




# Mac OS X Server

Glossary  
For Mac OS X Server,  
Xserve, and Xsan

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# About This Glossary

This book is a compilation of terms and definitions that appear in individual guides.

This book lists all the terms that appear in the individual glossaries of guides to Mac OS X Server, Xsan, and Xserve.

## Getting Additional Information

For more information, consult these resources:

Read Me documents—important updates and special information. Look for them on the server installation discs.

Mac OS X Server website ([www.apple.com/server/macosx](http://www.apple.com/server/macosx))—a gateway to extensive product and technology information.

AppleCare Knowledge Base ([kbase.info.apple.com](http://kbase.info.apple.com))—access to hundreds of articles from Apple's support organization.

Apple customer training ([train.apple.com](http://train.apple.com))—instructor-led and self-paced courses for honing your server administration skills.

Apple discussion groups ([discussions.info.apple.com](http://discussions.info.apple.com))—a way to share questions, knowledge, and advice with other administrators.

Apple mailing list directory ([www.lists.apple.com](http://www.lists.apple.com))—subscribe to mailing lists so you can communicate with other administrators using email.



**802.11b, 802.11g, 802.11n** Wireless networking protocols.

## A

**A record** The DNS address record type that translates domain names to IP (IPv4) addresses.

**AAAA record** The DNS record type that translates domain names to IPv6 addresses.

**access control** A method of controlling which computers can access a network or network services.

**access control list** See **ACL**.

**access file** A text file named `qtaccess` that contains information about users and groups who are authorized to view media in the directory in which the access file is stored.

**access privileges** See **permissions**.

**ACE** Access Control Entry. An entry within the ACL that controls access rights. See **ACL**.

**ACL** Access Control List. A list, maintained by a system, that defines the rights of users and groups to access resources on the system.

**Active Directory** The directory and authentication service of Microsoft Windows 2000 Server, Windows Server 2003, and Windows Server 2003 R2.

**active-active** Refers to two computer systems that share processing tasks to provide high performance. Compare to **active-passive**.

**active-passive** Refers to two computer systems, one of which performs tasks, the other of which acts as a backup if the first fails. Compare to **active-active**.

**address** A number or other identifier that uniquely identifies a computer on a network, a block of data stored on a disk, or a location in a computer's memory. See also **IP address**, **MAC address**.

**administrator** A user with server or directory domain administration privileges. Administrators are always members of the predefined “admin” group.

**administrator computer** A Mac OS X computer onto which you’ve installed the server administration applications from the Mac OS X Server Admin CD.

**affinity** A relationship between a folder on an Xsan volume and one of the storage pools that provide storage for the volume. The affinity guarantees that files placed in the folder are stored only on the associated storage pool. Storage pools can differ in capacity and performance, and affinities can be used to assure that data such as video, which requires high transfer speed, is stored on the fastest storage devices.

**AFP** Apple Filing Protocol. A client/server protocol used by Apple file service to share files and network services. AFP uses TCP/IP and other protocols to support communication between computers on a network.

**AFS** Andrew File System. One of several network file systems.

**aggregation** Combining similar objects or resources (such as disks or network connections) into a single logical resource in order to achieve increased performance. For example, two or more disks can be aggregated into a single logical disk to provide a single volume with increased capacity.

**AirPort Base Station** A device that wirelessly transmits a signal that can be received by wireless-equipped computers within range of the base station.

**AirPort Card** A card that provides a computer with AirPort wireless networking capability.

**AirPort Express Base Station** A version of Apple’s AirPort Base Station that also lets you play iTunes music wirelessly on your home stereo or powered speakers.

**AirPort Extreme Base Station** The later generation of Apple’s AirPort Base Station.

**AirPort Extreme Card** The later generation of Apple’s AirPort Card.

**AirPort ID** In AirPort context, used to refer to the MAC address.

**AL PA** Arbitrated Loop Physical Address. In Fibre Channel transmissions, an 8-bit value used to identify a participating device in an arbitrated loop.

**alias** Another email address at your domain that redirects incoming email to an existing user.

**allocation strategy** In Xsan, the order in which data is written to the storage pools that make up a volume. Applicable only if there’s more than one storage pool in a volume, and only if the pools are of the same class. Can be **fill**, **round robin**, or **balance**.

**alphanumeric** Containing characters that include letters, numbers, and punctuation characters (such as \_ and ?).

**Andrew File System** See **AFS**.

**announced broadcast** A method such as Automatic Unicast (Announce) that enables a broadcaster to negotiate with a server to accept a broadcast.

