

# GLOSSARY

This glossary defines the key terms listed at the end of each chapter and other terms related to managing and maintaining a personal computer.

- 32-bit flat memory mode** A protected processing mode used by Windows NT/2000/XP to process programs written in 32-bit code early in the boot process.
- 3-D RAM** Special video RAM designed to improve 3-D graphics simulation.
- 80 conductor IDE cable** An IDE cable that has 40 pins but uses 80 wires, 40 of which are ground wires designed to reduce crosstalk on the cable. The cable is used by ATA/100 and ATA/133 IDE drives.
- 802.11a/b/g** See IEEE 802.11a/b/g.
- A+ Certification** A certification awarded by CompTIA (The Computer Technology Industry Association) that measures a PC technician's knowledge and skills.
- access point (AP)** A device connected to a LAN that provides wireless communication so that computers, printers, and other wireless devices can communicate with devices on the LAN.
- ACPI (Advanced Configuration and Power Interface)** Specification developed by Intel, Compaq, Phoenix, Microsoft, and Toshiba to control power on notebooks and other devices. Windows 98 and Windows 2000/XP support ACPI.
- Active Directory** A Windows 2000 Server and Windows Server 2003 directory database and service that allows for a single point of administration for all shared resources on a network, including files, peripheral devices, databases, Web sites, users, and services.
- active matrix** A type of video display that amplifies the signal at every intersection in the grid of electrodes, which enhances the pixel quality over that of a dual-scan passive matrix display.
- active partition** The primary partition on the hard drive that boots the OS. Windows NT/2000/XP calls the active partition the system partition.
- active terminator** A type of terminator for single-ended SCSI cables that includes voltage regulators in addition to the simple resistors used with passive termination.
- adapter address** See MAC address.
- adapter card** A small circuit board inserted in an expansion slot and used to communicate between the system bus and a peripheral device. Also called an interface card.
- administrator account** In Windows NT/ 2000/XP, an account that grants to the administrator(s) rights and permissions to all hardware and software resources, such as the right to add, delete, and change accounts and to change hardware configurations.
- Advanced Options menu** A Windows 2000/XP menu that appears when you press F8 when Windows starts. The menu can be used to troubleshoot problems when loading Windows 2000/XP.
- adware** Software installed on a computer that produces pop-up ads using your browser; the ads are often based on your browsing habits.
- AirPort** The term Apple computers use to describe the IEEE 802.11b standard.
- ANSI (American National Standards Institute)** A nonprofit organization dedicated to creating trade and communications standards.
- answer file** A text file that contains information that Windows NT/2000/XP requires in order to do an unattended installation.
- antivirus (AV) software** Utility programs that prevent infection or scan a system to detect and remove viruses. McAfee Associates' VirusScan and Norton AntiVirus are two popular AV packages.
- application program interface (API) call** A request from software to the OS to access hardware or other software using a previously defined procedure that both the software and the OS understand.
- ARP (Address Resolution Protocol)** A protocol that TCP/IP uses to translate IP addresses into physical network addresses (MAC addresses).
- ASCII (American Standard Code for Information Interchange)** A popular standard for writing letters and other characters in binary code. Originally, ASCII characters were seven bits, so there were 127 possible values. ASCII has been expanded to an 8-bit version, allowing 128 additional values.

- AT command set** A set of commands that a PC uses to control a modem and that a user can enter to troubleshoot the modem.
- ATAPI (Advanced Technology Attachment Packet Interface)** An interface standard, part of the IDE/ATA standards, that allows tape drives, CD-ROM drives, and other drives to be treated like an IDE hard drive by the system.
- authentication** The process of proving an individual is who they say they are before they are allowed access to a computer, file, folder, or network. The process might use a password, PIN, smart card, or biometric data.
- authorization** Controlling what an individual can or cannot do with resources on a computer network. Using Windows, authorization is granted by the rights and permissions assigned to user accounts.
- autodetection** A feature of system BIOS and hard drives that automatically identifies and configures a new drive in CMOS setup.
- Autoexec.bat** A startup text file once used by DOS and used by Windows to provide backward-compatibility. It executes commands automatically during the boot process and is used to create a 16-bit environment.
- Automated System Recovery (ASR)** The Windows XP process that allows you to restore an entire hard drive volume or logical drive to its state at the time the backup of the volume was made.
- Automatic Private IP Address (APIPA)** An IP address in the address range 169.254.x.x, used by a computer when it cannot successfully lease an IP address from a DHCP server.
- backup** An extra copy of a file, used in the event that the original becomes damaged or destroyed.
- backup domain controller (BDC)** In Windows NT, a computer on a network that holds a read-only copy of the SAM (security accounts manager) database.
- Backup Operator** A Windows 2000/XP user account that can back up and restore any files on the system regardless of its having access to these files.
- bandwidth** In relation to analog communication, the range of frequencies that a communications channel or cable can carry. In general use, the term refers to the volume of data that can travel on a bus or over a cable stated in bits per second (bps), kilobits per second (Kbps), or megabits per second (Mbps). Also called data throughput or line speed.
- baseline** The level of performance expected from a system, which can be compared to current measurements to determine what needs upgrading or tuning.
- basic disk** A way to partition a hard drive, used by DOS and all versions of Windows, that stores information about the drive in a partition table at the beginning of the drive. Compare to dynamic disk.
- batch file** A text file containing a series of OS commands. Autoexec.bat is a batch file.
- baud rate** A measure of line speed between two devices such as a computer and a printer or a modem. This speed is measured in the number of times a signal changes in one second. *See also* bits per second (bps).
- best-effort protocol** *See* connectionless protocol.
- binary number system** The number system used by computers; it has only two numbers, 0 and 1, called binary digits, or bits.
- binding** The process by which a protocol is associated with a network card or a modem card.
- BIOS (basic input/output system)** Firmware that can control much of a computer's input/output functions, such as communication with the floppy drive and the monitor. Also called ROM BIOS.
- bit (binary digit)** A 0 or 1 used by the binary number system.
- bits per second (bps)** A measure of data transmission speed. For example, a common modem speed is 56,000 bps, or 56 Kbps.
- block mode** A method of data transfer between hard drive and memory that allows multiple data transfers on a single software interrupt.
- blue screen** A Windows NT/2000/XP error that displays against a blue screen and causes the system to halt. Also called a stop error.
- Bluetooth** A standard for wireless communication and data synchronization between devices, developed by a group of electronics manufacturers and overseen by the Bluetooth Special Interest Group. Bluetooth uses the same frequency range as 802.11b, but does not have as wide a range.
- boot loader menu** A startup menu that gives the user the choice of which operating system to load such as Windows 98 or Windows XP which are both installed on the same system, creating a dual boot.
- boot partition** The hard drive partition where the Windows NT/2000/XP OS is stored. The system partition and the boot partition may be different partitions.
- boot record** The first sector of a floppy disk or logical drive in a partition; it contains information about the disk or logical drive. On a hard drive, if the boot record is in the active partition, then it is used to boot the OS. Also called boot sector.
- boot sector** *See* boot record.

- boot sector virus** An infectious program that can replace the boot program with a modified, infected version, often causing boot and data retrieval problems.
- Boot.ini** A Windows NT/2000/XP hidden text file that contains information needed to start the boot and build the boot loader menu.
- bootable disk** For DOS and Windows, a floppy disk that can upload the OS files necessary for computer startup. For DOS or Windows 9x/Me, it must contain the files Io.sys, Msdos.sys, and Command.com.
- bootstrap loader** A small program at the end of the boot record that can be used to boot an OS from the disk or logical drive.
- bridging protocol** *See* line protocol.
- Briefcase** A system folder in Windows 9x/Me that is used to synchronize files between two computers.
- broadband** A transmission technique that carries more than one type of transmission on the same medium, such as cable modem or DSL.
- broadcast** Process by which a message is sent from a single host to all hosts on the network, without regard to the kind of data being sent or the destination of the data.
- browser hijacker** A malicious program that infects your Web browser and can change your home page or browser settings. It can also redirect your browser to unwanted sites, produce pop-up ads, and set unwanted bookmarks. Also called a home page hijacker.
- buffer** A temporary memory area where data is kept before being written to a hard drive or sent to a printer, thus reducing the number of writes to the devices.
- built-in user account** An administrator account and a guest account that are set up when Windows NT/2000/XP is first installed.
- bus** The paths, or lines, on the motherboard on which data, instructions, and electrical power move from component to component.
- bus mouse** A mouse that plugs into a bus adapter card and has a round, 9-pin mini-DIN connector.
- bus speed** The speed, or frequency, at which the data on the motherboard is written and read.
- byte** A collection of eight bits that can represent a single character.
- cabinet file** A file with a .cab extension that contains one or more compressed files and is often used to distribute software on disk. The Extract command is used to extract files from the cabinet file.
- cable modem** A technology that uses cable TV lines for data transmission requiring a modem at each end. From the modem, a network cable connects to an NIC in the user's PC, or a USB cable connects to a USB port.
- call tracking** A system that tracks the dates, times, and transactions of help-desk or on-site PC support calls, including the problem presented, the issues addressed, who did what, and when and how each call was resolved.
- CardBus** A PCMCIA specification that improved on the earlier PC Card standards. It improves I/O speed, increases the bus width to 32 bits, and supports lower-voltage PC Cards, while maintaining backward compatibility with earlier standards.
- cards** Adapter boards or interface cards placed into expansion slots to expand the functions of a computer, allowing it to communicate with external devices such as monitors or speakers.
- carrier** A signal used to activate a phone line to confirm a continuous frequency; used to indicate that two computers are ready to receive or transmit data via modems.
- CCITT (Comité Consultatif International Télégraphique et Téléphonique)** An international organization that was responsible for developing standards for international communications. This organization has been incorporated into the ITU. *See also* ITU.
- CD (change directory) command** A command given at the command prompt that changes the default directory, for example CD \Windows.
- CDFS (Compact Disc File System)** The 32-bit file system for CD discs and some CD-R and CD-RW discs that replaced the older 16-bit mscdex file system used by DOS. *See also* Universal Disk Format (UDF).
- CDMA (code-division multiple access)** A protocol standard used by cellular WANs and cell phones
- CD-R (CD-recordable)** A CD drive that can record or write data to a CD. The drive may or may not be multisession, but the data cannot be erased once it is written.
- CD-RW (CD-rewritable)** A CD drive that can record or write data to a CD. The data can be erased and overwritten. The drive may or may not be multisession.
- central processing unit (CPU)** Also called a microprocessor or processor. The heart and brain of the computer, which receives data input, processes information, and executes instructions.
- chain** A group of clusters used to hold a single file.
- CHAP (Challenge Handshake Authentication Protocol)** A protocol used to encrypt account names and passwords that are sent to a network controller for validation.

