that displays data in the form of a video image. For example, some databases can interpret and show data in the form of a two- or three-dimensional model.

Visual J++ \vizhˈōō-əl Jˈplus-plus\ *n.* Microsoft's Java visual programming environment, which can be used to create applets and applications in the Java language. *See also* applet, Java, Java applet, visual programming.

visual programming \vizhˈōō-əl prōˈgram-ēŋ\ *n.* A method of programming using a programming environment or language in which basic program components can be selected through menu

point operations. The result of the test is given in units called *whetstones*. The Whetstone benchmark has fallen out of favor because it produces inconsistent results compared with other benchmarks such as the Dhrystone and the sieve of Eratosthenes. *See also* benchmark¹, Dhrystone, sieve of Eratosthenes.

WHIRLWIND \hwər'l'wind, wər'l'wind\ *n.* A digital computer using vacuum tubes, developed at Massachusetts Institute of Technology in the 1940s and used during the 1950s. The innovations introduced with WHIRLWIND included CRT displays and real-time processing. WHIRLWIND project members included Kenneth H. Olsen, who later founded Digital Equipment Corporation in 1957. *See also* CRT, real-time, vacuum tube.

whiteboard \hwīt'bōrd, wīt'bōrd\ *n.* Software that allows multiple users across a network to work together on a document that is simultaneously displayed on all the users' screens, as though they are all gathered around a physical whiteboard.

white noise \hwīt noiz', wīt\ *n.* Noise that contains components at all frequencies, at least within the frequency band of interest. It is called "white" by analogy to white light, which contains light at all the visible frequencies. In the audible spectrum, white noise is a hiss or a roar, such as that produced when a television set is tuned to a channel over which no station is broadcasting.

white pages \hwīt' pā'jəz, wīt'\ *n.* *See* DIB (definition 2).

white paper \hwīt' pā'pər, wīt'\ *n.* An informal paper stating a position or proposing a draft specification, usually on a technical topic. *See also* specification (definition 1).

whois \hōō'iz\ *n.* **1.** An Internet service, provided by some domains, that enables a user to find e-mail addresses and other information for users listed in a database at that domain. **2.** A UNIX command to access the whois service. **3.** A command that displays a list of all users logged onto a Novell network.

whois client \hōō'iz klī'ənt\ *n.* A program (such as the UNIX whois command) that enables a user to access databases of usernames, e-mail addresses, and other information. *See also* whois.

whois server \hōō'iz sər'vər\ *n.* Software that provides the usernames and e-mail addresses from a database (often listing people who have accounts at an Internet domain) to users who request the information using whois clients. *See also* whois.

Whole Earth 'Electronic Link \hōl' ərth' lek-tron'ik lēnk'\ *n.* *See* WELL.

whole number \hōl' num'bər\ *n.* A number without a fractional component—for example, 1 or 173; an integer.

Wide Area Information Server \wīd' âr-ē-ə in-fər-mā'shən sər'vər\ *n.* *See* WAIS.

wide area network \wīd' âr-ē-ə net'wərk\ *n.* A communications network that connects geographically separated areas. *Acronym:* WAN (W'A-N', wan).

wideband transmission \wīd'band tranz-mish-ən\ *n.* *See* broadband network.

Wide SCSI or Wide SCSI-2 \wīd' skuz'ē, S-C-S-I'\ *n.* A form of the SCSI-2 interface that can transfer data 16 bits at a time at up to 20 megabytes per second. The Wide SCSI connector has 68 pins. *See also* SCSI, SCSI-2. *Compare* Fast SCSI, Fast/Wide SCSI.

widow \wid'ō\ *n.* A last line of a paragraph, shorter than a full line, appearing at the top of a page. A widow is considered visually undesirable on the printed page. *Compare* orphan.

wildcard character \wīld'kârd kâr'ək-tər\ *n.* A keyboard character that can be used to represent one or many characters. The asterisk (*), for example, typically represents one or more characters, and the question mark (?) typically represents a single character. Wildcard characters are often used in operating systems as a means of specifying more than one file by name.

Win32 \win'thər-tē-tōō'\ *n.* The application programming interface in Windows 95 and Windows NT that enables applications to use the 32-bit instructions available on 80386 and higher processors. Although Windows 95 and Windows NT support 16-bit 80x86 instructions as well, Win32 offers greatly improved performance. *See also* 16-bit machine, 32-bit machine, 80386DX, 8086, application programming interface, central processing unit, Win32s.