**Apache** An open source HTTP server integrated into Mac OS X Server. You can find detailed information about Apache at [www.apache.org](http://www.apache.org).

**APOP authentication** An extension to the POP3 mail protocol. It ensures that the username and password are encrypted before being used to authenticate to a mail server.

**Apple Drive Module** Removable disk drive used in Xserve, Xserve RAID, and other Apple products.

**Apple Filing Protocol** See **AFP**.

**AppleScript** A scripting language with English-like syntax, used to write script files that can control your computer. AppleScript is part of the Mac operating system and is included on every Macintosh.

**application server** Software that runs and manages other applications, usually web applications, that are accessed using a web browser. The managed applications reside on the same computer where the application server runs.

**arbitrated loop** A Fibre Channel topology in which each port is connected to the next, forming a loop. This topology can't be used with Xsan. See also **fabric**, **point-to-point**.

**Arbitrated Loop Physical Address** See **AL PA**.

**array** A storage array, or disk array.

**ASCII text file** A text file containing only ASCII characters. More commonly (in the U.S.), a file containing text that's printable, viewable, and has no "binary" (non-ASCII) characters.

**attribute** A named data item containing a specific type of information and belonging to an entry (record or object) in a directory domain. The actual data that an attribute contains is its value.

**Audio Video Interleave** See **AVI**.

**authentication** The process of proving a user's identity, typically by validating a user name and password. Usually authentication occurs before an authorization process determines the user's level of access to a resource. For example, file service authorizes full access to folders and files that an authenticated user owns.

**authentication authority attribute** A value that identifies the password validation scheme specified for a user and provides additional information as required.

**authorization** The process by which a service determines whether it should grant a user access to a resource and how much access the service should allow the user to have. Usually authorization occurs after an authentication process proves the user's identity. For example, file service authorizes full access to folders and files that an authenticated user owns.

**automatic backup** A backup triggered by an event (such as a scheduled time, or the exceeding of a storage limit) rather than by a human action.

**automatic failover** Failover that occurs without human intervention.

**Automatic Unicast (Announce)** A method of delivering a broadcast to a streaming server in which an SDP file is automatically copied and kept current on the server. A broadcast user name and password must be created before starting such a broadcast.

**automount** To make a share point appear automatically on a client computer. See also **mount**.

**availability** The amount of time that a system is available during those time periods when it's expected to be available. See also **high availability**.

**AVI** Audio Video Interleave. A Windows video file format.

## B

**back up (verb)** The act of creating a backup.

**backup (noun)** A collection of data that's stored for the purpose of recovery in case the original copy of data is lost or becomes inaccessible.

**balance** An Xsan storage pool allocation strategy. Before allocating space on a volume consisting of more than one storage pool, Xsan checks available storage on all pools, and then uses the one with the most free space.

**bandwidth** The capacity of a network connection, measured in bits or bytes per second, for carrying data.

**Berkeley Internet Name Domain** See **BIND**.

**Berkeley Software Distribution** See **BSD**.

**BIND** Berkeley Internet Name Domain. The program included with Mac OS X Server that implements DNS. The program is also called the name daemon, or named, when the program is running.

**binding** A connection between a computer and a directory domain for the purpose of getting identification, authorization, and other administrative data. Also, the process of making such a connection. See also **trusted binding**.

**biometrics** A technology that authenticates a person's identity based on unique physiological or behavioral characteristics. Provides an additional factor to authentication. See **two-factor authentication**.

**bit** A single piece of information, with a value of either 0 or 1.

**bit rate** The speed at which bits are transmitted over a network, usually expressed in bits per second.

**block** A chunk of data of a certain size that's written to and read from a disk.

**block allocation size** An Xsan volume property. The smallest number of bytes that can be reserved on, written to, or read from an Xsan volume.

**blog** A webpage that presents chronologically ordered entries. Often used as an electronic journal or newsletter.

**blogger** Someone who publishes information using a blog.

**Bonjour** A protocol developed by Apple for automatic discovery of computers, devices, and services on IP networks. Formerly called Rendezvous, this proposed Internet standard protocol is sometimes referred to as ZeroConf or multicast DNS.