- checksum** A method of checking transmitted data for errors, whereby the digits are added and their sum compared to an expected sum.
- child directory** *See* subdirectory.
- child, parent, grandparent backup method** A plan for backing up and reusing tapes or removable disks by rotating them each day (child), week (parent), and month (grandparent).
- chipset** A group of chips on the motherboard that controls the timing and flow of data and instructions to and from the CPU.
- CHS (cylinder, head, sector) mode** An outdated method by which BIOS reads from and writes to hard drives by addressing the correct cylinder, head, and sector. Also called normal mode.
- circuit board** A computer component, such as the main motherboard or an adapter board, that has electronic circuits and chips.
- clean install** Installing an OS on a new hard drive or on a hard drive that has a previous OS installed, but without carrying forward any settings kept by the old OS, including information about hardware, software, or user preferences. A fresh installation.
- client/server** A computer concept whereby one computer (the client) requests information from another computer (the server).
- client/server application** An application that has two components. The client software requests data from the server software on the same or another computer.
- client-side caching** A technique used by browsers (clients) to speed up download times by caching Web pages previously requested in case they are requested again.
- clock speed** The speed, or frequency, expressed in MHz, that controls activity on the motherboard and is generated by a crystal or oscillator located somewhere on the motherboard.
- clone** A computer that is a no-name Intel- and Microsoft-compatible PC.
- cluster** One or more sectors that constitute the smallest unit of space on a disk for storing data (also referred to as a file allocation unit). Files are written to a disk as groups of whole clusters.
- CMOS (complementary metal-oxide semiconductor)** The technology used to manufacture microchips. CMOS chips require less electricity, hold data longer after the electricity is turned off, are slower, and produce less heat than earlier technologies. The configuration, or setup, chip is a CMOS chip.
- CMOS configuration chip** A chip on the motherboard that contains a very small amount of memory, or RAM enough to hold configuration, or setup, information about the computer. The chip is powered by a battery when the PC is turned off. Also called CMOS setup chip or CMOS RAM chip.
- CMOS setup** (1) The CMOS configuration chip. (2) The program in system BIOS that can change the values in CMOS RAM.
- CMOS setup chip** *See* CMOS configuration chip.
- COAST (cache on a stick)** Memory modules that hold memory used as a memory cache. *See* memory cache.
- coaxial cable** Networking cable used with 10-Mbps Ethernet ThinNet or ThickNet.
- cold boot** *See* hard boot.
- Command.com** Along with `Msdos.sys` and `Io.sys`, one of the three files that are the core components of the real-mode portion of Windows 9x/Me. `Command.com` provides a command prompt and interprets commands.
- comment** A line or part of a line in a program that is intended as a remark or comment and is ignored when the program runs. A semicolon or an `REM` is often used to mark a line as a comment.
- Compact.exe** Windows 2000/XP command and program to compress or uncompress a volume, folder, or file.
- Compatibility Mode utility** A Windows XP utility that provides an application with the older Microsoft OS environment it was designed to operate in.
- compressed drive** A drive whose format has been reorganized in order to store more data. A Windows 9x compressed drive is really not a drive at all; it's actually a type of file, typically with a host drive called H.
- compression** To store data in a file, folder, or logical drive using a coding format that reduces the size of files in order to save space on a drive or shorten transport time when sending a file over the Internet or network.
- computer name** Character-based host name or NetBIOS name assigned to a computer.
- Config.sys** A text file used by DOS and supported by Windows 9x/Me that lists device drivers to be loaded at startup. It can also set system variables to be used by DOS and Windows.
- Configuration Manager** A component of Windows Plug and Play that controls the configuration process of all devices and communicates these configurations to the devices.



- connectionless protocol** A protocol such as UDP that does not require a connection before sending a packet and does not guarantee delivery. An example of a UDP transmission is streaming video over the Web. Also called a best-effort protocol.
- connection-oriented protocol** In networking, a protocol that confirms that a good connection has been made before transmitting data to the other end. An example of a connection-oriented protocol is TCP.
- console** A window in which one or more Windows 2000/XP utility programs have been installed. The window is created using Microsoft Management Console, and installed utilities are called snap-ins.
- conventional memory** DOS and Windows 9x/Me memory addresses between 0 and 640 K. Also called base memory.
- copyright** An individual's right to copy his/her own work. No one else, other than the copyright owner, is legally allowed to do so without permission.
- CRC (cyclical redundancy check)** A process in which calculations are performed on bytes of data before and after they are transmitted to check for corruption during transmission.
- cross-linked clusters** Errors caused when more than one file points to a cluster, and the files appear to share the same disk space, according to the file allocation table.
- crossover cable** A cable used to connect two PCs into the simplest network possible. Also used to connect two hubs.
- CVF (compressed volume file)** The Windows 9x/Me file on the host drive of a compressed drive that holds all compressed data.
- data bus** The lines on the system bus that the CPU uses to send and receive data.
- data cartridge** A type of tape medium typically used for backups. Full-sized data cartridges are  $4 \times 6 \times 2\frac{5}{8}$  inches in size. A minicartridge is only  $3\frac{1}{4} \times 2\frac{1}{2} \times 2\frac{3}{5}$  inches in size.
- data line protector** A surge protector designed to work with the telephone line to a modem.
- data migration** Moving data from one application to another application or from one storage media to another, and most often involves a change in the way the data is formatted.
- data path** The number of bits transported into and out of the processor.
- data path size** The number of lines on a bus that can hold data, for example, 8, 16, 32, and 64 lines, which can accommodate 8, 16, 32, and 64 bits at a time.
- data throughput** See bandwidth.
- datagram** See packet.
- default gateway** The gateway a computer on a network will use to access another network unless it knows to specifically use another gateway for quicker access to that network.
- default printer** The printer Windows prints to unless another printer is selected.
- Defrag.exe** Windows program and command to defragment a logical drive.
- defragment** To "optimize" or rewrite a file to a disk in one contiguous chain of clusters, thus speeding up data retrieval.
- desktop** The initial screen that is displayed when an OS has a GUI interface loaded.
- device driver** A program stored on the hard drive that tells the computer how to communicate with an input/output device such as a printer or modem.
- DHCP (Dynamic Host Configuration Protocol) server** A service that assigns dynamic IP addresses to computers on a network when they first access the network.
- diagnostic cards** Adapter cards designed to discover and report computer errors and conflicts at POST time (before the computer boots up), often by displaying a number on the card.
- diagnostic software** Utility programs that help troubleshoot computer systems. Some Windows diagnostic utilities are CHKDSK and SCANDISK. PC-Technician is an example of a third-party diagnostic program.
- dialer** Malicious software installed on your PC that disconnects your phone line from your ISP and dials up an expensive pay-per-minute phone number without your knowledge.
- dial-up networking** A Windows 9x/Me and Windows NT/2000/XP utility that uses a modem and telephone line to connect to a network.
- differential backup** Backup method that backs up only files that have changed or have been created since the last full backup. When recovering data, only two backups are needed: the full backup and the last differential backup.
- digital certificate** A code used to authenticate the source of a file or document or to identify and authenticate a person or organization sending data over the Internet. The code is assigned by a certificate authority such as VeriSign and includes a public key for encryption. Also called *digital ID* or *digital signature*.
- digital ID** See digital certificate.

**digital signature** See digital certificate.

**DIMM (dual inline memory module)** A miniature circuit board installed on a motherboard to hold memory. DIMMs can hold up to 2 GB of RAM on a single module.

**Direct Rambus DRAM** A memory technology by Rambus and Intel that uses a narrow network-type system bus. Memory is stored on a RIMM module. Also called RDRAM or Direct RDRAM.

**Direct RDRAM** See Direct Rambus DRAM.

**directory table** An OS table that contains file information such as the name, size, time and date of last modification, and cluster number of the file's beginning location.

**discrete L2 cache** A type of L2 cache contained within the Pentium processor housing, but on a different die, with a cache bus between the processor and the cache.

**disk cache** A method whereby recently retrieved data and adjacent data are read into memory in advance, anticipating the next CPU request.

**disk cloning** See drive imaging.

**disk compression** Compressing data on a hard drive to allow more data to be written to the drive.

**disk imaging** See drive imaging.

**Disk Management** A Windows 2000/XP utility used to display, create, and format partitions on basic disks and volumes on dynamic disks.

**disk quota** A limit placed on the amount of disk space that is available to users. Requires a Windows 2000/XP NTFS volume.

**disk thrashing** A condition that results when the hard drive is excessively used for virtual memory because RAM is full. It dramatically slows down processing and can cause premature hard drive failure.

**Display Power Management Signaling (DPMS)** Energy Star standard specifications that allow for the video card and monitor to go into sleep mode simultaneously. See also Energy Star.

**distribution server** A file server holding Windows setup files used to install Windows on computers networked to the server.

**DMA (direct memory access) channel** A number identifying a channel whereby a device can pass data to memory without involving the CPU. Think of a DMA channel as a shortcut for data moving to/from the device and memory.

**DMA transfer mode** A transfer mode used by devices, including the hard drive, to transfer data to memory without involving the CPU.

**DNS (domain name service or domain name system)**

A distributed pool of information (called the name space) that keeps track of assigned domain names and their corresponding IP addresses, and the system that allows a host to locate information in the pool. Compare to WINS.

**DNS server** A computer that can find an IP address for another computer when only the domain name is known.

**docking station** A device that receives a notebook computer and provides additional secondary storage and easy connection to peripheral devices.

**domain** In Windows NT/2000/XP, a logical group of networked computers, such as those on a college campus, that share a centralized directory database of user account information and security for the entire domain.

**domain controller** A Windows NT/2000 or Windows Server 2003 computer which holds and controls a database of (1) user accounts, (2) group accounts, and (3) computer accounts used to manage access to the network.

**domain name** A unique, text-based name that identifies a network.

**DOS box** A command window.

**Dosstart.bat** A type of Autoexec.bat file that is executed by Windows 9x/Me in two situations: when you select Restart the computer in MS-DOS mode from the shutdown menu or you run a program in MS-DOS mode.

**dot pitch** The distance between the dots that the electronic beam hits on a monitor screen.

**Double Data Rate SDRAM (DDR SDRAM)** A type of memory technology used on DIMMs that runs at twice the speed of the system clock.

**doze time** The time before an Energy Star or "Green" system will reduce 80 percent of its activity.

**Dr. Watson** A Windows utility that can record detailed information about the system, errors that occur, and the programs that caused them in a log file. Windows 9x/Me names the log file \Windows\Drwatson\WatsonXX.wlg, where XX is an incrementing number. Windows 2000 names the file \Documents and Settings\user\Documents\DrWatson\Drwtsn32.log. Windows XP calls the file Drwatson.log.

**drive imaging** Making an exact image of a hard drive, including partition information, boot sectors, operating system installation, and application software to replicate the hard drive on another system or recover from a hard drive crash. Also called *disk cloning* and *disk imaging*.

