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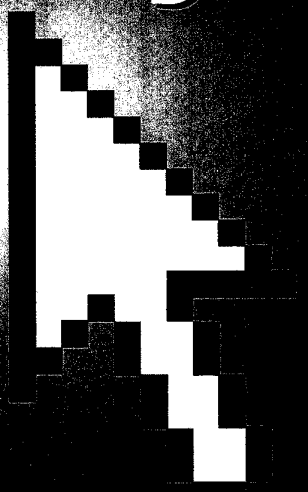
Fifth Edition



- *Fully updated with the latest technologies, terms, and acronyms*
- *Easy to read, expertly illustrated*
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Apache Group *n.* A non-profit organization of volunteers from around the world that operates and contributes to the Apache HTTP Server Project.

Apache HTTP Server Project *n.* A collaborative effort by the members of the Apache Group to design, develop, and maintain the Apache HTTP (Web) server. *See also* Apache, Apache Group.

Apache project *n. See* Apache HTTP Server Project.

APC *n. See* asynchronous procedure call.

aperture grill *n.* A type of CRT (cathode ray tube) used in computer monitors that uses thin, closely-spaced vertical wires to isolate the individual pixels. The first aperture grill CRT was the Sony Trinitron, but several other manufacturers also produce aperture grill CRTs. *See also* CRT.

APEX *n.* Acronym for **A**ssembly **P**rocess **Ex**hibition and Conference. Exhibition and conference for members of the electronics manufacturing industry. APEX features product exhibits, speeches, technical conferences, and forums on issues that affect the industry.

API *n. See* application programming interface.

APL *n.* Acronym for **A** **P**rogramming **L**anguage. A high-level language introduced in 1968 for scientific and mathematical applications. APL is a subprogram-based interpreted language that uses a large set of special characters and terse syntax and is available for use on PC-compatible machines. *See also* interpreted language.

APM *n. See* Advanced Power Management.

APNIC *n.* Acronym for **A**sian-**P**acific **N**etwork **I**nformation **C**enter, a nonprofit, voluntary membership organization covering the Asia/Pacific Rim region. APNIC, like its European counterpart RIPE and its American counterpart ARIN, devotes itself to matters related to the Internet, among them such tasks as registering new members, allocating IP addresses, and maintaining database information. *See also* ARIN, RIPE.

app *n. See* application.

APPC *n.* Acronym for **A**dvanced **P**rogram-to-**P**rogram **C**ommunication. A specification developed as part of IBM's SNA (Systems Network Architecture) model and designed to enable applications programs running on different computers to communicate and exchange data directly. APPC extends SNA to include minicomputers and PCs.

append *vb.* To place or insert as an attachment by adding data to the end of a file or database or extending a character string. *See also* file, string. *Compare* truncate.

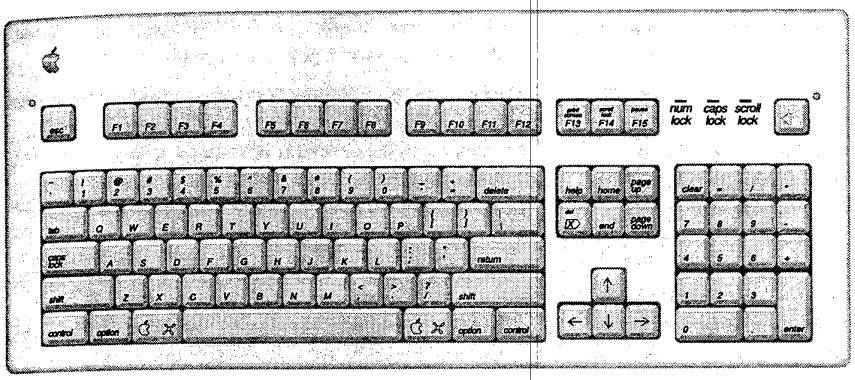
Apple II *n.* The second computer introduced by the Apple Computer Corporation, in April 1977. The Apple II featured 4 K dynamic RAM, expandable to 48 K (with 16 K chips), and used the 6502 microprocessor. The Apple II was the first computer to offer a TV video adapter as an optional alternative to a color computer monitor. It also featured sound and eight expansion slots. *See also* 6502.

Apple Desktop Bus *n.* A serial communications pathway built into Apple Macintosh and Apple IIGS computers. Typically a flexible cord, it enables low-speed input devices, such as a keyboard or mouse, to communicate with the computer. The bus functions like a simple local area network that can connect up to 16 devices, such as light pens, trackballs, and graphics tablets, to the computer. Although there are only two external ports, more than two devices can be linked in a series called a daisy chain. *Acronym:* ADB.*See also* bus, daisy chain[2], device driver, input/output port, serial communication.