**boot ROM** Low-level instructions used by a computer in the first stages of starting up.

**BootP** An older method of allocating IP addresses to clients on a network See also **DHCP**.

**bridge** A computer networking device that connects two types of networking media, such as wireless and ethernet. It acts like a gateway by passing network traffic directly to the destination media without routing it or altering it in any way. Both sides of the network bridge need to have the same IP address subnet. It links small related network segments in a simple manner.

**broadcast** In a general networking context, the transmission of a message or data that any client on the network can read. Broadcast can be contrasted with unicast (sending a message to a specific computer) and multicast (sending a message to a select subset of computers). In QuickTime Streaming Server, the process of transmitting one copy of a stream over the whole network.

**broadcast user** A user who has permission to broadcast to the streaming server. The broadcast user name and password are set in the General Settings pane of Streaming Server Admin and are used in conjunction with announced broadcasts. It isn't necessary to create a broadcast user for UDP broadcasts.

**browser plug-in** Software that you attach to a browser to enable it to display specific data formats.

**BSD** Berkeley Software Distribution. A version of UNIX on which Mac OS X software is based.

**buffer caching** Holding data in memory so that it can be accessed more quickly than if it were repeatedly read from disk.

**byte** A basic unit of measure for data, equal to eight bits (or binary digits).

## C

**cache** A portion of memory or an area on a hard disk that stores frequently accessed data in order to speed up processing times. Read cache holds data in case it's requested by a client; write cache holds data written by a client until it can be stored on disk. See also **buffer caching**, **controller cache**, **disk cache**.

**canonical name** The "real" name of a server when you've given it a "nickname" or alias. For example, mail.apple.com might have a canonical name of MailSrv473.apple.com.

**cascading** The process of connecting two or more Fibre Channel hubs or switches together to increase the number of ports or extend distances.

**CAT** Stands for category, as in CAT 5 Ethernet cable.

**category** See **CAT**.

**certificate** Sometimes called an "identity certificate" or "public key certificate." A file in a specific format (Mac OS X Server uses the X.509 format) that contains the public key half of a public-private keypair, the user's identity information such as name and contact information, and the digital signature of either a **Certificate Authority (CA)** or the key user.

**Certificate Authority** An authority that issues and manages digital certificates in order to ensure secure transmission of data on a public network. See also **certificate**, **public key infrastructure**.

**certification authority** See **Certificate Authority**.

**CGI** Common Gateway Interface. A script or program that adds dynamic functions to a website. A CGI sends information back and forth between a website and an application that provides a service for the site.

**Challenge Handshake Authentication Protocol** See **CHAP**.

**CHAP** Challenge Handshake Authentication Protocol. A common authentication protocol. See also **MS-CHAP**.

**character** A synonym for **byte**.

**chatting** See **instant messaging**.

**child** A computer that gets configuration information from the shared directory domain of a parent.

**chunk** Synonym for **stripe element**.

**class** See **object class**.

**cleartext** Data that hasn't been encrypted.

**client** A computer (or a user of the computer) that requests data or services from another computer, or server.

**cluster** A collection of computers interconnected in order to improve reliability, availability, and performance. Clustered computers often run special software to coordinate the computers' activities. See also **computational cluster**.

**cluster file system** Differs from a regular file system such as HFS+ by allowing multiple systems to simultaneously access the same disk drives. (Network file systems such as NFS, AFP, and SMB provide shared access from multiple clients, but all communicate through a single server.)

**code page** Defines extensions to the character set for Microsoft Windows. The base character set, defined by the American Standard Code for Information Interchange (ASCII), maps letters of the Latin alphabet, numerals, punctuation, and control characters to the numbers 0 through 127. The code page maps additional characters, such as accented letters for a particular language and symbols, to the numbers 128 through 255.

**codec** Any technology for compressing and decompressing data. Codecs can be implemented in software, hardware, or a combination of both.

**command line** The text you type at a shell prompt when using a command-line interface.

**command-line interface** A way of interacting with the computer (for example, to run programs or modify file system permissions) by entering text commands at a shell prompt. See also **shell, shell prompt**.

**Common Gateway Interface** See **CGI**.

**Common UNIX Printing System** See **CUPS**.

**computational cluster** A group of computers or servers that are grouped together to share the processing of a task at a high level of performance. A computational cluster can perform larger tasks than a single computer would be able to complete, and such a grouping of computers (or “nodes”) can achieve high performance comparable to a supercomputer.

**computer account** A computer account stores data that allows Mac OS X Server to identify and manage an individual computer. You create a computer account for each computer that you intend to add to a computer group. See also **computer group**.

