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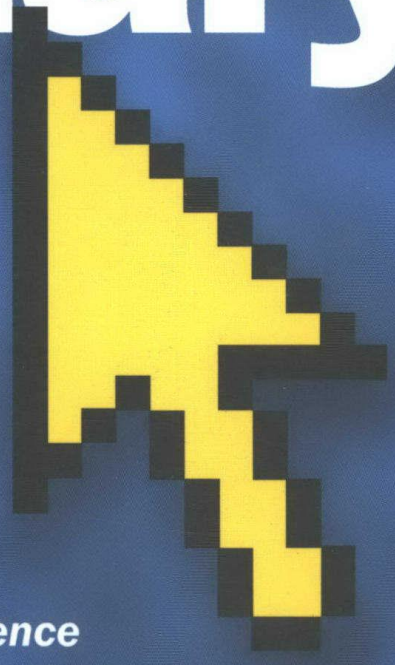
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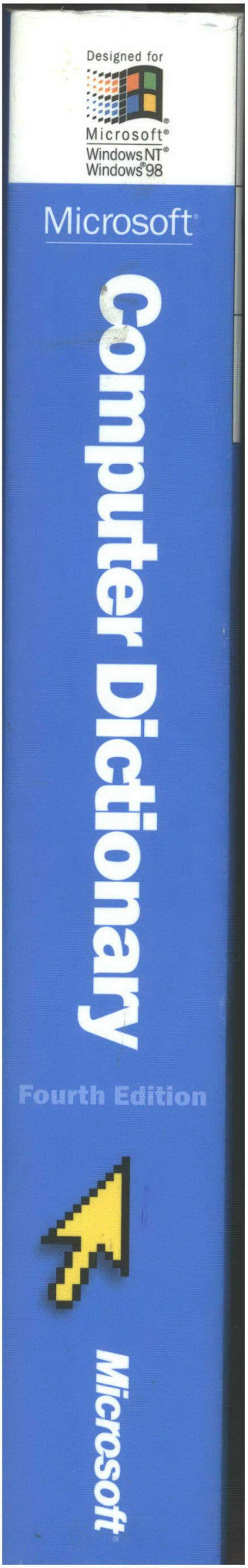
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International Business Machines Corporation v. Digital Doors, Inc.
IBM's Exhibit 1023
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AC adapter *n.* An external power supply that converts from a 110 VAC or 220 VAC domestic electric supply ("house current" or "main power") to low-voltage DC, which is required to operate solid-state electronic equipment (such as a laptop computer) that does not include an internal power supply.

Accelerated Graphics Port *n. See* AGP.

accelerator *n.* **1.** In applications, a key or key combination used to perform a defined function. *Also called* shortcut key. **2.** In hardware, a device that speeds or enhances the operation of one or more subsystems, leading to improved program performance. *See also* accelerator card, Windows-based accelerator.

accelerator board *n. See* accelerator card.

accelerator card *n.* A printed circuit board that replaces or augments the computer's main microprocessor, resulting in faster performance. *Also called* accelerator board. *See also* expansion board, graphics accelerator.

acceptable use policy *n.* A statement issued by an ISP (Internet service provider) or an online information service that indicates what activities users may or may not engage in while logged into the service. For example, some providers prohibit users from engaging in commercial activity on the network. *Acronym:* AUP. *See also* ISP, online information service.

acceptance test *n.* A formal evaluation of a hardware product performed by the customer, usually at the factory, to verify that the product is performing according to specifications.

access[1] *n.* **1.** The act of reading data from or writing data to memory. **2.** Connection to the Internet or other network or system.

access[2] *vb.* To gain entry to memory in order to read or write data.

access arm *n.* A mechanical arm that moves the read/write head(s) over the surface of a disk in a disk drive. See the illustration. *Also called* head arm.

ACCESS.bus *n.* A bidirectional bus for connecting peripherals to a PC. The ACCESS.bus can connect up to 125 low-speed peripherals, such as printers, modems, mice, and keyboards, to the system through a single, general-purpose port. Peripherals that support the ACCESS.bus provide a connector or port connection that is similar to a phone-jack connector and are daisy-chained together. However, the PC communicates directly with each peripheral and vice versa. Connecting an ACCESS.bus device (for example, a printer) to a system results in the system automatically identifying and configuring it for optimum performance. Peripherals can be connected while the computer is running *(hot plugging)* and are automatically assigned a unique address (auto-addressing). Developed from the architecture designed jointly by Philips and Digital Equipment Corporation, the ACCESS.bus specification is controlled by the ACCESS.bus Industry Group and competes with Intel's USB. *See also* bidirectional, bus, daisy chain[1], hot plugging, input/output port, peripheral. *Compare* USB.

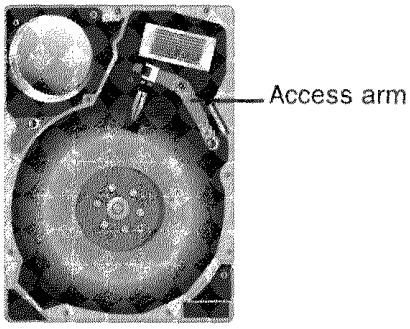
access code *n. See* password.

access control *n.* The mechanisms for limiting access to certain items of information or to certain controls based on users' identities 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 *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.

accessibility *n.* A quality of software, hardware, or a complete computer system that makes it usable by people with one or more physical disabilities, such as restricted mobility, blindness, or deafness.

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



Access arm.

access method *n. See* access mechanism (definition 3).

access number *n.* The telephone number used by a subscriber to gain access to an online service.

accessory *n. See* peripheral.

access path *n. See* search path.

access permission *n. See* permission.

access point *n.* In a wireless LAN (local area network), a transceiver that connects it to a wired network. *See also* wireless LAN.

access privileges *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. *Also called* access rights. *See also* file protection, file server, permission, system administrator, write access.

access provider *n. See* ISP.

access rights *n. See* access privileges.

access speed *n. See* access time.

access time *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 *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.** The record-keeping mechanism used by networks and multiuser operating systems for keeping track of authorized users. Network accounts are created by network administrators and are used both to validate users and to administer policies—for example, permissions—related to each user.

accounting file *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 *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 used punched cards and wires arranged in plugboard panels. **2.** A computer in which an accounting software package starts up whenever the machine is turned on, the computer thus becoming a dedicated machine with accounting as its sole function.

account name *n.* The part of an e-mail address that identifies a user, or an account, on an e-mail system. An e-mail address on the Internet typically consist of an account name, followed by the @ (at) symbol, a host name, and a domain name. *See also* account (definition 2), domain name, e-mail address.

account policy *n.* On local area networks and multiuser operating systems, a set of rules governing whether a new user is allowed access to the system and whether an existing user's rights are expanded to include additional system resources. An account policy also generally states the rules with which the user must comply while using the system in order to maintain access privileges.

ACCU *n. See* Association of C and C++ Users.

accumulator *n.* A register used for logic or arithmetic, usually to count items or accumulate a sum. *See also* register.

accuracy *n.* The degree to which the result of a calculation or measurement approximates the true value. *Compare* precision (definition 1).

ACIS *n.* Acronym for **A**ndy, **C**harles, **I**an's **S**ystem. An object-oriented geometric modeling toolkit owned by Spatial Technology. Designed for use as a "geometry engine" within 3-D modeling applications, ACIS provides an open architecture framework for wire-frame, surface, and solid modeling from a common, unified data structure. ACIS is generally considered the de facto standard for solid modeling in the CAM/CAE industries.

ACK \ak\ *n.* Short for **ack**nowledgment. A message sent by the receiving unit to the sending station or computer indicating either that the unit is ready to receive transmission or that a transmission was received without error. *Compare* NAK.

ACL *n. See* access control list.

ACM *n. See* Association for Computing Machinery.

information read from disk. A disk cache does not hold entire files, as does a RAM disk (a portion of memory that acts as if it were a disk drive). Instead, a disk cache is used to hold information that either has recently been requested from disk or has previously been written to disk. If the required information remains in a disk cache, access time is considerably faster than if the program must wait for the disk drive mechanism to fetch the information from disk. *See also* cache. *Compare* disk buffer.

disk cartridge *n.* A removable disk enclosed in a protective case. A disk cartridge can be used by certain types of hard disk drives and related devices, such as the external data storage units known as Bernoulli boxes.

disk controller *n.* A special-purpose chip and associated circuitry that directs and controls reading from and writing to a computer's disk drive. A disk controller handles such tasks as positioning the read/write head, mediating between the drive and the microprocessor, and controlling the transfer of information to and from memory. Disk controllers are used with floppy disk drives and hard disks and can either be built into the system or be part of a card that plugs into an expansion slot.

disk copy *n.* The process of duplicating a source disk's data and the data's organizational structure onto a target disk. *See also* backup.

disk crash *n.* The failure of a disk drive. *See also* crash[1].

disk directory *n.* An index of the files on a disk, analogous to a card catalog. A disk directory includes information about the files, such as their names, sizes, dates of creation, and physical locations on the disk. *See also* directory.

disk drive *n.* An electromechanical device that reads from and writes to disks. The main components of a disk drive include a spindle on which the disk is mounted, a drive motor that spins the disk when the drive is in operation, one or more read/write heads, a second motor that positions the read/write head(s) over the disk, and controller circuitry that synchronizes read/write activities and transfers information to and from the computer. Two types of disk drives are in common use: floppy disk drives and hard disk drives. Floppy disk drives are designed to accept removable disks in either 5.25-inch or 3.5-inch format; hard disk drives are faster, high-capacity storage units that are completely enclosed in a protective case.

disk driver *n.* A device driver that is added to a system to support a specific manufacturer's disk device. *See also* device driver.

disk duplexing *n.* *See* disk mirroring.

disk envelope *n.* The paper container that holds a 5.25-inch floppy disk and its attached jacket. The disk envelope protects exposed surfaces of the disk from dust and other foreign material that can scratch and otherwise damage the surface, resulting in the loss of recorded data. *See also* disk jacket.

diskette *n.* *See* floppy disk.

disk interface *n.* **1.** The circuitry that connects a disk drive to a computer system. **2.** A standard for connecting disk drives and computers. The ST506 standard for connecting hard disks to computers is a disk interface standard.

disk jacket *n.* The protective plastic sheath that covers a floppy disk.

diskless workstation *n.* A station on a computer network that is not equipped with a disk drive and that uses files stored in a file server. *See also* file server.

disk memory *n.* *See* virtual memory.

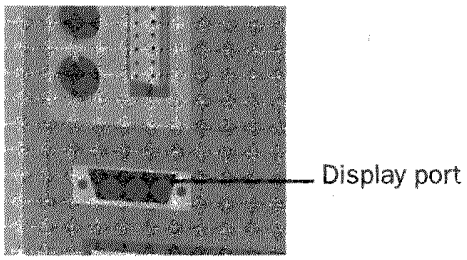
disk mirroring *n.* A technique in which all or part of a hard disk is duplicated onto one or more other hard disks, each of which ideally is attached to its own controller. With disk mirroring, any change made to the original disk is simultaneously made to the other disks, so that if the original disk 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 *n.* *See* DOS.

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

disk partition *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.

display port *n.* An output port on a computer that provides a signal for a display device such as a video monitor. See the illustration. *Also called* monitor port.



Display port.

Display PostScript *n.* An extended version of the PostScript language, intended to provide a device-independent language for displaying images and text on bitmapped displays. *See also* PostScript.