- DriveSpace** A Windows 9x/Me utility that compresses files so that they take up less space on a disk drive, creating a single large file on the disk to hold all the compressed files.
- drop height** The height from which a manufacturer states that its device, such as a hard drive, can be dropped without making the device unusable.
- DSL (Digital Subscriber Line)** A telephone line that carries digital data from end to end, and can be leased from the telephone company for individual use. Some DSL lines are rated at 5 Mbps, about 50 times faster than regular telephone lines.
- dual boot** The ability to boot using either of two different OSs, such as Windows 98 and Windows XP.
- dual channel** A motherboard feature that improves memory performance by providing two 64-bit channels between memory and the chipset. DDR and DDR2 memory can use dual channels.
- dual-core processing** Two processors contained in the same processor housing that share the interface with the chipset and memory.
- dual-scan passive matrix** A type of video display that is less expensive than an active-matrix display and does not provide as high-quality an image. With dual-scan display, two columns of electrodes are activated at the same time.
- dump file** A file that contains information captured from memory at the time a stop error occurred.
- DVD (digital video disc or digital versatile disk)** A faster, larger CD format that can read older CDs, store over 8 GB of data, and hold full-length motion picture videos.
- dye-sublimation printer** A type of printer with photo-lab-quality results that uses transparent dyed film. The film is heated, which causes the dye to vaporize onto glossy paper.
- dynamic disk** A way to partition one or more hard drives, introduced with Windows 2000, in which information about the drive is stored in a database at the end of the drive. Compare to basic disk.
- dynamic IP address** An assigned IP address that is used for the current session only. When the session is terminated, the IP address is returned to the list of available addresses.
- dynamic RAM (DRAM)** The most common type of system memory, it requires refreshing every few milliseconds.
- dynamic volume** A volume type used with dynamic disks for which you can change the size of the volume after you have created it.
- dynamic VxD** A VxD that is loaded and unloaded from memory as needed.
- ECHS (extended CHS) mode** *See* large mode.
- ECP (Extended Capabilities Port)** A bidirectional parallel port mode that uses a DMA channel to speed up data flow.
- EDO (extended data out)** A type of outdated RAM that was faster than conventional RAM because it eliminated the delay before it issued the next memory address.
- EEPROM (electrically erasable programmable ROM)** A type of chip in which higher voltage may be applied to one of the pins to erase its previous memory before a new instruction set is electronically written.
- EIDE (Enhanced IDE)** A standard for managing the interface between secondary storage devices and a computer system. A system can support up to six serial ATA and parallel ATA IDE devices or up to four parallel ATA IDE devices such as hard drives, CD-ROM drives, and DVD drives.
- electromagnetic interference (EMI)** A magnetic field produced as a side effect from the flow of electricity. EMI can cause corrupted data in data lines that are not properly shielded.
- electrostatic discharge (ESD)** Another name for static electricity, which can damage chips and destroy motherboards, even though it might not be felt or seen with the naked eye.
- Emergency Repair Disk (ERD)** A Windows NT record of critical information about your system that can be used to fix a problem with the OS. The ERD enables restoration of the Windows NT registry on your hard drive.
- Emergency Repair Process** A Windows 2000 process that restores the OS to its state at the completion of a successful installation.
- emergency startup disk (ESD)** *See* rescue disk.
- Emm386.exe** A DOS and Windows 9x/Me utility that provides access to upper memory for 16-bit device drivers and other software.
- Encrypted File System (EFS)** A way to use a key to encode a file or folder on an NTFS volume to protect sensitive data. Because it is an integrated system service, EFS is transparent to users and applications and is difficult to attack.
- encrypting virus** A type of virus that transforms itself into a nonreplicating program in order to avoid detection. It transforms itself back into a replicating program in order to spread.
- encryption** The process of putting readable data into an encoded form that can only be decoded (or decrypted) through use of a key.

- Energy Star** “Green” systems that satisfy the EPA requirements to decrease the overall consumption of electricity. *See also* Green Standards.
- enhanced BIOS** A system BIOS that has been written to accommodate large-capacity drives (over 504 MB, usually in the gigabyte range).
- EPP (Enhanced Parallel Port)** A parallel port that allows data to flow in both directions (bidirectional port) and is faster than original parallel ports on PCs that allowed communication only in one direction.
- EPROM (erasable programmable ROM)** A type of chip with a special window that allows the current memory contents to be erased with special ultraviolet light so that the chip can be reprogrammed.
- error correction** The ability of a modem to identify transmission errors and then automatically request another transmission.
- escalate** When a technician passes a customer’s problem to higher organizational levels because he or she cannot solve the problem.
- Ethernet** The most popular LAN architecture that can run at 10 Mbps (ThinNet or ThickNet), 100 Mbps (Fast Ethernet), or 1 Gbps (Gigabit Ethernet).
- Execution Trace Cache** A type of Level 1 cache used by some CPUs to hold decoded operations waiting to be executed.
- executive services** In Windows NT/2000/XP, a group of components running in kernel mode that interfaces between the subsystems in user mode and the HAL.
- expansion bus** A bus that does not run in sync with the system clock.
- expansion card** A circuit board inserted into a slot on the motherboard to enhance the capability of the computer.
- expansion slot** A narrow slot on the motherboard where an expansion card can be inserted. Expansion slots connect to a bus on the motherboard.
- expert systems** Software that uses a database of known facts and rules to simulate a human expert’s reasoning and decision-making processes.
- ExpressCard** The latest PCMCIA standard for notebook I/O cards that uses the PCI Express and USB 2.0 data transfer standards. Two types of Express-Cards are ExpressCard/34 (34 mm wide) and ExpressCard/54 (54 mm wide).
- extended memory** Memory above 1024 K used in a DOS or Windows 9x/Me system.
- extended partition** The only partition on a hard drive that can contain more than one logical drive.
- external cache** Static cache memory, stored on the motherboard or inside the CPU housing, that is not part of the CPU (also called L2 or L3 cache).
- external command** Commands that have their own program files.
- faceplate** A metal or plastic plate that comes with the computer case and fits over the empty drive bays or slots for expansion cards to create a well-fitted enclosure around them.
- FAT (file allocation table)** A table on a hard drive or floppy disk that tracks the clusters used to contain a file.
- FAT12** The 12-bit wide, one-column file allocation table for a floppy disk, containing information about how each cluster or file allocation unit on the disk is currently used.
- fault tolerance** The degree to which a system can tolerate failures. Adding redundant components, such as disk mirroring or disk duplexing, is a way to build in fault tolerance.
- Fiber Distributed Data Interface (FDDI)** A ring-based network that does not require a centralized hub and can transfer data at a rate of 100 Mbps.
- field replaceable unit (FRU)** A component in a computer or device that can be replaced with a new component without sending the computer or device back to the manufacturer. Examples: power supply, DIMM, motherboard, floppy disk drive.
- file allocation unit** *See* cluster.
- file extension** A three-character portion of the name of a file that is used to identify the file type. In command lines, the file extension follows the filename and is separated from it by a period. For example, Msd.exe, where exe is the file extension.
- file system** The overall structure that an OS uses to name, store, and organize files on a disk. Examples of file systems are FAT32 and NTFS.
- file virus** A virus that inserts virus code into an executable program file and can spread whenever that program is executed.
- filename** The first part of the name assigned to a file. In DOS, the filename can be no more than eight characters long and is followed by the file extension. In Windows, a filename can be up to 255 characters.



- firewall** Hardware or software that protects a computer or network from unauthorized access.
- FireWire** See IEEE 1394.
- firmware** Software that is permanently stored in a chip. The BIOS on a motherboard is an example of firmware.
- flash ROM** ROM that can be reprogrammed or changed without replacing chips.
- flat panel monitor** A desktop monitor that uses an LCD panel.
- floppy disk drive (FDD)** A drive that can hold either a  $5\frac{1}{4}$  inch or  $3\frac{1}{2}$  floppy disk.
- flow control** When using modems, a method of controlling the flow of data to adjust for problems with data transmission. Xon/Xoff is an example of a flow control protocol.
- folder** See subdirectory.
- folder redirection** A Windows XP feature that allows a user to point to a folder that can be on the local PC or somewhere on the network, and its location can be transparent to the user.
- forgotten password floppy disk** A Windows XP disk created to be used in the event the user forgets the user account password to the system.
- form factor** A set of specifications on the size, shape, and configuration of a computer hardware component such as a case, power supply, or motherboard.
- formatting** Preparing a hard drive volume or floppy disk for use by placing tracks and sectors on its surface to store information (for example, FORMAT A:).
- fragmentation** The distribution of data files on a hard drive or floppy disk such that they are stored in noncontiguous clusters.
- fragmented file** A file that has been written to different portions of the disk so that it is not in contiguous clusters.
- frame** The header and trailer information added to data to form a data packet to be sent over a network.
- front-side bus (FSB)** See system bus.
- FTP (File Transfer Protocol)** The protocol used to transfer files over a TCP/IP network such that the file does not need to be converted to ASCII format before transferring it.
- full backup** A complete backup, whereby all of the files on the hard drive are backed up each time the backup procedure is performed. It is the safest backup method, but it takes the most time.
- full-duplex** Communication that happens in two directions at the same time.
- fully qualified domain name (FQDN)** A host name and a domain name such as *jsmith.amazon.com*. Sometimes loosely referred to as a domain name.
- gateway** A computer or other device that connects networks.
- GDI (Graphics Device Interface)** A core Windows component responsible for building graphics data to display or print. A GDI printer relies on Windows to construct a page to print and then receives the constructed page as bitmap data.
- General Packet Radio Service (GPRS)** A protocol standard that can be used by GSM or TDMA on a cellular WAN to send voice, text, or video data in packets similar to VoIP.
- General Protection Fault (GPF)** A Windows error that occurs when a program attempts to access a memory address that is not available or is no longer assigned to it.
- Gigabit Ethernet** The next generation of Ethernet. Gigabit Ethernet supports rates of data transfer up to 1 gigabit per second but is not yet widely used.
- gigahertz (GHz)** One thousand MHz, or one billion cycles per second.
- global user account** Sometimes called a domain user account, the account is used at the domain level, created by an administrator, and stored in the SAM (security accounts manager) database on a Windows 2000 or Windows 2003 domain controller.
- graphics accelerator** A type of video card that has an on-board processor that can substantially increase speed and boost graphical and video performance.
- graphics DDR (G-DDR), graphics DDR2, graphics DDR3** Types of DDR, DDR2, and DDR3 memory specifically designed to be used in graphics cards.
- grayware** A program that AV software recognizes to be potentially harmful or potentially unwanted.
- Green Standards** A computer or device that conforms to these standards can go into sleep or doze mode when not in use, thus saving energy and helping the environment. Devices that carry the Green Star or Energy Star comply with these standards.
- ground bracelet** A strap you wear around your wrist that is attached to the computer case, ground mat, or another ground so that ESD is discharged from your body before you touch sensitive components inside a

- computer. Also called static strap, ground strap, ESD bracelet.
- group profile** A group of user profiles. All profiles in the group can be changed by changing the group profile.
- GSM (Global System for Mobile communication)** An open standard for cellular WANs and cell phones that uses digital communication of data and is accepted and used worldwide.
- guard tone** A tone that an answering modem sends when it first answers the phone, to tell the calling modem that a modem is on the other end of the line.
- Guest user** A user who has limited permissions on a system and cannot make changes to it. Guest user accounts are intended for one-time or infrequent users of a workstation.
- HAL (hardware abstraction layer)** The low-level part of Windows NT/2000/XP, written specifically for each CPU technology, so that only the HAL must change when platform components change.
- half life** The time it takes for a medium storing data to weaken to half of its strength. Magnetic media, including traditional hard drives and floppy disks, have a half-life of five to seven years.
- half-duplex** Communication between two devices whereby transmission takes place in only one direction at a time.
- handshaking** When two modems begin to communicate, the initial agreement made as to how to send and receive data.
- hard boot** Restart the computer by turning off the power or by pressing the Reset button. Also called a cold boot.
- hard copy** Output from a printer to paper.
- hard drive** The main secondary storage device of a PC, a small case that contains magnetic coated platters that rotate at high speed.
- hard drive controller** The firmware that controls access to a hard drive contained on a circuit board mounted on or inside the hard drive housing. Older hard drives used firmware on a controller card that connected to the drive by way of two cables, one for data and one for control.
- hard drive standby time** The amount of time before a hard drive will shut down to conserve energy.
- hard-disk loading** The illegal practice of installing unauthorized software on computers for sale. Hard-disk loading can typically be identified by the absence of original software disks in the original system's shipment.
- hardware** The physical components that constitute the computer system, such as the monitor, the keyboard, the motherboard, and the printer.
- hardware address** See MAC address.
- hardware cache** A disk cache that is contained in RAM chips built right on the disk controller. Also called a buffer.
- hardware interrupt** An event caused by a hardware device signaling the CPU that it requires service.
- hardware profile** A set of hardware configuration information that Windows keeps in the registry. Windows can maintain more than one hardware profile for the same PC.
- HCL (hardware compatibility list)** The list of all computers and peripheral devices that have been tested and are officially supported by Windows NT/2000/XP (see [www.microsoft.com/whdc/hcl/default.msp](http://www.microsoft.com/whdc/hcl/default.msp)).
- head** The top or bottom surface of one platter on a hard drive. Each platter has two heads.
- hertz (Hz)** Unit of measurement for frequency, calculated in terms of vibrations, or cycles per second. For example, for 16-bit stereo sound, a frequency of 44,000 Hz is used. See also megahertz.
- hexadecimal notation (hex)** A numbering system that uses 16 digits, the numerals 0–9, and the letters A–F. Hexadecimal notation is often used to display memory addresses.
- hibernation** A notebook OS feature that conserves power by using a small trickle of electricity. Before the notebook begins to hibernate, everything currently stored in memory is saved to the hard drive. When the notebook is brought out of hibernation, open applications and their data are returned to the state before hibernation.
- hidden file** A file that is not displayed in a directory list. Whether to hide or display a file is one of the file's attributes kept by the OS.
- high memory area (HMA)** In DOS or Windows 9x/Me, the first 64K of extended memory.
- High Voltage Differential (HVD)** A type of SCSI differential signaling requiring more expensive hardware to handle the higher voltage. HVD became obsolete with the introduction of SCSI-3.
- high-level formatting** Formatting performed by means of the DOS or Windows Format program (for example, `FORMAT C:/S` creates the boot record, FAT, and root directory on drive C and makes the drive bootable). Also called OS formatting.
- Himem.sys** The DOS and Windows 9x/Me memory manager extension that allowed access to memory addresses above 1 MB.