**computer group** A set of computers and computer groups, which all receive the managed preference settings defined for the group. New in Mac OS X Server version 10.5. See also **computer list**.

**computer list** A set of computers that all receive the managed preference settings defined for the list, and that are all available to a particular set of users and groups. A computer can be a member of only one computer list. Computer lists are created in Mac OS X Server version 10.4 or earlier. See also **computer group**.

**computer name** The default name used for SLP and SMB service registrations. The Network Browser in the Finder uses SLP to find computers advertising Personal File Sharing and Windows File Sharing. It can be set to bridge subnets depending on the network router settings. When you turn on Personal File Sharing, users see the computer name in the Connect to Server dialog in the Finder. Initially it is “<first created user>’s Computer” (for example, “John’s Computer”) but can be changed to anything. The computer name is used for browsing for network file servers, print queues, Bluetooth® discovery, Apple Remote Desktop clients, and any other network resource that identifies computers by computer name rather than network address. The computer name is also the basis for the default local host name.

**Computer-to-Computer network** A wireless network created directly between two computers.

**Concurrent Versions System** See **CVS**.

**controller** In an Xsan storage area network, short for metadata controller. In RAID systems, controller refers to hardware that manages the reading and writing of data. By segmenting and writing or reading data on multiple drives simultaneously, the RAID controller achieves fast and highly efficient storage and access. See also **metadata controller**.

**controller cache** A cache that resides within a controller and whose primary purpose is to improve disk performance.

**cracker** A malicious user who tries to gain unauthorized access to a computer system in order to disrupt computers and networks or steal information. Compare to **hacker**.

**crypt password** A type of password that's stored as a hash (using the standard UNIX encryption algorithm) directly in a user record.

**CUPS** Common UNIX Printing System. A cross-platform printing facility based on the Internet Printing Protocol (IPP). The Mac OS X Print Center, its underlying print system, and the Mac OS X Server print service are based on CUPS. For more information, visit [www.cups.org](http://www.cups.org).

**CVS** Concurrent Versions System. A programming code management system.

## D

**daemon** A program that runs in the background and provides important system services, such as processing incoming email or handling requests from the network.

**DAS** Direct attached storage. An external hard disk drive or SCSI drive that you connect to a computer.

**data rate** The amount of information transmitted per second.

**data striping** See **striping**.

**decryption** The process of retrieving encrypted data using some sort of special knowledge. See also **encryption**.

**default** The automatic action performed by a program unless the user chooses otherwise.

**degraded mode** In RAID systems, a state in which not all of the RAID array's disks are functioning, but the array as a whole can still complete operations.

**denial of service attack** See **DoS attack**.

**deploy** To place configured computer systems into a specific environment or make them available for use in that environment.

**DHCP** Dynamic Host Configuration Protocol. A protocol used to dynamically distribute IP addresses to client computers. Each time a client computer starts up, the protocol looks for a DHCP server and then requests an IP address from the DHCP server it finds. The DHCP server checks for an available IP address and sends it to the client computer along with a lease period—the length of time the client computer may use the address.

**DHCP lease time** See **lease period**.

**DHX authentication** Short for Diffie-Hellman Exchange, an authentication method used by the Apple file service of Mac OS X Server.

**Diffie-Hellman Exchange authentication** See **DHX authentication**.

**digest** A computationally efficient function mapping binary strings of arbitrary length to binary strings of some fixed length.

**Digest-MD5 authentication** An authentication method that encodes passwords when they are sent over the network and stores them in scrambled form on the server.

**digital signature** An electronic signature that can be used to verify the identity of the sender of a message.

**digital subscriber line** See **DSL**.

**digital video** See **DV**.

**Direct Attached Storage** See **DAS**.

**directory** See **folder**.

**directory domain** A specialized database that stores authoritative information about users and network resources; the information is needed by system software and applications. The database is optimized to handle many requests for information and to find and retrieve information quickly. Also called a directory node or simply a directory.

**directory domain hierarchy** A way of organizing local and shared directory domains. A hierarchy has an inverted tree structure, with a root domain at the top and local domains at the bottom.

**directory node** See **directory domain**.

**directory services** Services that provide system software and applications with uniform access to directory domains and other sources of information about users and resources.

**disc** Optical storage media, such as a CD or DVD.

**disk** A rewritable data storage device. See also **disk drive**, **logical disk**.

**disk array** A set of disks from one or more commonly accessible disk subsystems, combined with a body of control software. The control software presents the array's storage capacity to hosts as one or more logical disks.