AppleDraw *n.* A shareware drawing application for Macintosh computers.

Apple Events *n.* A feature added to Mac OS System 7 that enables one application to send a command, such as save or open, to another application. *See also* Mac OS.

Apple Extended Keyboard *n.* A 105-key keyboard that works with the Macintosh SE, Macintosh II, and Apple IIGS computers. This keyboard marks Apple's first inclusion of function (F) keys, whose absence was long cited as a shortcoming of the Macintosh compared with IBM PCs and compatibles. This feature, along with other layout changes and the addition of new keys and lights, makes the Apple Extended Keyboard quite similar in form to the IBM enhanced keyboard. See the illustration. *See also* enhanced keyboard.



Apple Extended Keyboard.

Apple Filing Protocol *n. See* AFP.

Apple key *n.* A key on Apple keyboards labeled with an outline of the Apple logo. On the Apple Extended Keyboard, this key is the same as the Command key, which functions similarly to the Control key on IBM and compatible keyboards. It is generally used in conjunction with a character key as a shortcut to making menu selections or starting a macro.

Apple Macintosh *n. See* Macintosh.

Apple Newton *n. See* Newton.

AppleScript *n.* A script language developed by Apple Computer, Inc., for Macintosh computers running under the Mac OS to execute commands and automate functions. *See also* script.

AppleShare *n.* A file server software developed by Apple Computer, Inc., that works with the Mac OS and allows one Macintosh computer to share files with another on the same network. *See also* file server, Mac OS.

applet *n.* A program that can be downloaded over the Internet and executed on the recipient's machine. Applets are often written in the Java programming language and run within browser software, and they are typically used to customize or add interactive elements to a Web page.

AppleTalk *n.* An inexpensive local area network developed by Apple Computer, Inc., for Macintosh computers that can be used by Apple and non-Apple computers to communicate and share resources such as printers and file servers. Non-Apple computers must be equipped with AppleTalk hardware and suitable software. The network uses a layered set of protocols similar to the ISO/OSI reference model and transfers information in the form of packets called frames. AppleTalk supports connections to other AppleTalk networks through devices known as bridges, and it supports connections to dissimilar networks through devices called gateways. *See also* bridge, frame (definition 2), gateway.

AppleTalk Phase 2 *n.* The extended AppleTalk Internet model designed by Apple Computer, Inc., that supports multiple zones within a network and extended addressing capacity.

AppleWorks *n.* A suite of productivity applications, formerly known as ClarisWorks, distributed by Apple Computer, Inc., and shipped on the iMac computer. AppleWorks/ClarisWorks is an integrated product that includes support for word processing, spreadsheets, databases, drawing, painting, charting, and the Internet.

appliance *n.* **1.** *See* server appliance. **2.** *See* information appliance. **3.** A device with a single or limited purpose with functionality. This functionality is similar to a simple consumer appliance.

appliance server *n.* **1.** An inexpensive computing device used for specific tasks including Internet connectivity or file-and-print services. The server is usually easy to use but does not possess the capabilities or software of a typical server for general office use. **2.** *See* server appliance.

application *n.* A program designed to assist in the performance of a specific task, such as word processing, accounting, or inventory management. *Compare* utility.

application binary interface *n.* A set of instructions that specifies how an executable file interacts with the hardware

application processor *n.* A processor dedicated to a single application.

application program *n. See* application.

application program interface. *n. See* application programming interface.

application programming interface *n.* A set of routines used by an application program to direct the performance of procedures by the computer's operating system. *Acronym:* API.*Also called:* application program interface.

application server *n.* **1.** A server program on a computer in a distributed network that handles the business logic between users and backend business applications or databases. Application servers also can provide transaction management, failover, and load balancing. An application server is often viewed as part of a three-tier application consisting of a front-end GUI server such as an HTTP server (first tier), an application server (middle tier), and a backend database and transaction server (third tier). *Also called:* appserver. *Compare* HTTP server (definition 1). **2.** Any machine on which an application-server program is running. *Also called:* appserver.

application service provider *n.* A third-party company or organization that hosts applications or services for individuals or business customers. The customer connects to a data center maintained by the application service provider (ASP) through Internet or private lines to access applications that would otherwise need to be housed on the customer's local servers or individual PCs. This arrangement allows the customer to free up disk space that would otherwise be taken by applications, as well as to access the most recent software updates. ASPs deliver solutions ranging from high-end applications to services for small and medium-sized businesses. *Acronym:* ASP.

application shortcut key *n.* A key or combination of keys that when pressed will quickly perform an action within an application that would normally require several user actions, such as menu selections. *Also called:* keyboard shortcut.

application software *n. See* application.

application-specific integrated circuit *n. See* gate array.

application suite *n. See* suite (definition 1).

appserver *n. See* application server.