- hive** Physical segment of the Windows NT/ 2000/XP registry that is stored in a file.
- hop count** See time to live (TTL).
- host** Any computer or other device on a network that has been assigned an IP address. Also called node.
- host adapter** The circuit board that controls a SCSI bus supporting as many as seven or fifteen separate devices. The host adapter controls communication between the SCSI bus and the PC.
- host bus** See system bus.
- host drive** Using Windows 9x, typically drive H on a compressed drive. See compressed drive.
- host name** A name that identifies a computer, printer, or other device on a network.
- hot-pluggable** See hot-swappable.
- hot-swappable** A device that can be plugged into a computer while it is turned on and the computer will sense the device and configure it without rebooting, or the device can be removed without an OS error. Also called hot-pluggable.
- HTML (HyperText Markup Language)** A markup language used for hypertext documents on the World Wide Web. This language uses tags to format the document, create hyperlinks, and mark locations for graphics.
- HTTP (HyperText Transfer Protocol)** The communications protocol used by the World Wide Web.
- HTTPS (HTTP secure)** A version of the HTTP protocol that includes data encryption for security.
- hub** A network device or box that provides a central location to connect cables.
- hypertext** Text that contains links to remote points in the document or to other files, documents, or graphics. Hypertext is created using HTML and is commonly distributed from Web sites.
- i.Link** See IEEE 1394.
- I/O addresses** Numbers that are used by devices and the CPU to manage communication between them. Also called ports or port addresses.
- I/O controller card** An older card that can contain serial, parallel, and game ports and floppy drive and IDE connectors.
- IBM Data Connector** See IDC.
- IBM-compatible PC** A computer that uses an Intel (or compatible) processor and can run DOS and Windows.
- ICMP (Internet Control Message Protocol)** Part of the IP layer that is used to transmit error messages and other control messages to hosts and routers.
- IDC (IBM Data Connector)** A connector used with STP cable on a Token Ring network. Also called a UDC (*Universal Data Connector*).
- IDE (Integrated Drive Electronics or Integrated Device Electronics)** A hard drive whose disk controller is integrated into the drive, eliminating the need for a controller cable and thus increasing speed, as well as reducing price. See also EIDE.
- IEEE 1284** A standard for parallel ports and cables developed by the Institute for Electrical and Electronics Engineers and supported by many hardware manufacturers.
- IEEE 1394** Standards for an expansion bus that can also be configured to work as a local bus. It is expected to replace the SCSI bus, providing an easy method to install and configure fast I/O devices. Also called FireWire and i.Link.
- IEEE 1394.3** A standard, developed by the 1394 Trade Association, that is designed for peer-to-peer data transmission and allows imaging devices to send images and photos directly to printers without involving a computer.
- IEEE 802.11a/b/g** IEEE specifications for wireless communication and data synchronization. Also known as Wi-Fi. Apple Computer's versions of 802.11b/g are called AirPort and AirPort Extreme.
- IFS (Installable File System)** The Windows 9x/Me component that configures all devices and communicates these configurations to the device drivers.
- IMAP4 (Internet Message Access Protocol version 4)** Version 4 of the IMAP protocol, which is an e-mail protocol that has more functionality than its predecessor, POP. IMAP can archive messages in folders on the e-mail server and can allow the user to choose not to download attachments to messages.
- incremental backup** A time-saving backup method that only backs up files changed or newly created since the last full or incremental backup. Multiple incremental backups might be required when recovering lost data.
- infestation** Any unwanted program that is transmitted to a computer without the user's knowledge and that is designed to do varying degrees of damage to data and software. There are a number of different types of infestations, including viruses, Trojan horses, worms, and logic bombs. See malicious software.
- information (.inf) file** Text file with an .inf file extension, such as Msbatch.inf, that contains information about a hardware or software installation.
- infrared transceiver** A wireless transceiver that uses infrared technology to support some wireless

devices such as keyboards, mice, and printers. A motherboard might have an embedded infrared transceiver, or the transceiver might plug into a USB or serial port. The technology is defined by the Infrared Data Association (IrDA). Also called an *IrDA transceiver* or *infrared port*.

**initialization files** Configuration information files for Windows. System.ini is one of the most important Windows 9x/Me initialization files.

**inkjet printer** A type of ink dispersion printer that uses cartridges of ink. The ink is heated to a boiling point and then ejected onto the paper through tiny nozzles.

**Institute of Electrical and Electronics Engineers (IEEE)** A nonprofit organization that develops standards for the computer and electronics industries.

**instruction set** The set of instructions, on the CPU chip, that the computer can perform directly (such as ADD and MOVE).

**intelligent UPS** A UPS connected to a computer by way of a USB or serial cable so that software on the computer can monitor and control the UPS. Also called *smart UPS*.

**internal bus** The bus inside the CPU that is used for communication between the CPU's internal components.

**internal cache** Memory cache that is faster than external cache, and is contained inside CPU chips (also referred to as primary, Level 1, or L1 cache).

**internal command** Commands that are embedded in the Command.com file.

**Internet Connection Firewall (ICF)** Windows XP software designed to protect a PC from unauthorized access from the Internet. Windows XP Service Pack 2 improved on ICF and renamed it Windows Firewall.

**Internet Connection Sharing (ICS)** A Windows 98 and Windows XP utility that uses NAT and acts as a proxy server to manage two or more computers connected to the Internet.

**Internet service provider (ISP)** A commercial group that provides Internet access for a monthly fee. AOL, Earthlink, and CompuServe are large ISPs.

**intranet** A private network that uses the TCP/IP protocols.

**Io.sys** Along with Msdos.sys and Command.com, one of the three files that are the core components of the real mode portion of Windows 9x/Me. It is the first program file of the OS.

**IP (Internet Protocol)** The rules of communication in the TCP/IP stack that control segmenting data into packets, routing those packets across networks, and

then reassembling the packets once they reach their destination.

**IP address** A 32-bit address consisting of four numbers separated by periods, used to uniquely identify a device on a network that uses TCP/IP protocols. The first numbers identify the network; the last numbers identify a host. An example of an IP address is 206.96.103.114.

**IPX/SPX (Internetwork Packet Exchange/Sequenced Packet Exchange)** A networking protocol suite first used by Novell NetWare, and which corresponds to the TCP/IP protocols.

**IrDA transceiver** See infrared transceiver.

**IRQ (interrupt request) line** A line on a bus that is assigned to a device and is used to signal the CPU for servicing. These lines are assigned a reference number (for example, the normal IRQ for a printer is IRQ 7).

**ISA (Industry Standard Architecture) slot** An older slot on the motherboard used for slower I/O devices, which can support an 8-bit or a 16-bit data path. ISA slots are mostly replaced by PCI slots.

**ISDN (Integrated Services Digital Network)** A digital telephone line that can carry data at about five times the speed of regular telephone lines. Two channels (telephone numbers) share a single pair of wires.

**isochronous data transfer** A method used by IEEE 1394 to transfer data continuously without breaks.

**ITU (International Telecommunications Union)** The international organization responsible for developing international standards of communication. Formerly CCITT.

**JPEG (Joint Photographic Experts Group)** A graphical compression scheme that allows the user to control the amount of data that is averaged and sacrificed as file size is reduced. It is a common Internet file format. Most JPEG files have a .jpg extension.

**jumper** Two wires that stick up side by side on the motherboard and are used to hold configuration information. The jumper is considered closed if a cover is over the wires, and open if the cover is missing.

**Kerberos** A protocol used to encrypt account names and passwords that are sent to a network controller for validation. Kerberos is the default protocol used by Windows 2000/XP.

**kernel** The portion of an OS that is responsible for interacting with the hardware.

**kernel mode** A Windows NT/2000/XP "privileged" processing mode that has access to hardware components.



- key** (1) In encryption, a secret number or code used to encode and decode data. (2) In Windows, a section name of the Windows registry.
- key fob** A device, such as a type of smart card, that can fit conveniently on a key chain.
- keyboard** A common input device through which data and instructions may be typed into computer memory.
- keylogger** A type of spyware that tracks your keystrokes, including passwords, chat room sessions, e-mail messages, documents, online purchases, and anything else you type on your PC. Text is logged to a text file and transmitted over the Internet without your knowledge.
- LAN (local area network)** A computer network that covers only a small area, usually within one building.
- laptop computer** *See* notebook.
- large mode** A mode of addressing information on hard drives that range from 504 MB to 8.4 GB, addressing information on a hard drive by translating cylinder, head, and sector information in order to break the 528-MB hard drive barrier. Also called ECHS mode.
- large-capacity drive** A hard drive larger than 504 MB.
- laser printer** A type of printer that uses a laser beam to control how toner is placed on the page and then uses heat to fuse the toner to the page.
- Last Known Good configuration** In Windows NT/2000/XP, registry settings and device drivers that were in effect when the computer last booted successfully. These settings can be restored during the startup process to recover from errors during the last boot.
- LBA (logical block addressing) mode** A mode of addressing information on hard drives in which the BIOS and operating system view the drive as one long linear list of LBAs or addressable sectors, permitting drives to be larger than 8.4 GB (LBA 0 is cylinder 0, head 0, and sector 1).
- license** Permission for an individual to use a product or service. A manufacturer's method of maintaining ownership, while granting permission for use to others.
- Limited user** Windows XP user accounts known as Users in Windows NT/2000, which have read-write access only on their own folders, read-only access to most system folders, and no access to other users' data.
- line conditioner** A device that regulates, or conditions, power, providing continuous voltage during brownouts and spikes.
- line protocol** A protocol used to send data packets destined for a network over telephone lines. PPP and SLIP are examples of line protocols.
- line speed** *See* bandwidth.
- line-interactive UPS** A variation of a standby UPS that shortens switching time by always keeping the inverter that converts AC to DC working, so that there is no charge-up time for the inverter.
- LMHosts** A text file located in the Windows folder that contains NetBIOS names and their associated IP addresses. This file is used for name resolution for a NetBEUI network.
- local bus** A bus that operates at a speed synchronized with the CPU frequency. The system bus is a local bus.
- local I/O bus** A local bus that provides I/O devices with fast access to the CPU. The PCI bus is a local I/O bus.
- local printer** A printer connected to a computer by way of a port on the computer. Compare to network printer.
- local profile** User profile that is stored on a local computer and cannot be accessed from another computer on the network.
- local user account** A user account that applies only to a local computer and cannot be used to access resources from other computers on the network.
- logic bomb** —A type of malicious software that is dormant code added to software and triggered at a predetermined time or by a predetermined event.
- logical drive** A portion or all of a hard drive partition that is treated by the operating system as though it were a physical drive. Each logical drive is assigned a drive letter, such as drive C, and contains a file system. Also called a volume.
- logical geometry** The number of heads, tracks, and sectors that the BIOS on the hard drive controller presents to the system BIOS and the OS. The logical geometry does not consist of the same values as the physical geometry, although calculations of drive capacity yield the same results. The use of communicating logical geometry is outdated.
- Logical Unit Number (LUN)** A number assigned to a logical device (such as a tray in a CD changer) that is part of a physical SCSI device, which is assigned a SCSI ID.
- long mode** A CPU processing mode that processes 64 bits at a time. The AMD Athlon 64 and the Intel Itanium CPUs use this mode.
- lost allocation units** *See* lost clusters.
- lost clusters** File fragments that, according to the file allocation table, contain data that does not

belong to any file. The command CHKDSK/F can free these fragments. Also called lost allocation units.