**disk cache** A cache that resides within a disk. See also **cache**, **controller cache**.

**disk drive** A device that contains a disk and reads and writes data to the disk.

**disk image** A file that, when opened, creates an icon on a Mac OS X desktop that looks and acts like an actual disk or volume. Using NetBoot, client computers can start up over the network from a server-based disk image that contains system software. Disk image files have a filename extension of either .img or .dmg. The two image formats are similar and are represented with the same icon in the Finder. The .dmg format cannot be used on computers running Mac OS 9.

**disk striping** See **striping**.

**distinguished name** Specifies an entry (object) in an LDAP directory. Represented as a sequence of directory entries separated by commas, starting with the entry itself and followed by each entry that contains the previous entry in the sequence.

Example: "cn=users, dc=example, dc=com."

**DNS** Domain Name System. A distributed database that maps IP addresses to domain names. A DNS server, also known as a name server, keeps a list of names and the IP addresses associated with each name.

**DNS domain** A unique name of a computer used in the Domain Name System to translate IP addresses and names. Also called a **domain name**.

**DNS name** A unique name of a computer used in the Domain Name System to translate IP addresses and names. Also called a **domain name**.

**domain** Part of the domain name of a computer on the Internet. It does not include the top-level domain designator (for example, .com, .net, .us, .uk). Domain name "www.example.com" consists of the subdomain or host name "www," the domain "example," and the top-level domain "com."

**domain name** See **DNS name**.

**Domain Name System** See **DNS**.

**DoS attack** Denial of service attack. An Internet attack that uses thousands of network pings to prevent the legitimate use of a server.

**drive letter** A letter of the alphabet by which a disk or disk partition is identified in the Windows operating system.

**drop box** A shared folder with privileges that allow other users to write to, but not read, the folder's contents. Only the owner has full access. Drop boxes should be created only using AFP. When a folder is shared using AFP, the ownership of an item written to the folder is automatically transferred to the owner of the folder, thus giving the owner of a drop box full access to and control over items put into it.

**DSL** Digital subscriber line. A broadband data transmission technology that operates over telephone lines.

**DV** Digital video. A digital tape-recording format using approximately 5:1 compression to produce Betacam quality on a very small cassette.

**Dynamic Host Configuration Protocol** See **DHCP**.

**dynamic IP address** An IP address that's assigned for a limited period of time or until the client computer no longer needs it.

## E

**E\_Port** A port on a Fibre Channel switch. E\_Ports are used to link multiple Fibre Channel switches together into a fabric.

**EAP** Extensible Authentication Protocol. An authentication protocol that supports multiple authentication methods.

**EFI** Extensible Firmware Interface. Software that runs automatically when an Intel-based Macintosh first starts up. It determines the computer's hardware configuration and starts the system software.

**encryption** The process of obscuring data, making it unreadable without special knowledge. Usually done for secrecy and confidential communications. See also **decryption**.

**Enterprise mode** A mode of WPA security. See **WPA Enterprise**.

**entry** An article posted on a blog. Readers can add comments to the entry, but the content associated with the entry can be changed only by the blog owner. In an LDAP directory, an entry is a collection of attributes (data items) that has a unique distinguished name. See also **distinguished name**.

**entry** An article posted on a weblog. Readers can add comments to the entry, but the content associated with the entry can be changed only by the weblog owner. In an LDAP directory, an entry is a collection of attributes (data items) that has a unique distinguished name. See also **distinguished name**.

**Ethernet** A common local area networking technology in which data is transmitted in units called packets using protocols such as TCP/IP.

**Ethernet adapter** An adapter that connects a device to an Ethernet network. Usually called an Ethernet card or Ethernet NIC. See also **NIC**.

**Ethernet ID** See **MAC address**.

**European Broadcast Union** A Europe-based video standards organization.

**everyone** Any user who can log in to a file server: a registered user or guest, an anonymous FTP user, or a website visitor.

**export** In the Network File System (NFS), a way of sharing a folder with clients on a network.

**Extensible Authentication Protocol** See **EAP**.

**Extensible Markup Language** See **XML**.

**external account** A mobile account whose local home folder is stored on an external volume. When the user connects the external volume to a computer, the user can access the external account. When the external volume is disconnected, the user can't access the external account.