Display Power Management Signaling *n. See* DPMS.

display screen *n.* The part of a video unit on which images are shown. *See also* CRT.

display terminal *n. See* terminal (definition 1).

distance learning *n.* Broadly, any educational or learning process or system in which the teacher/instructor is separated geographically or in time from his or her students; or in which students are separated from other students or educational resources. Contemporary distance learning is effected through the implementation of computer and electronics technology to connect teacher and student in either real or delayed time or on an as-needed basis. Content delivery may be achieved through a variety of technologies, including satellites, computers, cable television, interactive video, electronic transmissions via telephone lines, the World-Wide Web and other Internet technology, and others. Distance learning does not preclude traditional learning processes; frequently it is used in conjunction with in-person classroom or professional training procedures and practices.

Distance Vector Multicast Routing Protocol *n.* An Internet routing protocol that provides an efficient mechanism for connectionless datagram delivery to a group of hosts across an Internet network. It is a distributed protocol that dynamically generates IP multicast delivery trees using a technique called Reverse Path Multicasting (RPM). *Acronym:* DVMRP.

distortion *n.* An undesirable change in the waveform of a signal. Distortion can occur during signal transmission, as when a radio broadcast becomes garbled, or when a signal passes through a circuit, as when a stereo system is turned up too loud. Distortion often results in loss of information. It is mainly a problem in analog signals; digital signals are not affected by moderate distortion.

distribute *vb.* To allocate among locations or facilities, as in a data-processing function that is performed by a collection of computers and other devices linked together by a network.

distributed bulletin board *n.* A collection of newsgroups distributed to all computers in a wide area network. *See also* newsgroup, Usenet.

Distributed COM \dis-tri`byo͞o-təd kom\ *n. See* DCOM.

Distributed Component Object Model *n. See* DCOM.

distributed computing *n. See* distributed processing.

Distributed Computing Environment *n.* A set of standards from the Open Group (formerly the Open Software Foundation) for development of distributed applications that can operate on more than one platform. *Acronym:* DCE. *See also* distributed processing.

distributed database *n.* A database implemented on a network. The component partitions are distributed over various nodes (stations) of the network. Depending on the specific update and retrieval traffic, distributing the database can significantly enhance overall performance. *See also* partition (definition 2).

distributed database management system *n.* A database management system capable of managing a distributed database. *Acronym:* DDBMS. *See also* distributed database.

distributed file system *n.* A file management system in which files may be located on multiple computers connected over a local or wide area network.

distributed intelligence *n.* A system in which processing ability (intelligence) is distributed among multiple computers and other devices, each of which can work independently to some degree but can also communicate with the other devices to function as part of the larger system. *See also* distributed processing.

distributed network *n.* A network in which processing, storage, and other functions are handled by separate units (nodes) rather than by a single main computer.

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distributed processing *n.* A form of information processing in which work is performed by separate computers linked through a communications network. Distributed processing is usually categorized as either plain distributed processing or true distributed processing. Plain distributed processing shares the workload among computers that can communicate with one another. True distributed processing has separate computers perform different tasks in such a way that their combined work can contribute to a larger goal. The latter type of processing requires a highly structured environment that allows hardware and software to communicate, share resources, and exchange information freely.

distributed services *n. See* BISDN.

distributed system *n.* A noncentralized network consisting of numerous computers that can communicate with one another and that appear to users as parts of a single, large, accessible "storehouse" of shared hardware, software, and data. A distributed system is conceptually the opposite of a centralized, or monolithic, system in which clients connect to a single central computer, such as a mainframe.

Distributed System Object Model *n.* IBM's System Object Model (SOM) in a shared environment, where binary class libraries can be shared between applications on networked computers or between applications on a given system. The Distributed System Object Model complements existing object-oriented languages by allowing SOM class libraries to be shared among applications written in different languages. *Acronym:* DSOM. *See also* SOM (definition 1).

distributed transaction processing *n.* Transaction processing that is shared by one or more computers communicating over a network. *Acronym:* DTP. *See also* distributed processing, transaction processing.

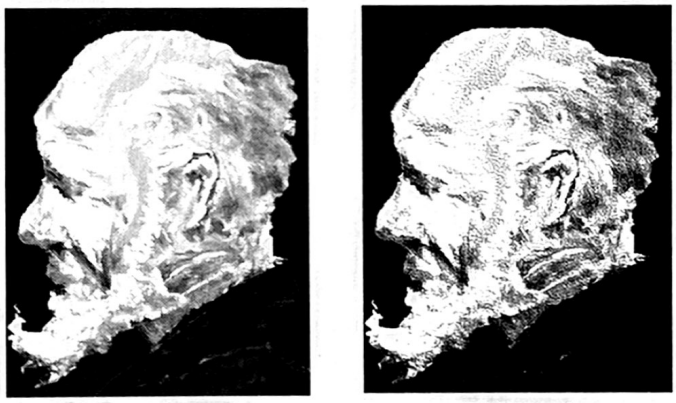
distributed workplace *n.* An environment other than the traditional office or factory, in which work is carried out on a regular basis. The flexibility afforded by the combination of communications and computing technologies enables many workers to conduct business anywhere the appropriate computer and data communications infrastructure has been set up. *See also* SOHO, telecommute.

distribution list *n.* A list of recipients on an e-mail mailing list. This can be in the form of either a mailing list program, such as LISTSERV, or an alias in an e-mail program for all recipients of an e-mail message. *See also* alias (definition 2), LISTSERV, mailing list.

distribution services *n. See* BISDN.

distributive sort *n.* An ordering process in which a list is separated into parts and then reassembled in a particular order. *See also* sort algorithm. *Compare* bubble sort, insertion sort, merge sort, quicksort.

dithering *n.* A technique used in computer graphics to create the illusion of varying shades of gray on a monochrome display or printer, or additional colors on a color display or printer. Dithering relies on treating areas of an image as groups of dots that are colored in different patterns. Akin to the print images called *halftones,* dithering takes advantage of the eye's tendency to blur spots of different colors by averaging their effects and merging them into a single perceived shade or color. Depending on the ratio of black dots to white dots within a given area, the overall effect is of a particular shade of gray. Dithering is used to add realism to computer graphics and to soften jagged edges in curves and diagonal lines at low resolutions. See the illustration. *See also* aliasing, halftone.



Dithering. A halftone image (left) and a dithered image (right) both at 72 cells per inch.

divergence *n.* A moving apart or separation. On computer displays, divergence occurs when the red, green, and blue electron beams in a color monitor do not collectively light the same spot on the screen. Within a program, such as a spreadsheet, divergence can occur when a circular set of formulas is repeatedly recalculated (iterated), with the results of each iteration moving further from a stable solution. *Compare* convergence.

divide overflow *n. See* overflow error.

division by zero *n.* An error condition caused by an attempt to divide a number by zero, which is mathematically undefined, or by a number that is sufficiently near to zero that the result is too large to be expressed by the machine. Computers do not allow division by zero, and software must provide some means of protecting the user from program failure on such attempts.

D

DIX *n.* Acronym for **D**igital **I**ntel **X**erox, the companies that developed the AUI connector for thicknet Ethernet cable. *See also* AUI.

DLC *n.* Acronym for **D**ata **L**ink **C**ontrol. An error-correction protocol in the Systems Network Architecture (SNA) responsible for transmission of data between two nodes over a physical link. Supported by Microsoft Windows NT and Windows 2000, DLC is designed to provide access to IBM mainframe computers and to Hewlett-Packard printers connected to the network. *See also* HDLC, SNA.

DLCI *n. See* Data Link Connection Identifier.

.dll *n.* A file extension for a dynamic-link library. *See also* dynamic-link library.

DLL *n. See* dynamic-link library.

DLP *n.* Short for **D**igital **L**ight **P**rocessing, a digital projection technology developed by Texas Instruments in which a signal sent from a computer to a DLP projector is projected onto a screen by means of light reflected from a Digital Micromirror Device, or DMD, that consists of thousands of tiny hinged mirrors, each representing one pixel, attached to a chip. The chip acts as a bank of switches, one switch per mirror. These switches, in turn, rotate the mirrors in response to the digital signal to reflect light through a projection lens to create the image. DLP projectors represent a newer technology than the LCD projectors also used to display images on screen. *See also* Digital Micromirror Device.

DLT *n. See* digital linear tape.

DMA *n. See* direct memory access, document management system.

DMD *n. See* Digital Micromirror Device.

DMI *n.* Acronym for **D**esktop **M**anagement **I**nterface. A system for managing the configurations and status of PCs on a network from a central computer. In DMI an agent program runs in the background on each machine and returns information or performs some action (as specified by a file on that machine) in response to a query received from the central computer. The actions to be performed by the agent may include watching for errors and reporting them to the central computer as they occur; for example, a printer may be set up to report to the central computer when paper runs out or jams. DMI was developed by the DMTF (Desktop Management Task Force), a consortium of computer equipment manufacturers, and competes with SNMP (although the two can coexist on the same system). *See also* agent (definition 1), DMTF. *Compare* SNMP.

DML *n. See* data manipulation language.

DMT *n. See* discrete multitone.

DMTF *n.* Acronym for **D**esktop **M**anagement **T**ask **F**orce. A consortium formed in 1992 to develop standards for PC-based stand-alone and networked systems based on user and industry needs.

DNA *n. See* Digital Network Architecture, digital DNA, distributed network, Windows DNA.

DNS *n.* **1.** Acronym for **D**omain **N**ame **S**ystem. The hierarchical system by which hosts on the Internet have both domain name addresses (such as bluestem.prairienet.org) and IP addresses (such as 192.17.3.4). The domain name address is used by human users and is automatically translated into the numerical IP address, which is used by the packet-routing software. DNS names consist of a top-level domain (such as .com, .org, and .net), a second-level domain (the site name of a business, organization, or individual), and possibly one or more subdomains (servers within a second-level domain). *See also* domain name address, IP address. **2.** Acronym for **D**omain **N**ame **S**ervice. The Internet utility that implements the Domain Name System. DNS servers, also called *name servers,* maintain databases containing the addresses and are accessed transparently to the user. *See also* Domain Name System (definition 1), DNS server.

DNS name server *n. See* DNS server.

DNS server *n.* Short for **D**omain **N**ame **S**ystem **server**, a computer that can answer Domain Name System (DNS) queries. The DNS server keeps a database of host computers and their corresponding IP addresses. Presented with the name apex.com, for example, the DNS server would return the IP address

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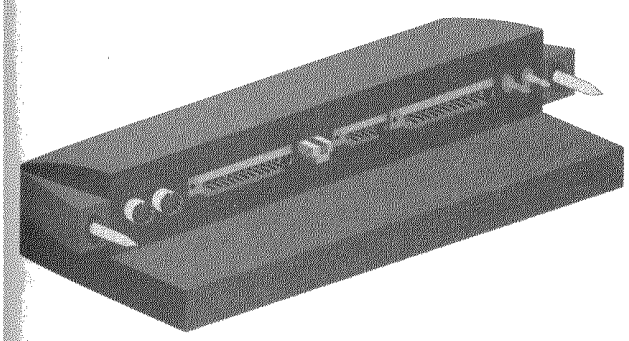
of the hypothetical company Apex. *Also called* name server. *See also* DNS (definition 2), IP address.