Aqua *n.* The graphical user interface (GUI) of Macintosh OS X. Aqua was designed to maintain familiarity and a comfort level for users of the earlier Macintosh system while allowing access to newer Macintosh OS X capabilities. The Aqua GUI features updated versions of Macintosh staples such as the Finder alongside new features like the Dock, a new type of organizational tool. *See also* Dock, Macintosh OS X.

arbitration *n.* A set of rules for resolving competing demands for a machine resource by multiple users or processes. *See also* contention.

.arc *n.* The file extension that identifies compressed archive files encoded using the Advanced RISC Computing Specification (ARC) format. *See also* compressed file.

arcade game *n.* **1.** A coin-operated computer game for one or more players that features high-quality screen graphics, sound, and rapid action. **2.** Any computer game designed to mimic the style of a coin-operated arcade game, such as games marketed for the home computer. *See also* computer game.

Archie *n.* An Internet utility for finding files in public archives obtainable by anonymous FTP. The master Archie server at McGill University in Montreal downloads FTP indexes from participating FTP servers, merges them into a master list, and sends updated copies of the master list to other Archie servers each day. Archie is a shortened form of *archive. See also* anonymous FTP, FTP[1] (definition 1). *Compare* Jughead, Veronica.

Archie client *n. See* Archie.

Archie server *n.* On the Internet, a server that contains Archie indexes to the names and addresses of files in public FTP archives. *See also* Archie, FTP[1] (definition 1), server (definition 2).

architecture *n.* **1.** The physical construction or design of a computer system and its components. *See also* cache, CISC, closed architecture, network architecture, open architecture, pipelining, RISC. **2.** The data-handling capacity of a microprocessor. **3.** The design of application software incorporating protocols and the means for expansion and interfacing with other programs.

archive[1] *n.* **1.** A tape or disk containing files copied from another storage device and used as backup storage. **2.** A compressed file. **3.** A file directory on the Internet that is

coding. **2.** A method of deal-
2000 problems that entails
e fields designed to hold
r system. This can be
s associated with the date
ample, by converting the
ry or from decimal to hexa-
storage of larger values.

able) information in such a
l but those individuals pos-
ncrypted information is
lled: encipher, encode.

encoding data to prevent
ly during transmission.
one or more keys, or codes,
, or returning the data to
onal Bureau of Standards
standard, Data Encryption
ed on a 56-bit variable that
adrillion unique keys to
DES.

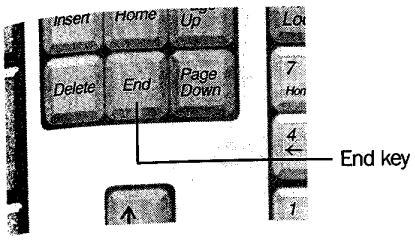
e of data that is used to
nsequently, must be used for
decryption, encryption.

al type of end-around shift
at treats the carry bit as an
s moved from one end of the
rry, end-around shift, shift.

ation performed on a binary
out of one end and into the
t-end shift on the value
ee also shift.

ark (–) used to show ranges
990–92, and in compound
yphenated or consists of two
he en dash is named after a
, the en space, which is half
also em space. *Compare* em

key that moves the cursor to
the end of a line, the end of a
pending on the program. See



End key.

endless loop *n. See* infinite loop.

end mark *n.* A symbol that designates the end of some entity, such as a file or word processing document.

end-of-file *n.* **1.** A code placed by a program after the last byte of a file to tell the computer's operating system that no additional data follows. In ASCII, end-of-file is represented by the decimal value 26 (hexadecimal 1A) or the Ctrl+Z control character. *Acronym:* EOF. **2.** An indicator of some sort in a computer program or database that indicates that the end of a file has been reached. If older systems that have the capacity to store only two-digit years in the date field also use end-of-file markers such as 99, they can be susceptible to date-related problems. *See also* 99 or 9999.

end-of-text *n.* In data transmission, a character used to mark the end of a text file. End-of-text does not necessarily signify the end of transmission; other information, such as error-checking or transmission control characters, can be included at the end of the file. In ASCII, end-of-text is represented by the decimal value 3 (hexadecimal 03). *Acronym:* ETX.