## F

**F\_Port** A port that's part of a Fibre Channel fabric. An F\_Port on a Fibre Channel fabric connects to a node's N\_Port.

**fabric** One of three physical topologies that Fibre Channel uses to interconnect nodes. See also **arbitrated loop**; **point-to-point**.

**failback** The transfer of a failed disk's share of a load to an alternate disk.

**failed over** In Xsan, a mode of operation in which a controller has failed, and a standby controller has become the active metadata controller.

**failover** In Xsan, the automatic process by which a standby metadata controller becomes the active metadata controller if the primary controller fails.

**failover priority** On a SAN with more than one controller, specifies which standby controller to try first during failover.

**Fast Ethernet** A group of Ethernet standards in which data is transmitted at 100 megabits per second (Mbit/s).

**fault tolerance** The ability of a system to continue to perform its function when one or more of its components has failed.

**FCP** Fibre Channel Protocol. The serial SCSI command protocol used on Fibre Channel networks.

**Fibre Channel** The architecture on which most SAN implementations are built. Fibre Channel is a technology standard that allows data to be transferred from one network node to another at very high speeds.

**Fibre Channel Arbitrated Loop** See **arbitrated loop**.

**Fibre Channel card** An adapter that connects a device to a Fibre Channel network.

**Fibre Channel Protocol** See **FCP**.

**Fibre Channel topology** See **topology**.

**file package** A folder presented to the user as a file. See also **installer package**, **metapackage**.

**file server** A computer that serves files to clients. A file server may be a general-purpose computer that's capable of hosting additional applications or a computer capable only of serving files.

**file system** A scheme for storing data on storage devices that allows applications to read and write files without having to deal with lower-level details.

**file system server** See **FSS**.

**file system virtualization** The aggregation of multiple file systems into one logical file system that appears to users as a single file system. See also **virtualization**.

**File Transfer Protocol** See **FTP**.

**file virtualization** The use of virtualization to present multiple file or directory objects as a single file.

**fill** An Xsan storage pool allocation strategy. In a volume consisting of more than one storage pool, Xsan fills up the first pool before writing to the next.

**filter** A screening method to control access to a server. A filter is made up of an IP address and a subnet mask, and sometimes a port number and access type. The IP address and the subnet mask determine the range of IP addresses that the filter applies to.

**firewall** Software that protects the network applications running on your server. IP firewall service, which is part of Mac OS X Server software, scans incoming IP packets and rejects or accepts these packets based on a set of filters you create.

**FireWire** A hardware technology for exchanging data with peripheral devices, defined by IEEE Standard 1394.

**firmware** Software that's stored in read-only memory (ROM) on a device and helps in starting up and operating the device. Firmware allows for certain changes to be made to a device without changing the actual hardware of the device.

**folder** Also known as a directory. A hierarchically organized list of files and/or other folders.

**format (verb)** In general, to prepare a disk for use by a particular file system.

**forward zone** The DNS zone that holds no records of its own, but forwards DNS queries to another zone.

**frame** In QuickTime streaming, a single image in a movie or sequence of images.

**frame rate** In a movie, the number of frames per second.

**FSS** File system server. The StorNext File System term for the computer that manages metadata in a storage area network (SAN). In Xsan, this is called a metadata controller.

**FTP** File Transfer Protocol. A protocol that allows computers to transfer files over a network. FTP clients using any operating system that supports FTP can connect to a file server and download files, depending on their access privileges. Most Internet browsers and a number of freeware applications can be used to access an FTP server.

**full name** See **long name**.

## G

**gateway** A network node that interfaces one network to another. Often, it refers to a computer that links a private LAN to a public WAN, with or without Network Address Translation (NAT). A router is a special kind of gateway that links related network segments.

**GB** Gigabyte. 1,073,741,824 (2<sup>30</sup>) bytes.

**Gigabit Ethernet** A group of Ethernet standards in which data is transmitted at 1 gigabit per second (Gbit/s). Abbreviated GbE.

**gigabyte** See **GB**.

**globally unique identifier** See **GUID**.

**group** A collection of users who have similar needs. Groups simplify the administration of shared resources.

**group folder** A folder that organizes documents and applications of special interest to group members and allows group members to pass information among themselves.

**guest computer** A computer that doesn't have a computer account.

**guest user** A user who can log in to your server without a user name or password.

**GUID** Globally unique identifier. A hexadecimal string that uniquely identifies a user account, group account, or computer list. Also used to provide user and group identity for access control list (ACL) permissions, and to associate particular users with group and nested group memberships. GUIDs are 128-bit values, which makes the generation of duplicate GUIDs extremely unlikely.