.doc *n.* A file extension that identifies document files formatted for a word processor. This is the default file extension for Microsoft Word document files.

dock *vb.* **1.** To connect a laptop or notebook computer to a docking station. *See also* docking station, laptop, portable computer. **2.** To move a toolbar to the edge of an application window so that it attaches to and becomes a feature of the application window.

docking mechanism *n.* The portion of a docking station that physically connects the portable computer with the station. *See also* docking station.

docking station *n.* A unit for housing a laptop or notebook computer that contains a power connection, expansion slots, and connections to peripherals, such as a monitor, printer, full-sized keyboard, and mouse. The purpose of a docking station is to turn the laptop or notebook computer into a desktop machine and allow users the convenience of using such peripherals as a monitor and a full-sized keyboard. See the illustration. *See also* expansion slot, laptop, peripheral, portable computer.



Docking station.

DOCSIS \dok´sis\ *n.* Acronym for **D**ata **O**ver **C**able **S**ervice **I**nterface **S**pecification. The International Telecommunications Union standard (ITU Recommendation J.112) that specifies functions and internal and external interfaces for high-speed, bidirectional transfer of digital data between cable television networks and subscribers. DOCSIS-compliant equipment ensures interoperability between cable modems and the cable television infrastructure, regardless of manufacturer or provider. Initially developed by a group of cable television providers, including Time Warner and TCI, DOCSIS was designed to support data, video, and rapid Internet access. Data rates are 27 Mbps or 36 Mbps downstream (from the cable network) and 320 Kbps to 10 Mbps upstream (to the cable network). *See also* cable modem. *Compare* IEEE 802.14.

doctype \dok´tīp\ *n.* A declaration at the beginning of an SGML document that gives a public or system identifier for the document type definition (DTD) of the document. *See also* SGML.

document[1] *n.* Any self-contained piece of work created with an application program and, if saved on disk, given a unique filename by which it can be retrieved. Documents are generally thought of as word-processed materials only. To a computer, however, data is nothing more than a collection of characters, so a spreadsheet or a graphic is as much a document as is a letter or report. In the Macintosh environment in particular, a document is any user-created work named and saved as a separate file.

document[2] *vb.* To explain or annotate something, such as a program or a procedure.

documentation *n.* The set of instructions shipped with a program or a piece of hardware. Documentation usually includes necessary information about the type of computer system required, setup instructions, and instructions on the use and maintenance of the product.

document-centric *adj.* Of, pertaining to, or characteristic of an operating system in which the user opens document files and thus automatically invokes the applications (such as word processors or spreadsheet programs) that process them. Many graphical user interfaces, such as the Macintosh Finder, as well as the World Wide Web, are document-centric. *Compare* application-centric.

Document Content Architecture *n. See* DCA (definition 1).

Document Content Description n. *See* DCD (definition 2).

document file *n.* A user-created file that represents the output of a program. *Also called* data file. *Compare* program file.

document image processing *n.* A system for storing and retrieving information for an enterprise in the form of bitmapped images of paper documents input with a scanner rather than in the form of text and numeric files. Document image processing takes more memory than purely electronic data processing, but it more readily incorporates signatures, drawings, and photographs and can be more familiar to users without computer training. *See also* paperless office.

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Document Interchange Architecture *n. See* DIA.

document management *n.* The full spectrum of electronic document creation and distribution within an organization.

document management system *n.* A server-based network facility designed for the storage and handling of an organization's documents. A document management system, or DMS, is built around a central "library" known as a repository and typically supports controlled access, version tracking, cataloging, search capabilities, and the ability to check documents in and out electronically. The open interface specification known as ODMA (Open Document Management API) enables desktop applications that support ODMA to interface with a DMS so that users can access and manage documents from within their client applications. *Acronym:* DMS. *Also called* EDMS, electronic document management system.

Document Object Model *n.* A World Wide Web Consortium specification that describes the structure of dynamic HTML and XML documents in a way that allows them to be manipulated through a Web browser. In the Document Object Model, a document is presented as a logical structure rather than as a collection of tagged words. In essence, DOM is a means of defining a document as a treelike hierarchy of nodes in which the document is an object containing other objects, such as images and forms. Through DOM, programs and scripts can access these objects in order to change aspects such as their appearance or behavior. DOM is a vehicle for adding depth and interactivity to what would otherwise be a static Web page. *Acronym:* DOM.

document processing *n.* The act of retrieving and manipulating a document. In terms of the way a computer works, document processing involves three main steps: creating or retrieving a data file, using a program to manipulate the data in some way, and storing the modified file.

document reader *n.* A device that scans printed text and uses character recognition to convert it to computer text files. *See also* character recognition.

document retrieval *n.* A capability built into some application programs that enables the user to search for specific documents by specifying items of information, such as date, author, or previously assigned keywords. Document retrieval depends on an indexing scheme that the program maintains and uses. Depending on the program's capabilities, document retrieval might allow the user to specify more than one condition to refine a search.

document source *n.* The plain-text HTML form of a World Wide Web document, with all tags and other markup displayed as such rather than being formatted. *Also called* source, source document. *See also* HTML.

Document Style Semantics and Specification Language *n.* An ISO standard under preparation addressing the semantics of high-quality composition in a manner independent of particular formatting systems or processes. It is intended as a complementary standard to SGML for the specification of semantics. *Acronym:* DSSSL. *See also* ISO, SGML.

document type definition *n. See* DTD.

document window *n.* In windowing environments, such as the Apple Macintosh and Microsoft Windows, an on-screen window (enclosed work area) in which the user can create, view, or work on a document.

DoD *n. See* U.S. Department of Defense.

DO loop \dō̅ lō̅p\ *n.* A control statement used in programs that executes a section of code a number of times until a specified condition is met. DO loops are found in FORTRAN and Basic, among other languages. *See also* iterative statement. *Compare* FOR loop.

DOM \dom\ *n. See* Document Object Model.

domain *n.* **1.** In database design and management, the set of valid values for a given attribute. For example, the domain for the attribute AREA-CODE might be the list of all valid three-digit numeric telephone area codes in the United States. *See also* attribute (definition 1). **2.** For Windows NT Advanced Server, a collection of computers that share a common domain database and security policy. Each domain has a unique name. **3.** In the Internet and other networks, the highest subdivision of a domain name in a network address, which identifies the type of entity owning the address (for example, .com for commercial users or .edu for educational institutions) or the geographical location of the address (for example, .fr for France or .sg for Singapore). The domain is the last part of the address (for example, www.acm.org). *See also* domain name.

domain controller *n.* In Windows NT, the master server that holds the directory services database that identifies all network users and resources.

domain name *n.* An address of a network connection that identifies the owner of that address in a hierarchical format: *server.organization.type.* For example, www.whitehouse.gov identifies the Web server at the White House, which is part of the U.S. government.

domain name address *n.* The address of a device connected to the Internet or any other TCP/IP network, in the hierarchical system that uses words to identify servers, organizations, and types, such as www.logos.net. *See also* TCP/IP.

domain name server *n. See* DNS server.

domain name service *n.* DNS (definition 2).

Domain Name System *n. See* DNS (definition 1).

Domain Naming System *n. See* DNS (definition 1).

dongle *n. See* hardware key.

do-nothing instruction *n. See* no-operation instruction.

dopant *n.* An impurity that is added in small quantities to semiconductor material during the manufacture of diodes, transistors, and integrated circuits. The resistance of a semiconductor falls between the resistance of a conductor and the resistance of an insulator (hence its name); dopants are added to the semiconductor to increase its conductivity. The type and amount of dopant determine whether the semiconductor will be N-type (in which current is conducted by free electrons) or P-type (in which current is conducted by electron vacancies, called "holes"). Common dopants include arsenic, antimony, bismuth, and phosphorus. *See also* N-type semiconductor, P-type semiconductor.

DOS *n.* **1.** Acronym for **d**isk **o**perating **s**ystem. A generic term describing any operating system that is loaded from disk devices when the system is started or rebooted. The term originally differentiated between disk-based systems and primitive microcomputer operating systems that were memory-based or that supported only magnetic or paper tape. **2.** *See* MS-DOS. **3.** *See* denial of service attack.

DOS box *n.* **1.** An OS/2 process that supports the execution of MS-DOS programs. *Also called* compatibility box. **2.** A computer that uses the MS-DOS or PC-DOS operating system, as opposed to one that runs some other operating system, such as UNIX.

DOS extender *n.* A program designed to extend the 640 KB of conventional memory available for use by DOS and DOS-based applications. A DOS extender works by claiming a portion of reserved memory (memory used by other parts of the system, such as the video adapter, the ROM BIOS, and the I/O ports).

DOS prompt *n.* The visual indication from the MS-DOS command processor that the operating system is ready to accept a new command. The default DOS prompt is a path followed by a greater-than sign (for example, C:>); the user can also design a custom prompt with the PROMPT command.

DOS Protected Mode Interface *n.* A software interface, originally developed for Microsoft Windows version 3.0, that enables MS-DOS-based application programs to run in the protected mode built into 80286 and higher microprocessors. In protected mode, the microprocessor can support multitasking and use of memory beyond 1 MB—capabilities otherwise unavailable to programs designed to run under MS-DOS. *See also* protected mode, real mode, Virtual Control Program Interface.

dot *n.* **1.** In the UNIX, MS-DOS, OS/2, and other operating systems, the character that separates a filename from an extension as in TEXT.DOC (pronounced "text-dot-doc"). **2.** In computer graphics and printing, a small spot combined with others in a matrix of rows and columns to form a character or a graphic element in a drawing or design. The dots forming an image on the screen are called pixels. The resolution of a display or printing device is often expressed in dots per inch (dpi). Dots are not the same as spots, which are groups of dots used in the halftoning process. *See also* pixel, resolution (definition 1). *Compare* spot. **3.** In an Internet address, the character that separates the different parts of the domain name, such as the entity name from the domain. *See also* domain (definition 3), domain name.

dot address *n.* An IP address in dotted quad form. *See also* IP address.

dot-addressable mode *n.* A mode of operation in which a computer program can address ("point to") individual dots on the screen or in a printed character. *See also* all points addressable.

dot com *n. See* .com (definition 1).

dot command *n.* A formatting command typed into a document and preceded by a period (dot) to distinguish it from printable text. Text formatting programs such as the XENIX nroff editor and word processing programs such as WordStar use dot commands for formatting.

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(FatBit) at a time. **2.** A similar feature in any program that allows pixel-by-pixel modification through a zoom feature.

fat client *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 *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 9x 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.

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

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

fault *n.* **1.** A physical defect, such as a loose connection, that prevents a system or device from operating as it should. **2.** A programming error that can cause the software to fail. **3.** As page fault, an attempt to access a page of virtual memory that is not mapped to a physical address. *See also* page fault.

fault tolerance *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 *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 *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 *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 *n.* Short for **fa**csimile **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 also* scan (definition 2).

fax modem *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 and graphic documents can be converted into fax format by special software usually provided with the modem; paper documents must first be

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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 *n. See* block gap.

file handle *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 *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 *n. See* header (definition 2).

file layout *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 *n.* A person or process responsible for maintaining, archiving, copying, and providing access to a collection of data.

file maintenance *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 management system *n.* The organizational structure that an operating system or program uses to order and track files. For example, a hierarchical file system uses directories in a so-called tree structure. All operating systems have built-in file management systems. Commercially available products implement additional features that provide more sophisticated means of navigating, finding, and organizing files. *See also* file system, hierarchical file system.

file manager *n.* A module of an operating system or environment that controls the physical placement of and access to a group of program files.

filename *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 label under 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 *n. See* extension (definition 1).

file protection *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 *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 *n.* The act of accessing a data file, transferring it from a storage location to the machine where it is to be used.

file server *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

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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 *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 *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 *n. See* file specification (definition 1).

file specification *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 *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 *n.* In an operating system, the overall structure in which files are named, stored, and organized. A file system consists of files, directories, or folders, 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 *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 *n. See* FTP[1] (definition 1).

file type *n.* A designation of the operational or structural characteristics of a file. A file's type is often identified in the filename, usually in the filename extension. *See also* file format.

fill[1] *n.* In computer graphics, the colored or patterned "paint" inside an enclosed figure, such as a circle. 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.

fill[2] *vb.* To add color or a pattern to the enclosed portion of a circle or other shape.

film at 11 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 *n.* A device for capturing on 35-mm film the images displayed on a computer screen.

film ribbon *n. See* carbon ribbon.

filter *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 lowpass 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 com-

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

flame bait *n.* A posting to a mailing list, newsgroup, or other online conference that is likely to provoke flames, often because it expresses a controversial opinion on a highly emotional topic. *See also* flame[1], flame war. *Compare* troll.