end-of-transmission *n.* A character representing the end of a transmission. In ASCII, the end-of-transmission character has the decimal value 4 (hexadecimal 04). *Acronym:* EOT.

endpoint *n.* The beginning or end of a line segment.

end-to-end delivery *n.* A communications process in networks in which packets are delivered and then acknowledged by the receiving system.

end-to-end examination *n.* An inspection of all of the processes and systems in place at an organization that affect the computer systems. The examination begins with the data or information that flows into the system, continues with how the data is manipulated and stored, and ends with how the data is output. For example, end-to-end examination is one technique that was employed to ferret out Year 2000 problems in computer systems of an organization.

end user *n.* The ultimate user of a computer or computer application in its finished, marketable form.

End-User License Agreement *n.* A legal agreement between a software manufacturer and the software's purchaser with regard to terms of distribution, resale, and restricted use. *Acronym:* EULA.

Energy Star *n.* A symbol affixed to systems and components that denotes lower power-consumption design. Energy Star is the name of an Environmental Protection Agency program that encourages PC manufacturers to build systems that are energy efficient. Requirements dictate that systems or monitors be capable of automatically entering a "sleep state" or lower power-consumption state while the unit is inactive, where the low-power state is defined as 30 watts or less. Systems and monitors that comply with these guidelines are marked with an Energy Star sticker.

engine *n.* A processor or portion of a program that determines how the program manages and manipulates data. The term *engine* is most often used in relation to a specific use; for example, a database engine contains the tools for manipulating a database, and a Web search engine has the ability to search World Wide Web indexes for matches to one or more key words entered by the user. *Compare* back-end processor, front-end processor.

Enhanced Capabilities Port *n. See* ECP.

enhanced Category 5 cable *n. See* Cat 5e cable.

Enhanced Data Rates for Global Evolution *n. See* EDGE.

Enhanced Data Rates for GSM and TDMA Evolution *n. See* EDGE.

Enhanced Expanded Memory Specification *n. See* EEMS.

Enhanced Graphics Adapter *n. See* EGA.

Enhanced Graphics Display *n.* A PC video display capable of producing graphic images with resolutions ranging from 320 x 200 through 640 x 400 pixels, in color or in black and white. Resolution and color depth depend on the vertical and horizontal scanning frequencies of the display, the capabilities of the video display controller card, and available video RAM.

achieve personalization and privacy concomitantly, OPS is based on the concept of a Personal Profile, which is stored on the individual's computer and contains the user's unique identification, demographic and contact data, and possibly content preferences. This information remains under the user's control and can be released wholly or in part to the requesting site. *Acronym:* OPS. *See also* cookie, digital certificate.

open shop *n.* A computer facility that is open to users and not restricted to programmers or other personnel. An open shop is one in which people can work on or attempt to solve computer problems on their own rather than handing them over to a specialist.

Open Shortest Path First *n. See* OSPF.

Open Software Foundation *n. See* OSF.

open source *n.* The practice of making the source code (program instructions) for a software product freely available, at no cost, to interested users and developers, even though they were not involved in creating the original product. The distributors of open source software expect and encourage users and outside programmers to examine the code in order to identify problems, and to modify the code with suggested improvements and enhancements. Widely used open source products include the Linux operating system and the Apache Web server.

open standard *n.* A publicly available set of specifications describing the characteristics of a hardware device or software program. Open standards are published to encourage interoperability and thereby help popularize new technologies. *See also* standard (definition 2).

open system *n.* **1.** In communications, a computer network designed to incorporate all devices—regardless of the manufacturer or model—that can use the same communications facilities and protocols. **2.** In reference to computer hardware or software, a system that can accept add-ons produced by third-party suppliers. *See also* open architecture (definition 1).

Open Systems Interconnection reference model *n. See* ISO/OSI reference model.

OpenType *n.* A collaborative initiative by Microsoft and Adobe to unify support for Microsoft TrueType and Adobe PostScript Type 1 fonts. The OpenType font format enables font creators and users to work with the font type that best suits their needs without having to worry about whether the font is based on TrueType or PostScript technology. *Also called:* TrueType Open version 2. *See also* PostScript font, TrueType.