## H

**hacker** An individual who enjoys programming, and explores ways to program new features and expand the capabilities of a computer system. See also **cracker**.

**hard loop ID** An identifier assigned to a device in order to place it in a specific order in a loop, unlike an arbitrated loop in which devices are placed in random order.

**hash (noun)** A scrambled, or encrypted, form of a password or other text.

**HBA** Host bus adapter. An adapter card that you install in a computer so it can communicate with an external device using a specialized interface. Commonly used to refer to a Fibre Channel interface card such as the Apple Fibre Channel PCI-X and PCI-E Cards.

**HD video** High definition video.

**high availability** The ability of a system to perform its function continuously, without interruption.

**High Speed Serial Direct Connect** See **HSSDC**.

**hinting** A process that creates a track for each streamable media track in the file that tells QuickTime Streaming Server how and when to deliver each frame of media. The hinting process performs the required calculations in advance, allowing QTSS to serve up a larger number of streams. Hinting also allows new codecs to be used without the need to upgrade the server.

**home directory** See **home folder**.

**home folder** A folder for a user's personal use. Mac OS X also uses the home folder to store system preferences and managed user settings for Mac OS X users. Also known as a home directory.

**host** Another name for a server.

**host bus adapter** See **HBA**.

**host name** A unique name for a computer, historically referred to as the UNIX hostname.

**hot spare** A spare disk that's running and ready to be written to, and that a RAID system can use instantly in place of a failed disk.

**HSSDC** High Speed Serial Direct Connect. A type of connector used on Fibre Channel optical cables.

**HTML** Hypertext Markup Language. The set of symbols or codes inserted in a file to be displayed on a web browser page. The markup tells the web browser how to display a webpage's words and images for the user.

**HTTP** Hypertext Transfer Protocol. The client/server protocol for the World Wide Web. HTTP provides a way for a web browser to access a web server and request hypermedia documents created using HTML.

**Hypertext Markup Language** See **HTML**.

**Hypertext Transfer Protocol** See **HTTP**.

## I

**IANA** Internet Assigned Numbers Authority. An organization responsible for allocating IP addresses, assigning protocol parameters, and managing domain names.

**iChat** The Mac OS X instant messaging application.

**iChat service** The Mac OS X Server service that hosts secure chats. iChat service uses Open Directory authentication to verify the identity of chatters and SSL to protect the privacy of users while they chat.

**ICMP** Internet Control Message Protocol. A message control and error-reporting protocol used between host servers and gateways. For example, some Internet software applications use ICMP to send a packet on a round trip between two hosts to determine round-trip times and discover problems on the network.

**identity certificate** See **certificate**.

**idle user** A user who is connected to a server but hasn't used the server volume for a period of time.

**IEEE** Institute of Electrical and Electronics Engineers, Inc. An organization dedicated to promoting standards in computing and electrical engineering.

**IGMP** Internet Group Management Protocol. An Internet protocol used by hosts and routers to send packets to lists of hosts that want to participate in a process known as multicasting. QuickTime Streaming Server (QTSS) uses multicast addressing, as does Service Location Protocol (SLP).

**image** See **disk image**.

**IMAP** Internet Message Access Protocol. A client-server mail protocol that allows users to store their mail on the mail server rather than downloading it to the local computer. Mail remains on the server until the user deletes it.

**in-band** Refers to a network in which both management signals and data travel over the same communication path, using the same protocol. Compare to **out-of-band**.

**Information Technology** See **IT**.

**initialize** To prepare a disk for use by a particular file system. In Xsan, to prepare a RAID array for use in a storage pool.

**inode** A data structure in a file system that identifies the location of, and other information about, an object (such as a file or folder) within the file system.

**installer package** A file package with the filename extension .pkg. An installer package contains resources for installing an application, including the file archive, Read Me and licensing documents, and installer scripts.

**instant messaging** Live interactions in which two or more computer users exchange text messages, pictures, audio, or video in real time. Often called chatting because of its spontaneous, conversation-like qualities.

**Instant On** In QuickTime streaming, an advance in Apple's Skip Protection technology that dramatically reduces buffer, or wait, time for an instantaneous viewing experience with streaming video on a broadband connection.