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

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

flame war *n.* A discussion in a mailing list, newsgroup, or other online conference that has turned into a protracted exchange of flames. *See also* flame[1].

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

flash *vb. See* burn.

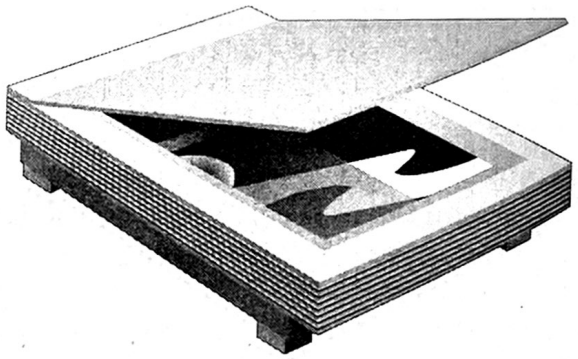
flash memory *n.* A type of nonvolatile memory. Flash memory is similar to EEPROM memory in function but it must be erased in blocks, whereas EEPROM can be erased one byte at a time. Because of its block-oriented nature, flash memory is commonly used as a supplement to or replacement for hard disks in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

flash ROM \flash´ rom\ *n. See* flash memory.

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

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

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



Flatbed scanner.

flat file *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 *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 *n.* A directory that cannot contain subdirectories but simply contains a list of filenames. *Compare* hierarchical file system.

flat file system *n.* A filing system with no hierarchical order in which no two files on a disk may have the same name, even if they exist in different directories. *Compare* hierarchical file system.

several small squares displayed around a graphical object in a drawing program. The user can move or reshape the object by clicking on a handle and dragging. See the illustration.



Handle. A computer graphics handle.

handler *n.* **1.** A routine that manages a common and relatively simple condition or operation, such as error recovery or data movement. **2.** In some object-oriented programming languages that support messages, a subroutine that processes a particular message for a particular class of objects. *See also* message, object-oriented programming.

handshake *n.* A series of signals acknowledging that communication or the transfer of information can take place between computers or other devices. A hardware handshake is an exchange of signals over specific wires (other than 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 *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 *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 *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* crash[2] (definition 1).

hanging indent *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 *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 *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 *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 *n.* Printed output on paper, film, or other permanent medium. *Compare* soft copy.

hard 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 drive *n.* *See* hard disk.

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can return to it by entering the command *cd* (change directory) without a pathname. The user's files will ordinarily be stored in the home directory and its descendants.

homegrown software *n.* Software developed by an individual at home rather than in a professional environment. Most public-domain and shareware programs are created this way.

Home key *n.* A key, found on most keyboards, whose function usually involves sending the cursor to some type of home position in an application. *See also* home.

home office *n.* **1.** An office set up within a residence. **2.** The main headquarters of a company.

home page *n.* **1.** A document intended to serve as a starting point in a hypertext system, especially the World Wide Web. A home page is called a *start page* in Microsoft Internet Explorer. **2.** An entry page for a set of Web pages and other files in a Web site. **3.** A personal Web page, usually for an individual.

home record *n. See* header record.

homogeneous environment *n.* A computing milieu, usually within an organization, in which only one manufacturer's hardware and one manufacturer's software are used. *Compare* heterogeneous environment.

homogeneous network *n.* A network on which all the hosts are similar and only one protocol is used.

hook *n.* A location in a routine or program in which the programmer can connect or insert other routines for the purpose of debugging or enhancing functionality.

hop *n.* In data communications, one segment of the path between routers on a geographically dispersed network. A hop is comparable to one "leg" of a journey that includes intervening stops between the starting point and the destination. The distance between each of those stops (routers) would be a communications hop.

horizontal blanking interval *n. See* blanking, horizontal retrace.

horizontal flyback *n. See* horizontal retrace.

horizontal market *n.* A broad category of business activity, such as accounting or inventory control, that carries across many types of business. *Compare* vertical market.

horizontal market software *n.* Application programs, such as word processors, that can be used in all types of business, as opposed to those geared for a certain industry.

horizontal retrace *n.* The movement of the electron beam in a raster-scan video display from the right end of one scan line to the left end (the beginning) of the next. During horizontal retrace, the electron beam is turned off, so the time required for the beam to move is called the horizontal blanking interval. *See also* blanking. *Compare* vertical retrace.

horizontal scrolling *n.* A feature of programs such as word processors and spreadsheets that enables the user to scroll left and right to display information beyond the horizontal limits of the screen (or window, in a graphical user interface).

horizontal synchronization *n.* On raster displays, the timing produced by a signal that controls the sweep of the display's electron beam as it moves from left to right and back again to form an image line by line. The horizontal synchronization signal is usually controlled by a circuit known as a phase-locked loop, which maintains a constant precise frequency so that a clear image is formed.

host[1] *n.* **1.** The main computer in a mainframe or minicomputer environment, that is, the computer to which terminals are connected. **2.** In PC-based networks, a computer that provides access to other computers. **3.** On the Internet or other large networks, a server computer that has access to other computers on the network. A host computer provides services, such as news, mail, or data, to computers that connect to it.

host[2] *vb.* To provide services to client computers that connect from remote locations—for example, to offer Internet access or to be the source for a news or mail service.

host adapter *n.* A device for connecting a peripheral to the main computer, typically in the form of an expansion card. *Also called* controller, host bus adapter.

host language *n.* **1.** The machine language of a CPU. **2.** A high-level language that is specifically supported by an operating system with its toolbox routines and native development systems.

host name *n.* The name of a specific server on a specific network within the Internet, leftmost in the complete host specification. For example, www.microsoft.com indicates the server called "www" within the network at Microsoft Corporation.

length of wire coiled in a cylindrical or toroidal (doughnut-shaped) form, sometimes with a ferromagnetic core. See the illustration. *Also called* choke.



Inductor. One of several kinds of inductors.

Industry Standard Architecture *n. See* ISA.

INET \I´net\ *n.* **1.** Short for **Internet**. **2.** An annual conference held by the Internet Society.

.inf *n.* The file extension for device information files, files containing scripts used to control hardware operations.

infection *n.* The presence of a virus or Trojan horse in a computer system. *See also* Trojan horse, virus, worm.

infer *vb.* To formulate a conclusion based on specific information, either by applying the rules of formal logic or by generalizing from a set of observations. For example, from the facts that canaries are birds and birds have feathers, one can infer (draw the inference) that canaries have feathers.

inference engine *n.* The processing portion of an expert system. It matches input propositions with facts and rules contained in a knowledge base and then derives a conclusion, on which the expert system then acts.

inference programming *n.* A method of programming (as in Prolog) in which programs yield results based on logical inference from a set of facts and rules. *See also* Prolog.

infinite loop *n.* **1.** A loop that, because of semantic or logic errors, can never terminate through normal means. **2.** A loop that is intentionally written with no explicit termination condition but will terminate as a result of side effects or direct intervention. *See also* loop[1] (definition 1), side effect.

infix notation *n.* A notation, used for writing expressions, in which binary operators appear between their arguments, as in 2 + 4. Unary operators usually appear before their arguments, as in –1. *See also* operator precedence, postfix notation, prefix notation, unary operator.

infobahn \in´fō-bän`\ *n.* The Internet. *Infobahn* is a mixture of the terms *information* and *Autobahn,* a German highway known for the high speeds at which drivers can legally travel. *Also called* Information Highway, Information Superhighway, the Net.

information *n.* The meaning of data as it is intended to be interpreted by people. Data consists of facts, which become information when they are seen in context and convey meaning to people. Computers process data without any understanding of what the data represents.

Information Analysis Center *n. See* IAC.

Information and Content Exchange *n. See* ICE (definition 1).

information center *n.* **1.** A large computer center and its associated offices; the hub of an information management and dispersal facility in an organization. **2.** A specialized type of computer system dedicated to information retrieval and decision-support functions. The information in such a system is usually read-only and consists of data extracted or downloaded from other production systems.

information engineering *n. See* IE (definition 1).

information explosion *n.* **1.** The current period in human history, in which the possession and dissemination of information has supplanted mechanization or industrialization as a driving force in society. **2.** The rapid growth in the amount of information available today. *Also called* information revolution.

information hiding *n.* A design practice in which implementation details for both data structures and algorithms within a module or subroutine are hidden from routines using that module or subroutine, so as to ensure that those routines do not depend on some particular detail of the implementation. In theory, information hiding allows the module or subroutine to be changed without breaking the routines that use it. *See also* break, module, routine, subroutine.

Information Highway or information highway *n. See* Information Superhighway.

information kiosk *n. See* kiosk.

information management *n.* The process of defining, evaluating, safeguarding, and distributing data within an organization or a system.

I/O port *n. See* input/output port.

I/O processor *n. See* input/output processor.

IO.SYS \I-O´-sis`, I-O´-dot-sis`\ *n.* One of two hidden system files installed on an MS-DOS startup disk. IO.SYS in IBM releases of MS-DOS (called IBMBIO.COM) contains device drivers for peripherals such as the display, keyboard, floppy disk drive, hard disk drive, serial port, and real-time clock. *See also* MSDOS.SYS.

IP *n.* Acronym for **I**nternet **P**rotocol. The protocol within TCP/IP that governs the breakup of data messages into packets, the routing of the packets from sender to destination network and station, and the reassembly of the packets into the original data messages at the destination. IP runs at the internetwork layer in the TCP/IP model—equivalent to the network layer in the ISO/OSI reference model. *See also* ISO/OSI reference model, TCP/IP. *Compare* TCP.

IP address *n.* Short for **I**nternet **P**rotocol **address**. A 32-bit (4-byte) binary number that uniquely identifies a host (computer) connected to the Internet to other Internet hosts, for the purposes of communication through the transfer of packets. An IP address is expressed in "dotted quad" format, consisting of the decimal values of its 4 bytes, separated with periods; for example, 127.0.0.1. The first 1, 2, or 3 bytes of the IP address identify the network the host is connected to; the remaining bits identify the host itself. The 32 bits of all 4 bytes together can signify almost 2^{32}, or roughly 4 billion, hosts. (A few small ranges within that set of numbers are not used.) *Also called* Internet Protocol number, IP number. *See also* host, IANA, ICANN, InterNIC, IP, packet (definition 2). *Compare* domain name.

IPC *n. See* interprocess communication.

IPL *n. See* initial program load.

IP multicasting *n.* Short for **I**nternet **P**rotocol **multicasting.** The extension of local area network multicasting technology to a TCP/IP network. Hosts send and receive multicast datagrams, the destination fields of which specify IP host group addresses rather than individual IP addresses. A host indicates that it is a member of a group by means of the Internet Group Management Protocol. *See also* datagram, Internet Group Membership Protocol, IP, MBONE, multicasting.