- low insertion force (LIF) socket** A socket that requires the installer to manually apply an even force over the microchip when inserting the chip into the socket.
- low-level formatting** A process (usually performed at the factory) that electronically creates the hard drive tracks and sectors and tests for bad spots on the disk surface.
- MAC (Media Access Control) address** A 48-bit hardware address unique to each NIC card and assigned by the manufacturer. The address is often printed on the adapter as hexadecimal numbers. An example is 00 00 0C 08 2F 35. Also called a physical address, an adapter address, or a hardware address.
- macro** A small sequence of commands, contained within a document, that can be automatically executed when the document is loaded, or executed later by using a predetermined keystroke.
- macro virus** A virus that can hide in the macros of a document file.
- main board** *See* motherboard.
- malicious software** Any unwanted program that is transmitted to a computer without the user's knowledge and that is designed to do varying degrees of damage to data and software. Types of infestations include viruses, Trojan horses, worms, adware, spyware, keyloggers, browser hijackers, dialers, and downloaders. Also called malware or an infestation.
- malware** *See* malicious software.
- mandatory user profile** A roaming user profile that applies to all users in a user group, and individual users cannot change that profile.
- Master Boot Record (MBR)** The first sector on a hard drive, which contains the partition table and a program the BIOS uses to boot an OS from the drive.
- master file table (MFT)** The database used by the NTFS file system to track the contents of a logical drive.
- megahertz (MHz)** One million Hz, or one million cycles per second. *See* hertz (Hz).
- memory** Physical microchips that can hold data and programming, located on the motherboard or expansion cards.
- memory address** A number assigned to each byte in memory. The CPU can use memory addresses to track where information is stored in RAM.

Memory addresses are usually displayed as hexadecimal numbers in segment/offset form.

- memory bus** *See* system bus.
- memory cache** A small amount of faster RAM that stores recently retrieved data, in anticipation of what the CPU will request next, thus speeding up access. *See also* system bus.
- memory dump** The contents of memory saved to a file at the time an event halted the system. Support technicians can analyze the dump file to help understand the source of the problem.
- memory extender** For DOS and Windows 9x/Me, a device driver named Himem.sys that manages RAM, giving access to memory addresses above 1 MB.
- memory paging** In Windows, swapping blocks of RAM memory to an area of the hard drive to serve as virtual memory when RAM is low.
- memory-resident virus** A virus that can stay lurking in memory even after its host program is terminated.
- microcode** A programming instruction that can be executed by a CPU without breaking the instruction down into simpler instructions. Typically, a single command line in a Visual Basic or C++ program must be broken down into numerous microcode commands.
- MicroDIMM** A type of memory module used on sub-notebooks that has 144 pins and uses a 64-bit data path.
- microprocessor** *See* central processing unit (CPU).
- Microsoft Management Console (MMC)** A utility to build customized consoles. These consoles can be saved to a file with an .msc file extension.
- Mini PCI** The PCI industry standard for desktop computer expansion cards, applied to a much smaller form factor for notebook expansion cards.
- minicartridge** A tape drive cartridge that is only  $3\frac{1}{4} \times 2\frac{1}{2} \times \frac{2}{3}$  inches. It is small enough to allow two drives to fit into a standard  $5\frac{1}{2}$ -inch drive bay of a PC case.
- minifile system** In Windows NT/2000/XP, a simplified file system that is started so that Ntldr (NT Loader) can read files from any file system the OS supports.
- mixed mode** A Windows 2000 mode for domain controllers used when there is at least one Windows NT domain controller on the network.
- MMX (Multimedia Extensions)** Multimedia instructions built into Intel processors to add functionality such as better processing of multimedia, SIMD support, and increased cache.
- modem** From MODulate/DEModulate. A device that modulates digital data from a computer to an

analog format that can be sent over telephone lines, then demodulates it back into digital form.

**modem eliminator** See null modem cable.

**modem speed** The speed at which a modem can transmit data along a phone line, measured in bits per second (bps). Also called line speed.

**monitor** The most commonly used output device for displaying text and graphics on a computer.

**motherboard** The main board in the computer, also called the system board. The CPU, ROM chips, SIMMs, DIMMs, RIMMs, and interface cards are plugged into the motherboard.

**motherboard bus** See system bus.

**motherboard mouse** See PS/2-compatible mouse.

**mouse** A pointing and input device that allows the user to move a cursor around a screen and select items with the click of a button.

**MP3** A method to compress audio files that uses MPEG level 1. It can reduce sound files as low as a 1:24 ratio without losing much sound quality.

**MPEG (Moving Pictures Experts Group)** A processing-intensive standard for data compression for motion pictures that tracks movement from one frame to the next and only stores the data that has changed.

**Msdos.sys** In Windows 9x/Me, a text file that contains settings used by Io.sys during booting. In DOS, the Msdos.sys file was a program file that contained part of the DOS core.

**MultiBank DRAM (MDRAM)** A type of video memory that is faster than VRAM and WRAM, but can be more economical because it can be installed on a video card in smaller increments.

**multicasting** A process in which a message is sent by one host to multiple hosts, such as when a video conference is broadcast to several hosts on the Internet.

**multimeter** A device used to measure the various components of an electrical circuit. The most common measurements are voltage, current, and resistance.

**multipartite virus** A combination of a boot sector virus and a file virus. It can hide in either type of program.

**multiplier** The factor by which the bus speed or frequency is multiplied to get the CPU clock speed.

**multi-processor platform** A system that contains more than one processor. The motherboard has more than one processor socket and the processors must be rated to work in this multi-processor environment.

**multisession** A feature that allows data to be read from or written to a CD during more than one

session. This is important if the disk was only partially filled during the first write.

**multitasking** Doing more than one thing at a time. A true multitasking system requires two or more CPUs, each processing a different thread at the same time. Compare to cooperative multitasking and preemptive multitasking.

**multithreading** The ability to pass more than one function (thread) to the OS kernel at the same time, such as when one thread is performing a print job while another reads a file.

**name resolution** The process of associating a NetBIOS name or host name to an IP address.

**NAT (Network Address Translation)** A process that converts private IP addresses on a LAN to the proxy server's IP address before a data packet is sent over the Internet.

**native mode** A Windows 2000 mode used by domain controllers when there are no Windows NT domain controllers present on the network.

**NetBEUI (NetBIOS Extended User Interface)** A fast, proprietary Microsoft networking protocol used only by Windows-based systems, and limited to LANs because it does not support routing.

**NetBIOS (Network Basic Input/Output System)** An API protocol used by some applications to communicate over a NetBEUI network. NetBIOS has largely been replaced by Windows Sockets over a TCP/IP network.

**network adapter** See network interface card.

**network drive map** Mounting a drive to a computer, such as drive E, that is actually hard drive space on another host computer on the network.

**network interface card (NIC)** An expansion card that plugs into a computer's motherboard and provides a port on the back of the card to connect a PC to a network. Also called a network adapter.

**network operating system (NOS)** An operating system that resides on the controlling computer in the network. The NOS controls what software, data, and devices a user on the network can access. Examples of an NOS are Novell Netware and Windows Server 2003.

**network printer** A printer that any user on the network can access, through its own network card and connection to the network, through a connection to a standalone print server, or through a connection to a computer as a local printer, which is shared on the network.

**NNTP (Network News Transfer Protocol)** The protocol used by newsgroup server and client software.

- node** See host
- noise** An extraneous, unwanted signal, often over an analog phone line, that can cause communication interference or transmission errors. Possible sources are fluorescent lighting, radios, TVs, lightning, or bad wiring.
- non-memory-resident virus** A virus that is terminated when the host program is closed. Compare to memory-resident virus.
- nonparity memory** Eight-bit memory without error checking. A SIMM part number with a 32 in it (4 x 8 bits) is nonparity.
- nonvolatile** Refers to a kind of RAM that is stable and can hold data as long as electricity is powering the memory.
- normal mode** See CHS mode.
- notebook** A portable computer that is designed for travel and mobility. Notebooks use the same technology as desktop PCs, with modifications for conserving voltage, taking up less space, and operating while on the move. Also called a laptop computer.
- NTFS (NT file system)** The file system for the Windows NT/2000/XP operating systems. NTFS cannot be accessed by other operating systems such as DOS. It provides increased reliability and security in comparison to other methods of organizing and accessing files. There are several versions of NTFS that might or might not be compatible.
- Ntldr (NT Loader)** In Windows NT/2000/XP, the OS loader used on Intel systems.
- NTVDM (NT virtual DOS machine)** An emulated environment in which a 16-bit DOS application resides within Windows NT/2000/XP with its own memory space or WOW (Win16 on Win32).
- null modem cable** A cable that allows two data terminal equipment (DTE) devices to communicate in which the transmit and receive wires are cross-connected and no modems are necessary.
- NWLink** Microsoft's version of the IPX/SPX protocol suite used by Novell NetWare operating systems.
- octet** Term for each of the four 8-bit numbers that make up an IP address. For example, the IP address 206.96.103.114 has four octets.
- on-board ports** Ports that are directly on the motherboard, such as a built-in keyboard port or on-board serial port.
- operating system (OS)** Software that controls a computer. An OS controls how system resources are used and provides a user interface, a way of managing hardware and software, and ways to work with files.
- operating system formatting** See high-level formatting.
- overclocking** Running a processor at a higher frequency than is recommended by the manufacturer, which can result in an unstable system, but is a popular thing to do when a computer is used for gaming.
- packet** Segment of network data that also includes header, destination address, and trailer information that is sent as a unit. Also called data packet or datagram.
- page fault** An OS interrupt that occurs when the OS is forced to access the hard drive to satisfy the demands for virtual memory.
- page file** See swap file.
- Pagefile.sys** The Windows NT/2000/XP swap file.
- page-in** The process in which the memory manager goes to the hard drive to return the data from a swap file to RAM.
- page-out** The process in which, when RAM is full, the memory manager takes a page and moves it to the swap file.
- pages** 4K segments in which Windows NT/2000/XP allocates memory.
- parallel ATA (PATA)** An older IDE cabling method that uses a 40-pin flat data cable or an 80-conductor cable and a 40-pin IDE connector. See also serial ATA.
- parallel port** A female 25-pin port on a computer that can transmit data in parallel, 8 bits at a time, and is usually used with a printer. The names for parallel ports are LPT1 and LPT2.
- parity** An error-checking scheme in which a ninth, or "parity," bit is added. The value of the parity bit is set to either 0 or 1 to provide an even number of ones for even parity and an odd number of ones for odd parity.
- parity error** An error that occurs when the number of 1s in the byte is not in agreement with the expected number.
- parity memory** Nine-bit memory in which the ninth bit is used for error checking. A SIMM part number with a 36 in it (4 x 9 bits) is parity. Older PCs almost always use parity chips.
- partition** A division of a hard drive that can be used to hold logical drives.
- partition table** A table at the beginning of the hard drive that contains information about each partition on the drive. The partition table is contained in the Master Boot Record.