Opera *n.* A Web browser developed by Opera Software S/A. Opera is notable for its strict W3C standards support. Opera is often chosen by Web developers to test Web sites for W3C compliance. *See also* W3C, Web browser.

operand *n.* The object of a mathematical operation or a computer instruction.

operating system *n.* The software that controls the allocation and usage of hardware resources such as memory, central processing unit (CPU) time, disk space, and peripheral devices. The operating system is the foundation software on which applications depend. Popular operating systems include Windows 98, Windows NT, Mac OS, and UNIX. *Acronym:* OS. *Also called:* executive.

operation *n.* **1.** A specific action carried out by a computer in the process of executing a program. **2.** In mathematics, an action performed on a set of entities that produces a new entity. Examples of mathematical operations are addition and subtraction.

operation code *n.* The portion of a machine language or assembly language instruction that specifies the type of instruction and the structure of the data on which it operates. *Also called:* opcode. *See also* assembly language, machine code.

operations research *n.* The use of mathematical and scientific approaches to analyze and improve efficiency in business, management, government, and other areas. Developed around the beginning of World War II, operations research was initially used to improve military operations during the war. The practice later spread to business and industry as a means of breaking down systems and procedures and studying their parts and interactions to improve overall performance. Operations research involves use of the critical path method, statistics, probability, and information theory.

operator *n.* **1.** In mathematics and in programming and computer applications, a symbol or other character indicating an operation that acts on one or more elements. *See also* binary[1], unary. **2.** A person who controls a machine or system such as a computer or telephone switchboard.

operator associativity *n.* A characteristic of operators that determines the order of evaluation in an expression

user interface *n.* The portion of a program with which a user interacts. Types of user interfaces, or UIs, include command-line interfaces, menu-driven interfaces, and graphical user interfaces. *Acronym:* UI.

User Interface Toolbox *n. See* Toolbox.

username *n.* The name by which a user is identified to a computer system or network. During the logon process, the user must enter the username and the correct password. If the system or network is connected to the Internet, the username generally corresponds to the leftmost part of the user's e-mail address (the portion preceding the @ sign, as in username@company.com). *See also* e-mail address, logon.

user name *n.* The name by which a person is known and addressed on a communications network. *See also* alias (definition 2).

user profile *n.* A computer-based record maintained about an authorized user of a multiuser computer system. A user profile is needed for security and other reasons; it can contain such information as the person's access restrictions, mailbox location, type of terminal, and so on. *See also* user account.

user state *n.* The least privileged of the modes in which a Motorola 680x0 microprocessor can operate. This is the mode in which application programs are run. *See also* 68000. *Compare* supervisor state.

USnail *n.* **1.** Slang for the United States Postal Service. USnail, a term used on the Internet, is a reference to how slow the postal service is in comparison to e-mail. **2.** Mail delivered by the United States Postal Service. *See also* snail mail.

/usr *n.* A directory in a computer system that contains subdirectories owned or maintained by individual users of the computer system. These subdirectories can contain files and additional subdirectories. Typically, /usr directories are used in UNIX systems and can be found on many FTP sites. *See also* FTP site.

USRT *n.* Acronym for universal synchronous receiver-transmitter. A module, usually composed of a single integrated circuit, that contains both the receiving and transmitting circuits required for synchronous serial communication. *Compare* UART.

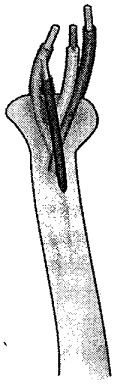
UTC *n. See* Universal Time Coordinate.

UTF-8 *n.* Acronym for UCS Transformation Format 8. A character set for protocols evolving beyond the use of ASCII. The UTF-8 protocol provides for support of extended ASCII characters and translation of UCS-2, an international 16-bit Unicode character set. UTF-8 enables a far greater range of names than can be achieved using ASCII or extended ASCII encoding for character data. *See also* ASCII, Unicode.

utility *n.* A program designed to perform a particular function; the term usually refers to software that solves narrowly focused problems or those related to computer system management. *See also* application.

utility program *n.* A program designed to perform maintenance work on the system or on system components (for example, a storage backup program, disk and file recovery program, or resource editor).

UTP *n.* Acronym for unshielded twisted pair. A cable containing one or more twisted pairs of wires without additional shielding. UTP is more flexible and takes up less space than shielded twisted-pair (STP) cable but has less bandwidth. See the illustration. *See also* twisted-pair cable. *Compare* STP.



UTP.

.uu *n.* The file extension for a binary file that has been translated into ASCII format using uuencode. *Also called:* .uud. *See also* ASCII, binary file, uuencode[1]. *Compare* .uue.

UUCP *n.* Acronym for UNIX-to-UNIX Copy. A set of software programs that facilitates transmission of information between UNIX systems using serial data connec-