IPng \I´peng\ *n.* Acronym for **I**nternet **P**rotocol **n**ext **g**eneration. A version of Internet Protocol (IP) developed by the Internet Engineering Task Force (IETF). Improvements over the original Internet Protocol include better security and an increased IP address size of 16 bytes. *See also* IETF, IP, IP address.

IP number *n. See* IP address.

IPP *n. See* Internet Printing Protocol.

IP spoofing *n.* The act of inserting a false sender IP address into an Internet transmission in order to gain unauthorized access to a computer system. *See also* IP address, spoofing.

IP switching *n.* A technology developed by Ipsilon Networks (Sunnyvale, Calif.) that enables a sequence of IP packets with a common destination to be transmitted over a high-speed, high-bandwidth Asynchronous Transfer Mode (ATM) connection.

IPv6 *n.* Short for **I**nternet **P**rotocol version **6**. A proposed next generation for the Internet Protocol, currently version 4, which was introduced in September 1995 by the Internet Engineering Task Force and formerly known as IPng. *See also* IP, IPng.

IPX *n.* Acronym for **I**nternetwork **P**acket E**x**change. The protocol in Novell NetWare that governs addressing and routing of packets within and between LANs. IPX packets can be encapsulated in Ethernet packets or Token Ring frames. IPX operates at ISO/OSI levels 3 and 4 but does not perform all the functions at those levels. In particular, IPX does not guarantee that a message will be complete (no lost packets); SPX has that job. *See also* Ethernet (definition 1), packet, Token Ring network. *Compare* SPX (definition 1).

IPX/SPX *n.* Acronym for **I**nternetwork **P**acket E**x**change/**S**equenced **P**acket E**x**change The network and transport level protocols used by Novell NetWare, which together correspond to the combination of TCP and IP in the TCP/IP protocol suite. IPX is a connectionless protocol that handles addressing and routing of packets. SPX, which runs above IPX, ensures correct delivery. *See also* IPX, SPX (definition 1).

IR *n. See* infrared.

IRC *n.* Acronym for **I**nternet **R**elay **C**hat. A service that enables an Internet user to participate in a conversation on line in real time with other users. An IRC channel, maintained by an IRC server, transmits

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mail filter *n.* *See* e-mail filter.

mail header *n.* A block of text at the top of an e-mail message containing such information as the addresses of the sender and recipient(s), the date and time sent, the address to which a reply is to be sent, and the subject. The mail header is used by an e-mail client or program. *See also* e-mail[1] (definition 1).

mailing list *n.* A list of names and e-mail addresses that are grouped under a single name. When a user places the name of the mailing list in a mail client's To: field, the client sends the message to the machine where the mailing list resides, and that machine automatically sends the message to all the addresses on the list (possibly allowing a moderator to edit it first). *See also* LISTSERV, mailing list manager, Majordomo, moderator.

mailing list manager *n.* Software that maintains an Internet or intranet mailing list. The mailing list manager accepts messages posted by subscribers; sends copies of the messages (which may be edited by a moderator) to all the subscribers; and accepts and processes user requests, such as to subscribe or to unsubscribe to the mailing list. The most commonly used mailing list managers are LISTSERV and Majordomo. *See also* LISTSERV, mailing list, Majordomo, moderator.

mail merge *n.* A mass-mail facility that takes names, addresses, and sometimes pertinent facts about recipients and merges the information into a form letter or another such basic document.

mail reflector *n.* A newsgroup that consists simply of the messages posted to a mailing list translated into newsgroup format.

mailto *n.* A protocol designator used in the HREF of a hyperlink that enables a user to send e-mail to someone. For instance, Anne E. Oldhacker has the e-mail address aeo@baz.foo.com and an HTML document contains the code <A HREF="mailto:aeo@baz.foo.com">E-mail Anne!</A>. If a user clicks on the hyperlink "E-mail Anne!" the user's e-mail application is launched and the user can send e-mail to her without knowing her actual e-mail address. *See also* e-mail[1] (definition 1), HTML, hyperlink.

mainboard *n.* *See* motherboard.

main body *n.* The set of statements in a computer program at which execution of the program begins and that invokes the subroutines of the program.

mainframe computer *n.* A high-level, typically large and expensive computer designed to handle intensive computational tasks. Mainframe computers are characterized by their ability to simultaneously support many users connected to the computer by terminals. The name is derived from "main frame," the cabinet originally used to house the processing unit of such computers. *See also* computer, supercomputer.

main function *n.* The main body of a program written in a computer language that uses sets of functions to create an entire program. For example, the C language requires each program to contain a function called *main,* which C uses as the starting point of execution. *See also* main body.

main loop *n.* A loop in the main body of a program that performs the principal function of the program over and over until termination is somehow signaled. In event-driven programs, this loop checks for events received from the operating system and handles them appropriately. *See also* event-driven programming, main body.

main memory *n.* *See* primary storage.

main segment *n.* On the Macintosh, the principal code segment of a program, which must remain loaded throughout the execution of the program.

maintenance *n.* The process of taking measures to ensure that a hardware, software, or database system is functioning properly and is up to date.

Majordomo *n.* The name of a popular software program that manages and supports Internet mailing lists. *See also* mailing list, mailing list manager.

major geographic domain *n.* A two-character sequence in an Internet domain name address that indicates the country in which a host is located. The major geographic domain is the last part of the domain name address, following the subdomain and domain codes; for example, uiuc.edu.us indicates a host at the University of Illinois in the United States, whereas cam.ac.uk indicates a host at the University of Cambridge in the United Kingdom. The code .us, which indicates a domain in the United States, is usually omitted. See Appendix F. *Also called* country code. *See also* DNS (definition 1), domain name address.

major key *n.* *See* primary key.

male connector *n.* A type of connector that has pins for insertion into receptacles. Male connector part

routing, error control, line control, and polling (checking terminals for transmissions), leaving the main computer free for other functions. *See also* communications controller.

Network Control Protocol *n. See* Point-to-Point Protocol.

network database *n.* **1.** A database that runs in a network. **2.** A database containing the address of other users in the network. **3.** In information management, a type of database in which data records can be related to one another in more than one way. A network database is similar to a hierarchical database in the sense that it contains a progression from one record to another. It differs in being less rigidly structured: any single record can point to more than one other record and, conversely, can be pointed to by one or more records. In effect, a network database allows more than one path between any two records, whereas a hierarchical database allows only one, from parent (higher-level record) to child (lower-level record). *Compare* hierarchical database, relational database.

Network Data Management Protocol *n. See* NDMP.

network device driver *n.* Software that coordinates communication between the network adapter card and the computer's hardware and other software, controlling the physical function of the network adapter card.

Network Device Interface Specification *n. See* NDIS.

network directory *n.* On a local area network, a directory on a disk that is located on a computer other than the one the user is operating. A network directory differs from a network drive in that the user has access to only that directory. Whether the rest of the disk is accessible to the user depends on whether he or she has been granted access rights by the network administrator. On the Macintosh, a network directory is referred to as a shared folder. *Also called* networked directory, shared directory. *See also* network drive, shared folder.

network drive *n.* On a local area network, a disk drive whose disk is available to other computers on the network. Access to a network drive might not be allowed to all users of the network; many operating systems contain security provisions that enable a network administrator to grant or deny access to part or all of a network drive. *Also called* networked drive. *See also* network directory.

Network Driver Interface Specification *n. See* NDIS.

networked directory *n. See* network directory.

networked drive *n. See* network drive.

Network File System *n. See* NFS.

network information center *n. See* NIC (definition 2).

network interface card *n.* An expansion card or other device used to provide network access to a computer or other device, such as a printer. Network interface cards mediate between the computer and the physical media, such as cabling, over which transmissions travel. *Acronym:* NIC. *Also called* network adapter, network card.

network latency *n.* The time it takes for information to be transferred between computers in a network.

network layer *n.* The third of the seven layers in the ISO/OSI reference model for standardizing computer-to-computer communications. The network layer is one level above the data-link layer and ensures that information arrives at its intended destination. It is the middle of the three layers (data-link, network, and transport) concerned with the actual movement of information from one device to another. See the illustration. *See also* ISO/OSI reference model.

ISO/OSI MODEL

ISO/OSI Layer	*Focus*
Application *(highest level)*	Program-to-program transfer of information
Presentation	Text formatting and display, code conversion
Session	Establishing, maintaining, and coordinating communication
Transport	Accurate delivery, service quality
Network	Transport routes, message handling and transfer
Data-link	Coding, addressing, and transmitting information
Physical	Hardware connections

Network layer.

network meltdown *n. See* broadcast storm, meltdown.

network model *n.* A database structure, or layout, similar to a hierarchical model, except that records can have multiple parent records as well as multiple child records. A database management system that

N

thread. Each newsgroup has a name that consists of a series of words, separated by periods, indicating the newsgroup's subject in terms of increasingly narrow categories, such as rec.crafts.textiles.needlework. Some newsgroups can be read and posted to only on one site; others, such as those in the seven Usenet hierarchies or those in ClariNet, circulate throughout the Internet. *See also* article, bit. newsgroups, ClariNet, follow-up, Great Renaming, local newsgroups, mail reflector, threaded discussion, traditional newsgroup hierarchy, Usenet. *Compare* mailing list.

newsmaster *n.* The person in charge of maintaining the Internet news server at a particular host. Sending e-mail to "newsmaster@domain.name" is the standard way to reach a given newsmaster.

news. newsgroups *n.* Usenet newsgroups that are part of the news. hierarchy and begin with "news." These newsgroups cover topics that deal with Usenet itself, such as Usenet policy and the creation of new Usenet newsgroups. *See also* newsgroup, traditional newsgroup hierarchy, Usenet. *Compare* comp. newsgroups, misc. newsgroups, rec. newsgroups, sci. newsgroups, soc. newsgroups, talk. newsgroups.

.newsrc *n.* The file extension that identifies a setup file for UNIX-based newsreaders. The setup file typically contains a current list of newsgroups that the user subscribes to and the articles in each newsgroup that the user has already read. *See also* newsreader, setup (definition 2).

newsreader *n.* A Usenet client program that enables a user to subscribe to Usenet newsgroups, read articles, post follow-ups, reply by e-mail, and post articles. Many Web browsers also provide these functions. *See also* article, e-mail (definition 1), follow-up, newsgroup, Usenet, Web browser.

news server *n.* A computer or program that exchanges Internet newsgroups with newsreader clients and other servers. *See also* newsgroup, newsreader.

Newton *n.* A PDA developed by Apple Computer, Inc. *See also* PDA.

Newton OS *n.* The operating system that controls the Newton MessagePad personal digital assistant (PDA). *See also* PDA.

NeXT *n.* A computer designed and produced by NeXT Computer, Inc. (later NeXT Software, Inc.), a computer manufacturer and software developer founded in 1985 by Steven Jobs. NeXT was purchased by Apple Computer in 1997.

Next Generation Internet *n.* An initiative funded by the United States federal government designed to develop faster, more powerful networking technologies than are available on the current global Internet. The Next Generation Internet, or NGI, was begun in 1997 under the auspices of a number of government agencies, including DARPA (Defense Advanced Research Projects Agency), NASA (National Aeronautics & Space Administration), and the NSF (National Science Foundation). Its objective is to develop advanced networking technologies and to demonstrate them on university and government test networks running 100 to 1,000 times faster than the current Internet. The technologies developed are intended for eventual use by schools, businesses, and the general public. *Acronym* NGI. *Compare* Internet, Internet2.