- passphrase** A type of password that can contain a phrase where spaces are allowed. A passphrase is stronger than a one-word password.
- patch** An update to software that corrects an error, adds a feature, or addresses security issues. Also called an update or service pack.
- patch cable** A network cable that is used to connect a PC to a hub, switch, or router.
- path** (1) A drive and list of directories pointing to a file such as C:\Windows\command. (2) The OS command to provide a list of paths to the system for finding program files to execute.
- PC Card** A credit-card-sized adapter card that can be slid into a slot in the side of many notebook computers and is used by modems, network cards, and other devices. Also called PCMCIA Card.
- PC Card slot** An expansion slot on a notebook computer, into which a PC Card is inserted. Also called a PCMCIA Card slot.
- PCI (Peripheral Component Interconnect) bus** A bus common on Pentium computers that runs at speeds of up to 33 MHz or 66 MHz, with a 32-bit-wide or 64-bit-wide data path. PCI-X, released in September 1999, enables PCI to run at 133 MHz. For some chipsets, it serves as the middle layer between the memory bus and expansion buses.
- PCL (Printer Control Language)** A printer language developed by Hewlett-Packard that communicates to a printer how to print a page.
- PCMCIA (Personal Computer Memory Card International Association) Card** *See* PC Card.
- PCMCIA Card slot** *See* PC Card slot.
- PDA (Personal Digital Assistant)** A small, handheld computer that has its own operating system and applications.
- peer-to-peer network** A network of computers that are all equals, or peers. Each computer has the same amount of authority, and each can act as a server to the other computers.
- peripheral devices** Devices that communicate with the CPU but are not located directly on the motherboard, such as the monitor, floppy drive, printer, and mouse.
- phishing** (1) A type of identity theft where a person is baited into giving personal data to a Web site that appears to be the Web site of a reputable company with which the person has an account. (2) Sending an e-mail message with the intent of getting the user to reveal private information that can be used for identify theft.
- physical address** *See* MAC address.
- physical geometry** The actual layout of heads, tracks, and sectors on a hard drive. Compare to logical geometry.
- PIF (program information file)** A file used by Windows to describe the environment for a DOS program to use.
- pin grid array (PGA)** A feature of a CPU socket whereby the pins are aligned in uniform rows around the socket.
- Ping (Packet Internet Groper)** A Windows and Unix command used to troubleshoot network connections. It verifies that the host can communicate with another host on the network.
- pinout** A description of how each pin on a bus, connection, plug, slot, or socket is used.
- PIO (Programmed I/O) transfer mode** A transfer mode that uses the CPU to transfer data from the hard drive to memory. PIO mode is slower than DMA mode.
- pipelined burst SRAM** A less expensive SRAM that uses more clock cycles per transfer than non-pipelined burst but does not significantly slow down the process.
- pits** Recessed areas on the surface of a CD or DVD, separating lands, or flat areas. Lands and pits are used to represent data on a disc.
- pixel** A small spot on a fine horizontal scan line. Pixels are illuminated to create an image on the monitor.
- PKI (public key infrastructure)** The standards used to encrypt, transport, and validate digital certificates over the Internet.
- Plug and Play (PnP)** A standard designed to make the installation of new hardware devices easier by automatically configuring devices to eliminate system resource conflicts (such as IRQ or I/O address conflicts). PnP is supported by Windows 9x/Me, Windows 2000, and Windows XP.
- polling** A process by which the CPU checks the status of connected devices to determine if they are ready to send or receive data.
- polymorphic virus** A type of virus that changes its distinguishing characteristics as it replicates itself. Mutating in this way makes it more difficult for AV software to recognize the presence of the virus.
- POP (Post Office Protocol)** The protocol that an e-mail server and client use when the client requests the downloading of e-mail messages. The most recent version is POP3. POP is being replaced by IMAP.
- port** (1) As applied to services running on a computer, a number assigned to a process on a computer so that the process can be found by TCP/IP.

Also called a port address or port number. (2) Another name for an I/O address. *See also* I/O address. (3) A physical connector, usually at the back of a computer, that allows a cable from a peripheral device, such as a printer, mouse, or modem, to be attached.

**port address** *See* I/O address.

**port forwarding** A technique that allows a computer on the Internet to reach a computer on a private network using a certain port when the private network is protected by a router using NAT as a proxy server. Port forwarding is also called tunneling.

**port number** *See* port.

**port replicator** A device designed to connect to a notebook computer in order to make it easy to connect the notebook to peripheral devices.

**port settings** The configuration parameters of communications devices such as COM1, COM2, or LPT1, including IRQ settings.

**port speed** The communication speed between a DTE (computer) and a DCE (modem). As a general rule, the port speed should be at least four times as fast as the modem speed.

**POST (power-on self test)** A self-diagnostic program used to perform a simple test of the CPU, RAM, and various I/O devices. The POST is performed by startup BIOS when the computer is first turned on, and is stored in ROM-BIOS.

**PostScript** A printer language developed by Adobe Systems which tells a printer how to print a page.

**power conditioner** A line conditioner that regulates, or conditions, power, providing continuous voltage during brownouts.

**power scheme** A feature of Windows XP support for notebooks that allows the user to create groups of power settings for specific sets of conditions.

**power supply** A box inside the computer case that supplies power to the motherboard and other installed devices. Power supplies provide 3.3, 5, and 12 volts DC.

**power-on password** A password that a computer uses to control access during the boot process.

**PPP (Point-to-Point Protocol)** A protocol that governs the methods for communicating via modems and dial-up telephone lines. The Windows Dial-up Networking utility uses PPP.

**PPPoE (Point-to-Point Protocol over Ethernet)** The protocol that describes how a PC is to interact with a broadband converter box, such as cable

modem, when the two are connected by an Ethernet cable, connected to a NIC in a PC.

**preemptive multitasking** A type of pseudo-multitasking whereby the CPU allows an application a specified period of time and then preempts the processing to give time to another application.

**primary cache** *See* internal cache.

**primary domain controller (PDC)** In a Windows NT network, the computer that controls the directory database of user accounts, group accounts, and computer accounts on a domain. *See also* backup domain controller.

**primary partition** A hard disk partition that can contain only one logical drive.

**primary storage** Temporary storage on the motherboard used by the CPU to process data and instructions. Memory is considered primary storage.

**printer** A peripheral output device that produces printed output to paper. Different types include dot matrix, ink-jet, and laser printers.

**printer maintenance kit** A kit purchased from a printer manufacturer that contains the parts, tools, and instructions needed to perform routine printer maintenance.

**private IP address** An IP address that is used on a private TCP/IP network that is isolated from the Internet.

**process** An executing instance of a program together with the program resources. There can be more than one process running for a program at the same time. One process for a program happens each time the program is loaded into memory or executed.

**processor** *See* central processing unit (CPU).

**processor speed** The speed, or frequency, at which the CPU operates. Usually expressed in GHz.

**product activation** The process that Microsoft uses to prevent software piracy. For example, once Windows XP is activated for a particular computer, it cannot be legally installed on another computer.

**program** A set of step-by-step instructions to a computer. Some are burned directly into chips, while others are stored as program files. Programs are written in languages such as BASIC and C++.

**program file** A file that contains instructions designed to be executed by the CPU.

**protected mode** An operating mode that supports preemptive multitasking, the OS manages memory and other hardware devices, and programs can use a 32-bit data path. Also called 32-bit mode.

- protocol** A set of rules and standards that two entities use for communication.
- Protocol.ini** A Windows initialization file that contains network configuration information.
- proxy server** A server that acts as an intermediary between another computer and the Internet. The proxy server substitutes its own IP address for the IP address of the computer on the network making a request, so that all traffic over the Internet appears to be coming from only the IP address of the proxy server.
- PS/2-compatible mouse** A mouse that plugs into a round mouse PS/2 port on the motherboard. Sometimes called a motherboard mouse.
- public IP address** An IP address available to the Internet.
- QIC (Quarter-Inch Committee or quarter-inch cartridge)** A name of a standardized method used to write data to tape. These backup files have a .qic extension.
- Quality of Service (QoS)** A measure of the success of communication over the Internet. Communication is degraded on the Internet when packets are dropped, delayed, delivered out of order, or corrupted. VoIP requires a high QoS.
- RAID (redundant array of inexpensive disks or redundant array of independent disks)** Several methods of configuring multiple hard drives to store data to increase logical volume size and improve performance, or to ensure that if one hard drive fails, the data is still available from another hard drive.
- RAM (random access memory)** Memory modules on the motherboard containing microchips used to temporarily hold data and programs while the CPU processes both. Information in RAM is lost when the PC is turned off.
- RAM drive** An area of memory that is treated as though it were a hard drive, but works much faster than a hard drive. The Windows 9x/Me startup disk uses a RAM drive. Compare to virtual memory.
- RARP (Reverse Address Resolution Protocol)** A protocol used to translate the unique hardware NIC addresses (MAC addresses) into IP addresses (the reverse of ARP).
- RDRAM** *See* Direct Rambus DRAM.
- read/write head** A sealed, magnetic coil device that moves across the surface of a disk either reading data from or writing data to the disk.
- real mode** A single-tasking operating mode whereby a program can use 1024 K of memory addresses, has direct access to RAM, and uses a 16-bit data path. Using a memory extender (Himem.sys) a program in real mode can access memory above 1024 K. Also called 16-bit mode.
- Recovery Console** A Windows 2000/XP command interface utility and OS that can be used to solve problems when Windows cannot load from the hard drive.
- refresh** The process of periodically rewriting data, such as on dynamic RAM.
- refresh rate** As applied to monitors, the number of times in one second an electronic beam can fill the screen with lines from top to bottom. Also called vertical scan rate.
- registry** A database that Windows uses to store hardware and software configuration information, user preferences, and setup information.
- Remote Assistance** A Windows XP feature that allows a support technician at a remote location to have full access to the Windows XP desktop.
- rescue disk** A floppy disk that can be used to start up a computer when the hard drive fails to boot. Also called emergency startup disk (ESD) or startup disk.
- resolution** The number of pixels on a monitor screen that are addressable by software (example: 1024 x 768 pixels).
- restore point** A snapshot of the Windows Me/XP system state, usually made before installation of new hardware or applications.
- REt (Resolution Enhancement technology)** The term used by Hewlett-Packard to describe the way a laser printer varies the size of the dots used to create an image. This technology partly accounts for the sharp, clear image created by a laser printer.
- RIMM** A type of memory module developed by Rambus, Inc.
- RJ-11** A phone line connection found on modems, telephones, and house phone outlets.
- RJ-45 connector** A connector used with twisted-pair cable that connects the cable to the NIC.
- roaming user profile** A user profile for a roaming user. Roaming user profiles are stored on a server so that the user can access the profile from anywhere on the network.
- ROM (read-only memory)** Chips that contain programming code and cannot be erased.
- ROM BIOS** *See* BIOS.
- root directory** The main directory created when a hard drive or disk is first formatted. In Linux, it's indicated by a forward slash. In DOS and Windows, it's indicated by a backward slash.