NFS *n.* Acronym for **N**etwork **F**ile **S**ystem. A distributed file system developed by Sun Microsystems, Inc., that allows users of Windows NT and UNIX workstations to access remote files and directories on a network as if they were local.

NGI *n.* *See* Next Generation Internet.

nibble or **nybble** *n.* Half a byte (4 bits). *Compare* quadbit.

NIC *n.* **1.** *See* network interface card. **2.** Acronym for **n**etwork **i**nformation **c**enter. An organization that provides information about a network and other support to users of the network. The principal NIC for the Internet is InterNIC. Intranets and other private networks may have their own NICs. *See also* InterNIC.

NiCad battery *n.* *See* nickel cadmium battery.

nickel cadmium battery *n.* A rechargeable battery that uses an alkaline electrolyte. Nickel cadmium batteries typically have a longer operating life and storage life than similar lead-acid batteries. *Also called* NiCad battery. *Compare* lead ion battery, lithium ion battery, nickel metal hydride battery.

nickel metal hydride battery *n.* A rechargeable battery that offers longer life and superior performance compared with similar nickel cadmium or other alkaline batteries. *Also called* NiMH battery. *Compare* lead ion battery, lithium ion battery, nickel cadmium battery.

N

optimizer *n.* A program or device that improves the performance of a computer, network, or other device or system. For example, a disk optimizer program reduces file access time.

optimizing compiler *n.* A compiler that analyzes its output (assembly language or machine code) to produce more efficient (smaller or faster) instruction sequences.

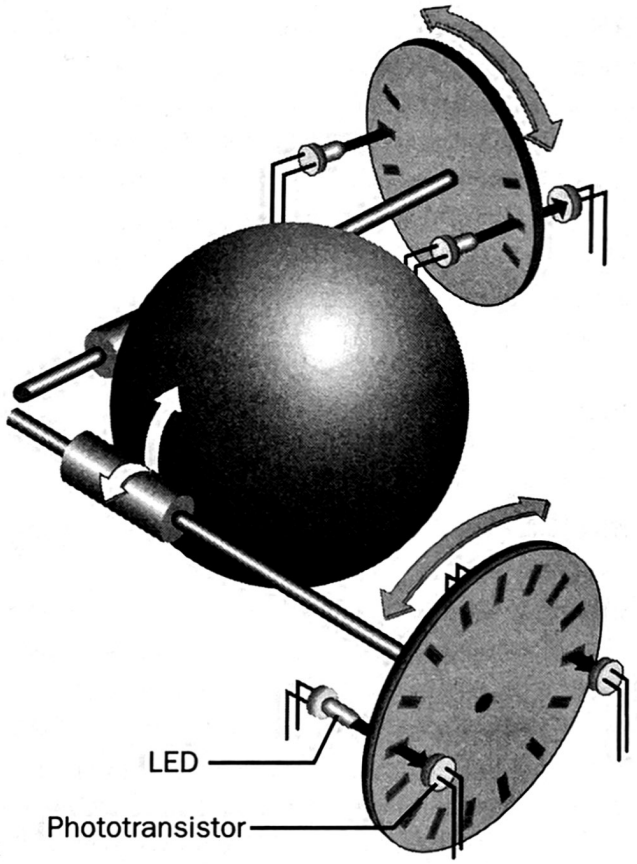
optional hyphen *n. See* hyphen.

Option key *n.* A key on Apple Macintosh keyboards that, when pressed in combination with another key, produces special characters—graphics, such as boxes; international characters, such as currency symbols; and special punctuation marks, such as en dashes and em dashes. The Option key serves a purpose similar to that of the Control key or the Alt key on IBM and compatible keyboards in that it changes the meaning of the key with which it is used.

Options *n. See* Preferences.

optoelectronics *n.* The branch of electronics in which the properties and behavior of light are studied. Optoelectronics deals with electronic devices that generate, sense, transmit, and modulate electromagnetic radiation in the infrared, visible, and ultraviolet portions of the electromagnetic spectrum.

optomechanical mouse *n.* A type of mouse in which motion is translated into directional signals through a combination of optical and mechanical means. The optical portion includes pairs of light-emitting diodes (LEDs) and matching sensors; the mechanical portion consists of rotating wheels with cutout slits. When the mouse is moved, the wheels turn and the light from the LEDs either passes through the slits and strikes a light sensor or is blocked by the solid portions of the wheels. These changes in light contact are detected by the pairs of sensors and interpreted as indications of movement. Because the sensors are slightly out of phase with one another, the direction of movement is determined based on which sensor is the first to regain light contact. Because it uses optical equipment instead of mechanical parts, an optomechanical mouse eliminates the need for many of the wear-related repairs and maintenance necessary with purely mechanical mice, but it does not require the special operating surfaces associated with optical mice. See the illustration. *See also* mouse. *Compare* mechanical mouse, optical mouse.



Optomechanical mouse.

OR \ōr\ *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). See the table.

Table O.1 The results of the OR logical operation.

a	b	a OR b
0	0	0
0	1	1
1	0	1
1	1	1

Orange Book *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).

Table P.1 Types of Parity

Type	Description
Even parity	The number of 1s in each successfully transmitted set of bits must be an even number.
Odd parity	The number of 1s in each successfully transmitted set of bits must be an odd number.
No parity	No parity bit is used.
Space parity	A parity bit is used and is always set to 0.
Mark parity	A parity bit is used and is always set to 1.

parity error *n.* An error in parity that indicates an error in transmitted data or in data stored in memory. If a parity error occurs in communications, all or part of a message must be retransmitted; if a parity error occurs in RAM, the computer usually halts. *See also* parity, parity bit.

park *vb.* To position the read/write head over a portion of a disk that stores no data (and therefore can never be damaged) or beyond the surface of the disk, prior to shutting down the drive, especially in preparation for moving it. Parking can be performed manually, automatically, or by a disk utility program.

parse *vb.* To break input into smaller chunks so that a program can act upon the information.

partition *n.* **1.** A logically distinct portion of memory or a storage device that functions as though it were a physically separate unit. **2.** In database programming, a subset of a database table or file.

Partition Boot Sector *n.* The first sector in the system (startup) partition of a computer's bootable hard disk, or the first sector of a bootable floppy disk. On an x86-based computer, the Partition Boot Sector is read into memory at startup by the Master Boot Record. It is the Partition Boot Sector that contains the instructions required to begin the process of loading and starting the computer's operating system. *See also* Master Boot Record, partition table.

partition table *n.* A table of information in the first sector of a computer's hard disk that tells where each partition (discrete portion of storage) on the disk begins and ends. The physical locations are given as the beginning and ending head, sector, and cylinder numbers. In addition to these "addresses," the partition table identifies the type of file system used for each partition and identifies whether the partition is bootable— whether it can be used to start the computer. Although it is a small data structure, the partition table is a critical element on the hard disk.

Pascal \pa-skal\ *n.* A concise procedural language designed between 1967 and 1971 by Niklaus Wirth. Pascal, a compiled, structured language built upon ALGOL, simplifies syntax while adding data types and structures such as subranges, enumerated data types, files, records, and sets. *See also* ALGOL, compiled language. *Compare* C.

pass[1] *n.* In programming, the carrying out of one complete sequence of events.

pass[2] *vb.* To forward a piece of data from one part of a program to another. *See also* pass by address, pass by value.

pass by address *n.* A means of passing an argument or parameter to a subroutine. The calling routine passes the address (memory location) of the parameter to the called routine, which can then use the address to retrieve or modify the value of the parameter. *Also called* pass by reference. *See also* argument, call[1]. *Compare* pass by value.

pass by reference *n.* *See* pass by address.

pass by value *n.* A means of passing an argument or a parameter to a subroutine. A copy of the value of the argument is created and passed to the called routine. When this method is used, the called routine can modify the copy of the argument, but it cannot modify the original argument. *See also* argument, call[1]. *Compare* pass by address.

passive hub *n.* A type of hub used on ARCnet networks that passes signals along but has no additional capability. *See also* ARCnet. *Compare* active hub, intelligent hub.

passive-matrix display *n.* An inexpensive, low-resolution liquid crystal display (LCD) made from a large array of liquid crystal cells that are controlled by transistors outside of the display screen. One transistor controls an entire row or column of pixels. Passive-matrix displays are commonly used in portable computers, such as laptops and notebooks, because of their thin width. While these displays have good contrast for monochrome screens, the resolution is weaker for color screens. These displays are also difficult to view from any angle other than straight

to docking stations, but without the same capability for expansion and storage. *Also called* convenience adapter. *See also* docking station, port.

POS *n.* Acronym for **p**oint **o**f **s**ale. The place in a store at which goods are paid for. Computerized 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\ *n.* Acronym for **P**rofiles for **O**pen **S**ystems **I**nternetworking **T**echnology. A set of non-mandatory 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 *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\ *n.* Acronym for **P**ortable **O**perating **S**ystem **I**nterface for UNI**X**. 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 *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 *n. See* power-on self test.

posterization *n. See* contouring.

postfix notation *n.* A form of algebraic notation in which the operators appear after the operands. *Also called* reverse Polish notation. *Compare* infix notation, prefix notation.

postmaster *n.* The logon name (and therefore the e-mail address) of an account that is responsible for maintaining e-mail services on a mail server. When an account holder is having trouble with e-mail, a message to "postmaster" or "postmaster@machine.org.domain.name" will usually reach a human who can solve the problem.

post office *n.* The server and associated storage and mail handling services that provide the centralized location for collection and distribution of e-mail over a network.

Post Office Protocol *n.* A protocol for servers on the Internet that receive, store, and transmit e-mail and for clients on computers that connect to the servers to download and upload e-mail. *Acronym:* POP.

postprocessor *n.* A device or a software routine, such as a linker, that operates on data manipulated first by another processor. *See also* back-end processor (definition 2). *Compare* preprocessor.

PostScript *n.* A page-description language from Adobe Systems that offers flexible font capability and high-quality graphics. The most well-known page-description language, PostScript uses English-like commands to control page layout and to load and scale outline fonts. Adobe Systems is also responsible for Display PostScript, a graphics language for computer displays that gives users of both PostScript and Display PostScript absolute WYSIWYG (what-you-see-is-what-you-get), which is difficult when different methods are used for displaying and printing. *See also* outline font, page-description language.

PostScript font *n.* A font defined in terms of the PostScript page-description language rules and intended to be printed on a PostScript-compatible printer. PostScript fonts are distinguished from bitmapped fonts by their smoothness, detail, and faithfulness to standards of quality established in the typographic industry. *See also* PostScript. *Compare* screen font.

pot *n. See* potentiometer.

potential *n. See* electromotive force.

potentiometer *n.* A circuit element that can be adjusted to provide varying amounts of resistance. The twist-knob and slider-type volume controls on many radios and television sets are potentiometers. *Also called* pot.

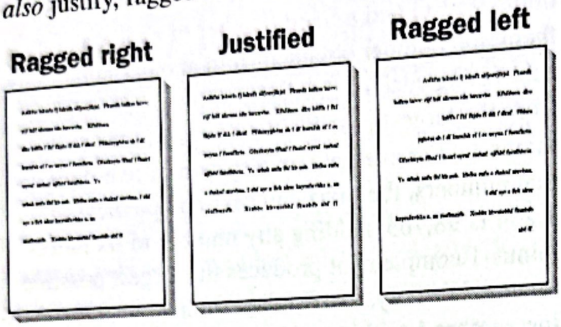
POTS \potz\ *n.* Acronym for **P**lain **O**ld **T**elephone **S**ervice. Basic dialup telephone connections to the public switched network without any added features or functions. A POTS line is nothing but a phone line connected to a simple, single-line telephone instrument.

pour *vb.* To send a file or the output from a program to another file or to a device using a pipe. *See also* pipe (definition 1).

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line. As the signal quality improves or deteriorates while a transmission line is being used, the transmission speed is adjusted accordingly. *See also* ADSL, xDSL.

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.



Rag.

ragged 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 *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\ *n.* Acronym for redundant array of independent disks (formerly called redundant array of inexpensive disks). 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 disks 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`\ *n. See* RAID.

RAM \ram\ *n.* Acronym for random access memory. 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).

RAMAC \ram´ak\ *n.* **1.** Acronym for Random Access Method of Accounting Control. Developed by an IBM team led by Reynold B. Johnson, RAMAC was the first computer disk drive. It was introduced in 1956. The original RAMAC consisted of a stack of 50 24-inch platters, with a storage capacity of five megabytes and an average access time of one second. **2.** A high-speed, high-capacity disk storage system introduced by IBM in 1994. Based on the original RAMAC storage device, it was designed to fulfill enterprise requirements for efficient and fault-tolerant storage.

RAM cache \ram´ kash\ *n.* Short for random access memory **cache**. 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 *n.* Short for random access memory card. An add-in circuit board containing RAM memory and the interface logic necessary to decode memory addresses.

RAM cartridge *n. See* memory cartridge.

RAM chip *n.* Short for random access memory chip. A semiconductor storage device. RAM chips can be either dynamic or static memory. *See also* dynamic RAM, RAM, static RAM.

RAM compression *n.* Short for random access memory **compression.** 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 operating systems that handle RAM more efficiently, such as Windows 9*x*, Windows NT, and OS/2, RAM compression is generally used only on older PCs. *See also* compression, RAM, Windows.

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* record[1].

record structure *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* record[1].

recover *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 *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 *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 *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.

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

recursion *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* call[1] (definition 2), routine.

Recycle Bin *n.* A folder in Windows 9x, Windows CE, Windows NT, and Windows 2000 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 *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.

red-green-blue *n. See* RGB.

redirection *n.* The process of writing to or reading from a file or device different from the one that would normally be the target or the source. For example, the MS-DOS or OS/2 command *dir >prn* redirects a directory listing from the screen to the printer. *Compare* pipe.

redirector *n.* Software on a client computer that intercepts requests for information and, when appropriate, directs them to the network. Redirectors can either be built into the client operating system or be part of an added networking package.

redlining *n.* A feature of a word processing application that marks changes, additions, or deletions made to a document by a coauthor or editor. The purpose of redlining is to produce a record of the changes made to a document during the course of its development.

redraw *n. See* refresh (definition 1).

reduce *vb.* In a graphical user interface, to decrease the size of a window. A user can reduce a window either by clicking on the appropriate button in the

instructions a computer decodes and executes. RISC architecture optimizes each of these instructions so that it can be carried out very rapidly—usually within a single clock cycle. RISC chips thus execute simple instructions more quickly than general-purpose CISC (complex instruction set computing) microprocessors, which are designed to handle a much wider array of instructions. They are, however, slower than CISC chips at executing complex instructions, which must be broken down into many machine instructions that RISC microprocessors can perform. Families of RISC chips include Sun Microsystems' SPARC, Motorola's 88000, Intel's i860, and the PowerPC developed by Apple, IBM, and Motorola. *See also* architecture, SPARC. *Compare* CISC.

RISC86 *n.* A "hybrid" microprocessor technology in which CISC (Complex Instruction Set Computing) instructions are translated into RISC (Reduced Instruction Set Computing) instructions for processing. RISC86 is designed to support the 80x86 CISC architecture while providing the speed gains characteristic of RISC technology. RISC86 was developed by NexGen and is implemented in AMD's K6 microprocessor.

Rivest-Shamir-Adleman encryption *n. See* RSA encryption.

RJ-11 connector *n. See* phone connector.

RJ-11 jack *n. See* phone connector.

RJ-45 connector *n.* Short for **R**egistered **J**ack-**45** **connector**. An eight-wire connector used to attach devices to cables. The eight wires are encased in a plastic sheath and color-coded to match corresponding slots in jacks. RJ-45 jacks are used to connect computers to LANs (local area networks) and to link ISDN (Integrated Services Digital Network) devices to NT-1 (Network Terminator 1) devices. *Also called* RJ-45 jack. *See also* ISDN.

RJ-45 jack *n. See* RJ-45 connector.

RLIN *n. See* Research Libraries Information Network.

RLL encoding *n. See* run-length limited encoding.

rlogin[1] \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* telnet[1]. **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.

rlogin[2] \R`log´in\ *vb.* To connect to a networked computer using the rlogin protocol.

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

RMM *See* real-mode mapper.

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

robot *n.* **1.** A machine that can sense and react to input and cause changes in its surroundings with some degree of intelligence, ideally without human supervision. Although robots are often designed to mimic human movements in carrying out their work, they are seldom humanlike in appearance. Robots are commonly used in manufacturing products such as automobiles and computers. *See also* robotics. **2.** *See* bot, spider.

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

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

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

role-playing game *n.* A game that is played 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 *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\ *n.* **1.** Acronym for **r**ead-**o**nly **m**emory. A semiconductor circuit into which code or data is permanently installed by the manufacturing process. The use of this technology is economically viable only if the chips are produced in large quantities;

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scroll arrow *n. See* scroll bar.

scroll bar *n.* In some graphical user interfaces, a vertical or horizontal bar at the side or bottom of a display area that can be used with a mouse for moving around in that area. Scroll bars often have four active areas: two scroll arrows for moving line by line, a sliding scroll box for moving to an arbitrary location in the display area, and gray areas for moving in increments of one window at a time.

scroll box *n. See* elevator.

Scroll Lock key *n.* On the IBM PC/XT and AT and compatible keyboards, a key on the top row of the numeric keypad that controls the effect of the cursor control keys and sometimes prevents the screen from scrolling. On the enhanced and Macintosh keyboards, this key is to the right of the function keys on the top row. Many modern applications ignore the Scroll Lock setting.

scroll wheel *n.* A thumbwheel on a mouse that, when turned, enables the user to scroll or zoom without clicking the scroll bar or using the keyboard. Depending on the mouse, a scroll wheel can also double as a third mouse button. *See also* scroll bar.

SCSI \skuz´ē\ *n.* Acronym for **S**mall **C**omputer **S**ystem **I**nterface, a standard high-speed parallel interface defined by the X3T9.2 committee of the American National Standards Institute (ANSI). A SCSI interface is used to connect microcomputers to SCSI peripheral devices, such as many hard disks and printers, and to other computers and local area networks. *Also called* SCSI-1, SCSI I. *Compare* ESDI, IDE.

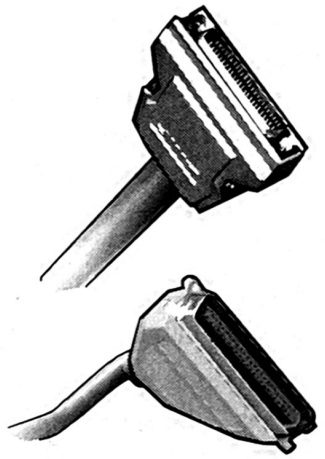
SCSI-1 \skuz´ē-wən^\ *n. See* SCSI.

SCSI-2 \skuz´ē-tyo͞o^\ *n.* An enhanced ANSI standard for SCSI (Small Computer System Interface) buses. Compared with the original SCSI standard (now called SCSI-1), which can transfer data 8 bits at a time at up to 5 MB per second, SCSI-2 offers increased data width, increased speed, or both. A SCSI-2 disk drive or host adapter can work with SCSI-1 equipment at the older equipment's maximum speed. *Also called* SCSI II. *See also* Fast SCSI, Fast/Wide SCSI, SCSI, Wide SCSI. *Compare* UltraSCSI.

SCSI bus \skuz´ē bus\ *n.* A parallel bus that carries data and control signals from SCSI devices to a SCSI controller. *See also* bus, controller, SCSI device.

SCSI chain \skuz´ē chān`\ *n.* A set of devices on a SCSI bus. Each device (except the host adapter and the last device) is connected to two other devices by two cables, forming a daisy chain. *See also* daisy chain, SCSI.

SCSI connector \skuz´ē kə-nek`tər\ *n.* A cable connector used to connect a SCSI device to a SCSI bus. See the illustration. *See also* bus, connector (definition 1), SCSI device.



SCSI connector.

SCSI device \skuz´ē də-vīs`\ *n.* A peripheral device that uses the SCSI standard to exchange data and control signals with a computer's CPU. *See also* peripheral, SCSI.

SCSI I \skuz´ē-wən^\ *n. See* SCSI.

SCSI ID \skuz´ē I-D^\ *n.* The unique identity of a SCSI device. Each device connected to a SCSI bus must have a different SCSI ID. A maximum of eight SCSI IDs can be used on the same SCSI bus. *See also* bus, SCSI device.

SCSI II \skuz´ē-tyo͞o^\ *n. See* SCSI-2.

SCSI network \skuz´ē net`wərk\ *n.* A set of devices on a SCSI bus, which acts like a local area network. *See also* SCSI.

SCSI port \skuz´ē pōrt`\ *n.* **1.** A SCSI host adapter within a computer, which provides a logical connection between the computer and all of the devices on the SCSI bus. *See also* SCSI. **2.** A connector on a device for a SCSI bus cable. *See also* SCSI.

scuzzy *n. See* SCSI.

SDH *n. See* Synchronous Digital Hierarchy.

SDK *n.* Acronym for software **d**evelopment **k**it. *See* developer's toolkit.

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slot 1 *n.* A receptacle on a PC motherboard designed to hold a Pentium II microprocessor. The microprocessor, which is encased in Intel's Single Edge Contact (SEC) packaging, slides into the slot on the motherboard. Slot 1 includes 242 electrical contact points and communicates with the chip's L2 cache at speeds half of the PC's clock speed. Slot 1 replaced socket 7 and socket 8 in Intel architectures, but has been superceded by slot 2 in newer model Pentiums. *See also* L2 cache, motherboard, Pentium. *Compare* slot 2, socket 7, socket 8.

slot 2 *n.* A receptacle on a PC motherboard designed to hold Intel microprocessors beginning with the Pentium II Xeon and including the Pentium III microprocessor. Like slot 1, slot 2 is encased in Intel's Single Edge Contact packaging, so it slides easily into the slot on the motherboard. It includes 330 electrical contact points and is slightly wider than slot 1. It also supports communication between the CPU and the L2 cache at the full clock speed of the PC. *See also* L2 cache, motherboard, Pentium. *Compare* slot 1.

slot mask *n.* A type of mask used in cathode ray tube (CRT) monitors in which a thin sheet of metal perforated with elliptical holes is used to ensure that the electron beam for a particular color (red, green, or blue) strikes only the phosphor (of the corresponding color) that it is intended to illuminate. The elliptical—lozenge-shaped—holes in a slot mask place it between a shadow mask, which is based on round openings, and an aperture grill, which is based on vertical strips of metal. Slot masks were introduced by NEC in its CromaClear technology. *See also* CRT, mask (definition 2). *Compare* aperture grill, shadow mask.

slot pitch *n.* The distance, measured horizontally, between phosphor dots of the same color on a cathode ray tube (CRT) display based on slot mask technology. Although the measurements are based on different methods of applying phosphor to the screen surface, slot pitch is comparable to dot pitch, the measurement used with CRTs based on shadow mask technology. *See also* CRT, mask (definition 2), slot mask. *Compare* dot pitch, stripe pitch.

slotted-ring network *n.* A ring network allowing data to be transmitted between data stations in one direction. A slotted-ring network transfers data in predefined time slots (fixed-length portions of a data frame) in the transmission stream over one transmission medium. *See also* data frame, ring network. *Compare* token ring network.