- rootkit** A type of malicious software that loads itself before the OS boot is complete and can hijack internal Windows components so that it masks information Windows provides to user-mode utilities such as Windows Explorer or Task Manager.
- routable protocol** A protocol that can be routed to interconnected networks on the basis of a network address. TCP/IP is a routable protocol, but NetBEUI is not.
- router** A device that connects networks and makes decisions as to the best routes to use when forwarding packets.
- sampling rate** The rate of samples taken of an analog signal over a period of time, usually expressed as samples per second, or hertz.
- scam e-mail** E-mail sent by a scam artist intended to lure you into a scheme.
- scanner** A device that allows a computer to convert a picture, drawing, barcode, or other image into digital data that can be input into the computer.
- script virus** A type of virus that hides in a script which might execute when you click a link on a Web page or in an HTML e-mail message, or when you attempt to open an e-mail attachment.
- SCSI (Small Computer System Interface)** A fast interface between a host adapter and the CPU that can daisy chain as many as 7 or 15 devices on a single bus.
- SDRAM II** See Double Data Rate SDRAM (DDR SDRAM).
- secondary storage** Storage that is remote to the CPU and permanently holds data, even when the PC is turned off, such as a hard drive.
- sector** On a disk surface one segment of a track, which almost always contains 512 bytes of data.
- security accounts manager (SAM)** A portion of the Windows NT/2000/XP registry that manages the account database that contains accounts, policies, and other pertinent information about local accounts.
- sequential access** A method of data access used by tape drives, whereby data is written or read sequentially from the beginning to the end of the tape or until the desired data is found.
- serial ATA (SATA)** An ATAPI cabling method that uses a narrower and more reliable cable than the 80-conductor cable. See also parallel ATA.
- serial ATA cable** An IDE cable that is narrower and has fewer pins than the parallel IDE 80-conductor cable.
- serial mouse** A mouse that uses a serial port and has a female 9-pin DB-9 connector.
- serial port** A male 9-pin or 25-pin port on a computer system used by slower I/O devices such as a mouse or modem. Data travels serially, one bit at a time, through the port. Serial ports are sometimes configured as COM1, COM2, COM3, or COM4.
- server-side caching** A technique used by servers on the Internet to speed up download times by caching Web pages previously requested in case they are requested again.
- service** A program that runs in the background to support or serve Windows or an application.
- service pack** See patch.
- session** An established communication link between two software programs. On the Internet, a session is created by TCP.
- SFC (System File Checker)** A Windows tool that checks to make sure Windows is using the correct versions of system files.
- SGRAM (synchronous graphics RAM)** Memory designed especially for video card processing that can synchronize itself with the CPU bus clock.
- shadow RAM or shadowing ROM** ROM programming code copied into RAM to speed up the system operation, because of the faster access speed of RAM.
- shared memory** When the video system does not have dedicated video memory, but is using regular RAM instead. A system with shared memory generally costs less than having dedicated video memory. Also called *video sharing*.
- shell** The portion of an OS that relates to the user and to applications.
- shielded twisted-pair (STP) cable** A cable that is made of one or more twisted pairs of wires and is surrounded by a metal shield.
- shortcut** An icon on the desktop that points to a program that can be executed or to a file or folder.
- Sigverif.exe** A Windows 2000/XP utility that allows you to search for digital signatures.
- SIMD (single instruction, multiple data)** A process that allows the CPU to execute a single instruction simultaneously on multiple pieces of data, rather than by repetitive looping.
- SIMM (single inline memory module)** A miniature circuit board used in older computers to hold RAM. SIMMs hold 8, 16, 32, or 64 MB on a single module.
- simple volume** A type of dynamic volume used on a single hard drive that corresponds to a primary partition on a basic disk.



- site license** A license that allows a company to install multiple copies of software, or to allow multiple employees to execute the software from a file server.
- slack** Wasted space on a hard drive caused by not using all available space at the end of clusters.
- sleep mode** A mode used in many “Green” systems that allows them to be configured through CMOS to suspend the monitor or even the drive, if the keyboard and/or CPU have been inactive for a set number of minutes. *See also* Green Standards.
- SLIP (Serial Line Internet Protocol)** A line protocol used by regular telephone lines that has largely been replaced by PPP.
- smart card** Any small device that contains authentication information that can be keyed into a logon window or read by a reader to authenticate a user on a network.
- smart card reader** A device that can read a smart card used to authenticate a person onto a network.
- SMARTDrive** A hard drive cache program that came with Windows 3.x and DOS and can be executed as a TSR from the Autoexec.bat file (for example, Device = Smartdrv.sys 2048).
- SMTP (Simple Mail Transfer Protocol)** The protocol used by e-mail clients and servers to send e-mail messages over the Internet. *See* POP and IMAP4.
- SMTP AUTH (SMTP Authentication)** A protocol that is used to authenticate or prove that a client who attempts to use an email server to send email is authorized to use the server. The protocol is based on the Simple Authentication and Security Layer (SASL) protocol.
- snap-ins** A Windows utility that can be installed in a console window by Microsoft Management Console.
- SNMP (Simple Network Management Protocol)** A protocol used to monitor and manage network traffic on a workstation. SNMP works with TCP/IP and IPX/SPX networks.
- social engineering** The practice of tricking people into giving out private information or allowing unsafe programs into the network or computer.
- socket** *See* session.
- SO-DIMM (small outline DIMM)** A type of memory module used in notebook computers that uses DIMM technology and can have either 72 pins or 144 pins.
- soft boot** To restart a PC without turning off the power, for example, in Windows XP, by clicking Start, Turn Off Computer, and Restart. Also called warm boot.
- soft power** *See* soft switch.
- soft switch** A feature on an ATX or BTX system that allows an OS to power down the system and allows for activity such as a keystroke or network activity to power up the system. Also called soft power.
- software** Computer programs, or instructions to perform a specific task. Software may be BIOS, OSs, or applications software such as a word-processing or spreadsheet program.
- software cache** Cache controlled by software whereby the cache is stored in RAM.
- solid ink printer** A type of printer that uses sticks or blocks of solid ink. The ink is melted and then jetted onto the paper as the paper passes by on a drum.
- solid state device (SSD)** A storage device that uses memory chips to store data instead of spinning disks (such as those used by hard drives and CD drives). Examples of solid state devices are jump drives (also called key drives or thumb drives), flash memory cards, and solid state disks used as hard drives in notebook computers designed for the most rugged uses. Also called solid state disk (SSD).
- solid state disk (SSD)** *See* solid state device.
- SO-RIMM (small outline RIMM)** A 160-pin memory module used in notebooks that uses Rambus technology.
- spam** Junk e-mail you don’t ask for, don’t want, and that gets in your way.
- spanned volume** A type of dynamic volume used on two or more hard drives that fills up the space allotted on one physical disk before moving to the next.
- spikes** Temporary surges in voltage, which can damage electrical components. Also called swells.
- spooling** Placing print jobs in a print queue so that an application can be released from the printing process before printing is completed. Spooling is an acronym for simultaneous peripheral operations online.
- spyware** Malicious software that installs itself on your computer to spy on you. It collects personal information about you that it transmits over the Internet to Web-hosting sites that intend to use your personal data for harm.
- SSE (Streaming SIMD Extension)** A technology used by the Intel Pentium III and later CPUs and designed to improve performance of multimedia software.
- SSL (secure socket layer)** A secure protocol developed by Netscape that uses a digital certificate including a public key to encrypt and decrypt data.
- standby time** The time before a “Green” system will reduce 92 percent of its activity. *See also* Green Standards.

- start bits** Bits that are used to signal the approach of data.
- startup BIOS** Part of system BIOS that is responsible for controlling the PC when it is first turned on. Startup BIOS gives control over to the OS once it is loaded.
- startup disk** *See* rescue disk.
- startup password** *See* power-on password.
- stateless** Term for a device or process that manages data or some activity without regard to all the details of the data or activity.
- static electricity** *See* electrostatic discharge.
- static IP address** An IP address permanently assigned to a workstation.
- static RAM (SRAM)** RAM chips that retain information without the need for refreshing, as long as the computer's power is on. They are more expensive than traditional DRAM.
- static VxD** A VxD that is loaded into memory at startup and remains there for the entire OS session.
- stealth virus** A virus that actively conceals itself by temporarily removing itself from an infected file that is about to be examined, and then hiding a copy of itself elsewhere on the drive.
- stop error** An error severe enough to cause the operating system to stop all processes.
- streaming audio** Downloading audio data from the Internet in a continuous stream of data without first downloading an entire audio file.
- striped volume** A type of dynamic volume used for two or more hard drives that writes to the disks evenly rather than filling up allotted space on one and then moving on to the next. Compare to spanned volume.
- subdirectory** A directory or folder contained in another directory or folder. Also called a child directory or folder.
- subnet mask** A subnet mask is a group of four numbers (dotted decimal numbers) that tell TCP/IP if a remote computer is on the same or a different network.
- subsystems** The different modules into which the Windows NT/2000/XP user mode is divided.
- surge suppressor or surge protector** A device or power strip designed to protect electronic equipment from power surges and spikes.
- Surround Sound** A sound compression standard that supports six separate sound channels using six speakers known as Front Left and Right, Front Center, Rear Left and Right, and Subwoofer. Surround Sound 7.1 supports two additional rear or side speakers. Also known as Dolby AC-3, Dolby Digital Surround, or Dolby Surround Sound.
- suspend time** The time before a "Green" system will reduce 99 percent of its activity. After this time, the system needs a warm-up time so that the CPU, monitor, and hard drive can reach full activity.
- swap file** A file on the hard drive that is used by the OS for virtual memory. Also called a page file.
- swells** *See* spikes.
- switch** A device used to segment a network. It can decide which network segment is to receive a packet, on the basis of the packet's destination MAC address.
- synchronization** The process by which files and programs are transferred between PDAs and PCs.
- synchronous DRAM (SDRAM)** A type of memory stored on DIMMs that runs in sync with the system clock, running at the same speed as the motherboard.
- synchronous SRAM** SRAM that is faster and more expensive than asynchronous SRAM. It requires a clock signal to validate its control signals, enabling the cache to run in step with the CPU.
- SyncLink DRAM (SLDRAM)** A type of DRAM developed by a consortium of 12 DRAM manufacturers. It improved on regular SDRAM but is now obsolete.
- Sysedit** The Windows 9x/Me System Configuration Editor, a text editor generally used to edit system files.
- system BIOS** BIOS located on the motherboard.
- system board** *See* motherboard.
- system bus** The bus between the CPU and memory on the motherboard. The bus frequency in documentation is called the system speed, such as 400 MHz. Also called the memory bus, front-side bus, local bus, or host bus.
- system clock** A line on a bus that is dedicated to timing the activities of components connected to it. The system clock provides a continuous pulse that other devices use to time themselves.
- system disk** Windows terminology for a bootable disk.
- system partition** The active partition of the hard drive containing the boot record and the specific files required to load Windows NT/2000/XP.
- system resource** A channel, line, or address on the motherboard that can be used by the CPU or a device for communication. The four system resources are IRQ, I/O address, DMA channel, and memory address.
- System Restore** A Windows Me/XP utility, similar to the ScanReg tool in earlier versions of Windows, that is used to restore the system to a restore point.