SlowKeys *n.* An accessibility feature built into Macintosh computers and available for DOS and Windows that allows the user to add a delay to the keyboard so that a key must be held down for a certain amount of time before it is accepted. This feature facilitates the use of the keyboard by individuals with poor motor control who might accidentally bump keys when moving around the keyboard.

SLSI *n. See* super-large-scale integration.

small caps *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 *n. See* SCSI.

small model *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 office/home office *n. See* SOHO.

small-scale integration *n.* A concentration of fewer than 10 components on a single chip. *Acronym:* SSI. *See also* integrated circuit.

Smalltalk *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 *adj.* A synonym for intelligent. *See* intelligence.

smart cable *n. See* intelligent cable.

smart card *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 *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 *n.* In word processors, a function that automatically converts the ditto marks (") produced

stepper motor *n.* A mechanical device that rotates only a fixed distance each time it receives an electrical pulse. A stepper motor is part of a disk drive.

step-rate time *n.* The time required to move a disk actuator arm from one track to the next. *See also* actuator, stepper motor.

stereogram *n.* *See* autostereogram.

StickyKeys *n.* An accessibility feature built into Macintosh computers and Windows 9x and Windows NT 4 that causes modifier keys such as Shift, Control, or Alt to "stay on" after they are pressed, eliminating the need to press multiple keys simultaneously. This feature facilitates the use of modifier keys by users who are unable to hold down one key while pressing another.

stochastic *adj.* Based on random occurrences. For example, a stochastic model describes a system by taking into account chance events as well as planned events.

stop bit *n.* In asynchronous transmission, a bit that signals the end of a character. In early electromechanical teleprinters, the stop bit provided time for the receiving mechanism to coast back to the idle position and, depending on the mechanism, had a duration of 1, 1.5, or 2 data bits. *See also* asynchronous transmission. *Compare* parity bit, start bit.

storage *n.* In computing, any device in or on which information can be kept. Microcomputers have two main types of storage: random access memory (RAM) and disk drives and other external storage media. Other types of storage include read-only memory (ROM) and buffers.

Storage Area Network *n.* *See* System Area Network.

storage device *n.* An apparatus for recording computer data in permanent or semipermanent form. When a distinction is made between primary (main) storage devices and secondary (auxiliary) storage devices, the former refers to random access memory (RAM) and the latter refers to disk drives and other external devices.

storage location *n.* The position at which a particular item can be found—either an addressed location or a uniquely identified location on a disk, tape, or similar medium.

storage media *n.* The various types of physical material on which data bits are written and stored, such as floppy disks, hard disks, tape, and optical discs.

storage tube *n.* *See* direct view storage tube.

store-and-forward *n.* A method of delivering transmissions in which messages are held temporarily by an intermediary before being sent on to their destination. Store and forward is used by some switches in delivering packets to their destinations. *Compare* cut-through switch.

stored program concept *n.* A system architecture scheme, credited largely to the mathematician John von Neumann, in which both programs and data are in direct-access storage (random access memory, or RAM), thereby allowing code and data to be treated interchangeably. *See also* von Neumann architecture.

storefront *n.* *See* virtual storefront.

storm *n.* On a network, a sudden, excessive burst of traffic. Storms are often responsible for network outages.

STP *n.* Acronym for **s**hielded **t**wisted **p**air. A cable consisting of one or more twisted pairs of wires and a sheath of foil and copper braid. The twists protect the pairs from interference by each other, and the shielding protects the pairs from interference from outside. Therefore, STP cable can be used for high-speed transmission over long distances. *See also* twisted-pair cable. *Compare* UTP.

straight-line code *n.* Program code that follows a direct sequence of statements rather than skipping ahead or jumping back via transfer statements such as GOTO and JUMP. *See also* GOTO statement, jump instruction. *Compare* spaghetti code.

stream[1] *n.* Any data transmission, such as the movement of a file between disk and memory, that occurs in a continuous flow. Manipulating a data stream is a programming task. Consumers, however, are likely to encounter references to streams and streaming in connection to the Internet, which has increased reliance on stream techniques to enable users (even those with slower equipment) to access large multimedia files—especially those containing audio and video components—and to display or play them before all the data has been transferred.

stream[2] *vb.* To transfer data continuously, beginning to end, in a steady flow. Many aspects of computing rely on the ability to stream data: file input and output, for example, and communications. If necessary, an application receiving a stream must be able to save the information to a buffer in order to prevent loss of data. On the Internet, streaming enables users

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and passwords, establishing security access levels, allocating storage space, and watching for unauthorized access to prevent virus or Trojan horse programs from entering the system. *Also called* sysadmin. *See also* Trojan horse, virus. *Compare* sysop.

System Area Network *n.* A private, sometimes high-performance network that links servers within a cluster. A System Area Network is scalable, enables the servers to communicate quickly, and ensures dependability even if a server loses its connection to the rest of the network. *Also called* Storage Area Network. *See also* cluster, Virtual Interface Architecture.

system board *n. See* motherboard.

system clock *n. See* clock (definition 1).

system console *n.* The control center of a computer system, primarily with reference to mainframe and minicomputers. In networked or distributed systems, one workstation is designated as the system administrator's; this workstation is analogous to the LAN system console. *See also* console, LAN.

system conversion *n.* Changing from one operating system to another—for example, from Windows 95 to Windows NT or UNIX or OS/2.

system development *n.* The process of defining, designing, testing, and implementing a new system.

system disk *n.* A disk that contains an operating system and can be used to boot a computer. *Also called* startup disk. *See also* boot[2], operating system.

system error *n.* A software condition that renders the operating system incapable of continuing to function normally. This type of error usually requires rebooting the system.

system failure *n.* The inability of a computer to continue functioning, usually caused by software rather than hardware.

System file *n.* A resource file on the Macintosh that contains the resources needed by the operating system, such as fonts, icons, and default dialog boxes.

System folder *n.* The Macintosh file folder (directory) that contains the System file and other vital files, such as Finder, device drivers, INIT files, and control panel files. *See also* control panel, Finder, INIT, System file.

system font *n.* On the Macintosh and in some PC applications, the font used by the computer for on-screen text, such as menu titles and items (but not on-screen text within a word processor or other application). *See also* font.

system generation *n.* The process of configuring and installing system software for a particular set of hardware components. Complex operating systems such as UNIX are shipped with device drivers and utilities that are often not relevant to a particular hardware configuration; putting together only the necessary components, as well as specifying important system characteristics, is part of the system generation process. *Also called* sysgen.

system heap *n. See* heap (definition 1).

system.ini *n.* In Windows 3.*x*, the initialization file used to store the hardware configuration information necessary to run the Windows operating environment. The system.ini file was replaced by the Registry database in Windows 9x and in Windows NT. *See also* ini file.

system life cycle *n.* An information system's useful life. At the end of a system's life cycle it is not feasible to repair or expand it, so it must be replaced.

system memory *n. See* memory.

System Object Model *n. See* SOM (definition 1).

system-on-a-chip *n.* The integration of multiple functions on a single computer chip. In addition to the incorporation of functions such as a floating-point unit, a system-on-a-chip might also include display, communications, and other components that contribute to a functional computer system.

system operator *n. See* sysop.

system prompt *n. See* prompt (definition 1).

system recovery *n.* Processing that takes place after a system failure in order to restore a system to normal operation. System recovery takes place after the operating system is initiated. It sometimes requires that tasks in process during the failure be backed out of and that structures in memory during the failure be reconstructed.

System Registry *n. See* Registry.

System Request key *n. See* Sys Req key.

system resource *n.* On the Macintosh, any of numerous routines, definitions, and data fragments that are stored in the Macintosh System file, such as floating-point arithmetic routines, font definitions, and peripheral drivers. *See also* resource (definition 2).

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icons. When these buttons or icons are clicked on with the mouse, macros or certain functions of the application are activated. For example, word processors often feature toolbars with buttons for changing text to italic, boldface, and other styles. Toolbars often can be customized by the user and usually can be moved around on the screen according to the user's preference. See the illustration. *See also* graphical user interface. *Compare* menu bar, palette (definition 1), taskbar, title bar.



Toolbar.

toolbox *n.* A set of predefined (and usually precompiled) routines a programmer can use in writing a program for a particular machine, environment, or application. *Also called* toolkit. *See also* library (definition 1).

Toolbox *n.* A set of routines stored mostly in the read-only memory of a Macintosh that provides application programmers with the tools needed to support the graphical interface characteristic of the computer. *Also called* User Interface Toolbox.

Tool Command Language/Tool Kit *n. See* Tcl/Tk.

toolkit *n. See* toolbox.

top-down design *n.* A program design methodology that starts with defining program functionality at the highest level (a series of tasks) and then breaks down each task into lower-level tasks, and so on. *See also* bottom-up programming, top-down programming. *Compare* bottom-up design.

top-down programming *n.* An approach to programming that implements a program in top-down fashion. Typically, this is done by writing a main body with calls to several major routines (implemented as stubs). Each routine is then coded, calling other, lower-level, routines (also done initially as stubs). *See also* bottom-up design, stub, top-down design. *Compare* bottom-up programming.

topic drift *n.* The tendency of an online discussion to move from its original subject to other related or unrelated subjects. For example, someone in a conference devoted to television may ask about a news program; then somebody else may say something about a story on that program about food poisoning, which leads somebody else to start a general discussion on the advantages of organic fruits and vegetables.

topic group *n.* An online discussion area for participants with a common interest in a particular subject.

top-level domain *n.* In the domain-name system of Internet addresses or DNS hierarchy, any of the broadest category of names, under which all domain names fit. Top-level domains for sites in the United States include .com, .edu, .gov, .net, and .org. *See also* DNS (definition 1), major geographic domain.

top-of-file *n.* **1.** The beginning of a file. **2.** A symbol used by a program to mark the beginning of a file—the first character in the file or, in an indexed (ordered) database, the first indexed record. *Acronym:* TOF. *See also* beginning-of-file.

topology *n.* The configuration or layout of a network formed by the connections between devices on a LAN (local area network) or between two or more LANs. *See also* bus network, LAN, ring network, star network, token ring network, tree network.

total bypass *n.* A communications network that uses satellite transmission to bypass both local and long-distance telephone links.

total cost of ownership *n.* Specifically, the cost of owning, operating, and maintaining a single PC. More generally, the cost to businesses and organizations of setting up and maintaining complex and far-reaching networked computer systems. Total cost of ownership includes the up-front costs of hardware and software added to later costs of installation, personnel training, technical support, upgrades, and repairs. Industry initiatives designed to lower the total cost of ownership include centralized network management and administration, as well as hardware solutions in the form of network-based computers with or without local storage and expansion capability. *See also* cost of ownership (CO).

touch pad *n.* A variety of graphics tablet that uses pressure sensors, rather than the electromagnetics used in more expensive high-resolution tablets, to track the position of a device on its surface. *See also* absolute pointing device, graphics tablet.

touch screen *n.* A computer screen designed or modified to recognize the location of a touch on its surface. By touching the screen, the user can make a selection or move a cursor. The simplest type of touch screen is made up of a grid of sensing lines, which determine the location of a touch by matching

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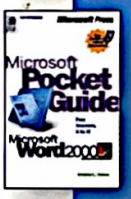
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