Unlike ScanReg, System Restore cannot be executed from a command prompt.

**system state data** In Windows 2000/XP, files that are necessary for a successful load of the operating system.

**System Tray** An area to the right of the taskbar that holds the icons for running services; these services include the volume control and network connectivity.

**System.ini** A text configuration file used by Windows 3.x and supported by Windows 9x/Me for backward-compatibility.

**TAPI (Telephony Application Programming Interface)** A standard developed by Intel and Microsoft that can be used by 32-bit Windows communications programs for communicating over phone lines.

**taskbar** A bar normally located at the bottom of the Windows desktop, displaying information about open programs and providing quick access to others.

**TCP (Transmission Control Protocol)** Part of the TCP/IP protocol suite. TCP guarantees delivery of data for application protocols and establishes a session before it begins transmitting data.

**TCP/IP (Transmission Control Protocol/Internet Protocol)** The suite of protocols that supports communication on the Internet. TCP is responsible for error checking, and IP is responsible for routing.

**TDMA (time-division multiple access)** A protocol standard used by cellular WANs and cell phones.

**technical documentation** The technical reference manuals, included with software packages and peripherals, that provide directions for installation, usage, and troubleshooting. The information extends beyond that given in user manuals.

**telephony** A term describing the technology of converting sound to signals that can travel over telephone lines.

**thermal printer** A type of line printer that uses wax-based ink, which is heated by heat pins that melt the ink onto paper.

**thread** Each process that the CPU is aware of; a single task that is part of a longer task or program.

**TIFF (Tagged Image File Format)** A bitmapped file format used to hold photographs, graphics, and screen captures. TIFF files can be rather large, and have a .tif file extension.

**time to live (TTL)** Number of routers a network packet can pass through on its way to its destination before it is dropped. Also called hop count.

**TLS (Transport Layer Security)** A protocol used to secure data sent over the Internet. It is an improved version of SSL.

**token ring** An older LAN technology developed by IBM that transmits data at 4 Mbps or 16 Mbps.

**top-level domain** The highest level of domain names, indicated by a suffix that tells something about the host. For example, .com is for commercial use and .edu is for educational institutions.

**touch screen** An input device that uses a monitor or LCD panel as a backdrop for user options. Touch screens can be embedded in a monitor or LCD panel or installed as an add-on device.

**tower case** The largest type of personal computer case. Tower cases stand vertically and can be as high as two feet tall. They have more drive bays and are a good choice for computer users who anticipate making significant upgrades.

**trace** A wire on a circuit board that connects two components or devices.

**track** One of many concentric circles on the surface of a hard drive or floppy disk.

**training** See handshaking.

**transceiver** The component on a NIC that is responsible for signal conversion. Combines the words transmitter and receiver.

**translation** A technique used by system BIOS and hard drive controller BIOS to break the 504-MB hard drive barrier, whereby a different set of drive parameters are communicated to the OS and other software than that used by the hard drive controller BIOS.

**Travan standards** A popular and improved group of standards for tape drives based on the QIC standards and developed by 3M.

**triad** Three dots of color that make up one composite dot on a CRT screen.

**Trojan horse** A type of infestation that hides or disguises itself as a useful program, yet is designed to cause damage when executed.

**TSR (terminate-and-stay-resident)** A program that is loaded into memory and remains dormant until called on, such as a screen saver or a memory-resident antivirus program.

**UART (universal asynchronous receiver-transmitter) chip** A chip that controls serial ports. It sets protocol and converts parallel data bits received from the system bus into serial bits.

**UDP (User Datagram Protocol)** A connectionless protocol that does not require a connection to send a packet and does not guarantee that the

packet arrives at its destination. UDP is faster than TCP because TCP takes the time to make a connection and guarantee delivery.

**unattended installation** A Windows NT/ 2000/XP installation that is done by storing the answers to installation questions in a text file or script that Windows NT/2000/XP calls an answer file so that the answers do not have to be typed in during the installation.

**Universal Disk Format (UDF) file system** A file system for optical media used by all DVD discs and some CD-R and CD-RW discs.

**unshielded twisted-pair (UTP) cable** A cable that is made of one or more twisted pairs of wires and is not surrounded by shielding.

**upgrade install** The installation of an OS on a hard drive that already has an OS installed in such a way that settings kept by the old OS are carried forward into the upgrade, including information about hardware, software, and user preferences.

**upper memory** In DOS and Windows 9x/Me, the memory addresses from 640 K up to 1024 K, originally reserved for BIOS, device drivers, and TSRs.

**upper memory block (UMB)** In DOS and Windows 9x/Me, a group of consecutive memory addresses in RAM from 640 K to 1MB that can be used by 16-bit device drivers and TSRs.

**UPS (uninterruptible power supply)** A device designed to provide a backup power supply during a power failure. Basically, a UPS is a battery backup system with an ultrafast sensing device.

**URL (Uniform Resource Locator)** An address for a resource on the Internet. A URL can contain the protocol used by the resource, the name of the computer and its network, and the path and name of a file on the computer.

**USB (universal serial bus) port** A type of port designed to make installation and configuration of I/O devices easy, providing room for as many as 127 devices daisy-chained together.

**USB host controller** Manages the USB bus. If the motherboard contains on-board USB ports, the USB host controller is part of the chipset. The USB controller uses only a single set of resources for all devices on the bus.

**user account** The information, stored in the SAM database, that defines a Windows NT/ 2000/XP user, including username, password, memberships, and rights.

**user component** A Windows 9x/Me component that controls the mouse, keyboard, ports, and desktop.

**user mode** In Windows NT/2000/XP, a mode that provides an interface between an application and the OS, and only has access to hardware resources through the code running in kernel mode.

**user profile** A personal profile about a user that enables the user's desktop settings and other operating parameters to be retained from one session to another.

**User State Migration Tool (USMT)** A Windows XP utility that helps you migrate user files and preferences from one computer to another in order to help a user make a smooth transition from one computer to another.

**V.92** The latest standard for data transmission over phone lines that can attain a speed of 56 Kbps.

**value data** In Windows, the name and value of a setting in the registry.

**VCACHE** A built-in Windows 9x/Me 32-bit software cache that doesn't take up conventional memory space or upper memory space as SMARTDrive did.

**VESA (Video Electronics Standards Association) VL bus** An outdated local bus used on 80486 computers for connecting 32-bit adapters directly to the local processor bus.

**VFAT (virtual file allocation table)** A variation of the original DOS 16-bit FAT that allows for long filenames and 32-bit disk access.

**video card** An interface card installed in the computer to control visual output on a monitor. Also called display adapter.

**video sharing** See shared memory.

**virtual device driver (VxD or VDD)** A Windows device driver that may or may not have direct access to a device. It might depend on a Windows component to communicate with the device itself.

**virtual machine** One or more logical machines created within one physical machine by Windows, allowing applications to make serious errors within one logical machine without disturbing other programs and parts of the system.

**virtual memory** A method whereby the OS uses the hard drive as though it were RAM. Compare to RAM drive.

**virtual real mode** An operating mode that works similarly to real mode and is provided by a 32-bit OS for a 16-bit program to work.

**virus** A program that often has an incubation period, is infectious, and is intended to cause damage. A virus program might destroy data and programs or damage a disk drive's boot sector.



- virus hoax** E-mail that does damage by tempting you to forward it to everyone in your e-mail address book with the intent of clogging up e-mail systems or by persuading you to delete a critical Windows system file by convincing you the file is malicious.
- virus signature** A set of distinguishing characteristics of a virus used by antivirus software to identify the virus.
- VMM (Virtual Machine Manager)** A Windows 9x/Me program that controls virtual machines and the resources they use including memory. The VMM manages the page table used to access memory.
- volatile** Refers to a kind of RAM that is temporary, cannot hold data very long, and must be frequently refreshed.
- volt (V)** A measure of potential difference in an electrical circuit. A computer ATX power supply usually provides five separate voltages: +12 V, -12 V, +5 V, -5 V, and +3.3 V.
- voltage** Electrical differential that causes current to flow, measured in volts. *See* volt.
- voltage regulator module (VRM)** A device embedded or installed on the motherboard that regulates voltage to the processor.
- voltmeter** A device for measuring electrical AC or DC voltage.
- volume** *See* logical drive.
- VRAM (video RAM)** RAM on video cards that holds the data that is being passed from the computer to the monitor and can be accessed by two devices simultaneously. Higher resolutions often require more video memory.
- VxD** *See* virtual device driver.
- wait state** A clock tick in which nothing happens, used to ensure that the microprocessor isn't getting ahead of slower components. A 0-wait state is preferable to a 1-wait state. Too many wait states can slow down a system.
- WAN (wide area network)** A network or group of networks that span a large geographical area.
- warm boot** *See* soft boot.
- watt (W)** The unit used to measure power. A typical computer may use a power supply that provides 200 W.
- wattage** Electrical power measured in watts.
- WDM (Win32 Driver Model)** The only Windows 9x/Me Plug and Play component that is found in Windows 98 but not Windows 95. WDM is the component responsible for managing device drivers that work under a driver model new to Windows 98.
- WEP (Wired Equivalent Privacy)** A data encryption method used on wireless networks that uses either 64-bit or 128-bit encryption keys that are static keys, meaning the key does not change while the wireless network is in use.
- WFP (Windows File Protection)** A Windows 2000/XP tool that protects system files from modification.
- Wi-Fi** *See* IEEE 802.11b.
- wildcard** A \* or ? character used in a command line that represents a character or group of characters in a filename or extension.
- Win.ini** The Windows initialization file that contains program configuration information needed for running the Windows operating environment. Its functions were replaced by the registry beginning with Windows 9x/Me, which still supports it for backward compatibility with Windows 3.x.
- Win16 on Win32 (WOW)** A group of programs provided by Windows NT/2000/XP to create a virtual DOS environment that emulates a 16-bit Windows environment, protecting the rest of the OS from 16-bit applications.
- Win386.swp** The name of the Windows 9x/Me swap file. Its default location is C:\Windows.
- WINS (Windows Internet Naming Service)** A Microsoft resolution service with a distributed database that tracks relationships between NetBIOS names and IP addresses. Compare to DNS.
- WinSock (Windows Sockets)** A part of the TCP/IP utility software that manages API calls from applications to other computers on a TCP/IP network.
- wireless LAN (WLAN)** A type of LAN that does not use wires or cables to create connections, but instead transmits data over radio or infrared waves.
- word size** The number of bits that can be processed by a CPU at one time.
- workgroup** In Windows, a logical group of computers and users in which administration, resources, and security are distributed throughout the network, without centralized management or security.
- worm** An infestation designed to copy itself repeatedly to memory, on drive space or on a network, until little memory or disk space remains.
- WPA (WiFi Protected Access)** A data encryption method for wireless networks that use the TKIP (Temporal Key Integrity Protocol) encryption method and the encryption keys are changed at set intervals while the wireless LAN is in use.

**WPA2 (WiFi Protected Access 2)** A data encryption standard compliant with the IEEE802.11i standard that uses the AES (Advanced Encryption Standard) protocol. WPA2 is currently the strongest wireless encryption standard.

**WRAM (window RAM)** Dual ported video RAM that is faster and less expensive than VRAM. It has its own internal bus on the chip, with a data path that is 256 bits wide.

**zero-fill utility** A utility provided by a hard drive manufacturer that fills every sector on the drive with zeroes.

**zone bit recording** A method of storing data on a hard drive whereby the drive can have more sectors per track near the outside of the platter.