**Institute of Electrical and Electronics Engineers, Inc.** See **IEEE**.

**interference robustness** The ability of a wireless device to resist interference from other objects (such as microwave ovens, cordless phones, and so on).

**International Standards Organization** See **ISO**.

**Internet** A set of interconnected computer networks communicating through a common protocol (TCP/IP). The Internet is the most extensive publicly accessible system of interconnected computer networks in the world.

**Internet Assigned Numbers Authority** See IANA.

**Internet Control Message Protocol** See ICMP.

**Internet Group Management Protocol** See IGMP.

**Internet Message Access Protocol** See IMAP.

**Internet Printing Protocol** See IPP.

**Internet Protocol** See IP.

**Internet service provider** See ISP.

**Internet sharing** The capability built into Mac OS X for sharing an individual computer's Internet connection.

**intranet** A network of computers operated by and for the benefit of an organization's internal users. Access is commonly restricted to members of the organization. Many times, it refers to a website for the organization which is accessible only from within the organization. Intranets use the same networking technologies as the Internet (TCP/IP), and sometimes bridge legacy information systems with modern networking technologies.

**IP** Internet Protocol. Also known as IPv4. A method used with Transmission Control Protocol (TCP) to send data between computers over a local network or the Internet. IP delivers data packets and TCP keeps track of data packets.

**IP address** A unique numeric address that identifies a computer on the Internet.

**IP subnet** A portion of an IP network, which may be a physically independent network segment, that shares a network address with other portions of the network and is identified by a subnet number.

**IPP** Internet Printing Protocol. A client-server protocol for printing over the Internet. The Mac OS X printing infrastructure and the Mac OS X Server print service that's built on it support IPP.

**IPSec** A security addition to IP. A protocol that provides data transmission security for L2TP VPN connections. IPSec acts at the network layer, protecting and authenticating IP packets between participating IPSec nodes.

**IPv4** See IP.

**IPv6** Internet Protocol version 6. The next-generation communication protocol to replace IP (also known as IPv4). IPv6 allows a greater number of network addresses and can reduce routing loads across the Internet.

**ISO** International Standards Organization. The international standards body. ISO-published standards have the status of international treaties.

**ISP** Internet service provider. A business that sells Internet access and often provides web hosting for e-commerce applications as well as mail services.

**IT** Information Technology. All aspects of information creation, access, use, storage, transport, and management. The term information technology addresses all aspects of computer and storage systems, networks, users, and software in an enterprise.

## J

**Jabber/XMPP** The open source protocol used by the jabberd project to provide communication with clients running on a variety of different operating systems. iChat service supports the Jabber/XMPP protocol.

**JavaScript** A scripting language used to add interactivity to webpages.

**JBOD** Just a Bunch Of Disks. An acronym used to refer to a group of physical disks. Compare to RAID array.

**JBoss** A full-featured Java application server that provides support for Java 2 Platform, Enterprise Edition (J2EE) applications.

**journal data** In Xsan, data about file system transactions that occur on an Xsan volume.

## K

**KB** Kilobyte. 1,024 (2<sup>10</sup>) bytes.

**KDC** Kerberos Key Distribution Center. A trusted server that issues Kerberos tickets.

**Kerberos** A secure network authentication system. Kerberos uses tickets, which are issued for a specific user, service, and period of time. After a user is authenticated, it's possible to access additional services without retyping a password (called single sign-on) for services that have been configured to take Kerberos tickets. Mac OS X Server uses Kerberos v5.

**Kerberos Key Distribution Center** See **KDC**.

**Kerberos realm** The authentication domain comprising the users and services that are registered with the same Kerberos server. The registered users and services trust the Kerberos server to verify each other's identities.

**kernel** The part of an operating system that handles memory management, resource allocation, and other low-level services essential to the system.

**key frame** A sample in a sequence of temporally compressed samples that doesn't rely on other samples in the sequence for any of its information. Key frames are placed into temporally compressed sequences at a frequency that's determined by the key frame rate.

**key frame rate** The frequency with which key frames are placed into temporally compressed data sequences.

**kilobyte** See **KB**.

## L

**L2TP** Layer Two Tunneling Protocol. A network transport protocol used for VPN connections. It's essentially a combination of Cisco's L2F and PPTP. L2TP itself isn't an encryption protocol, so it uses IPSec for packet encryption.

**L\_Port** A port used to connect a node to a Fibre Channel arbitrated loop.

**label (noun)** In Xsan, an identifying name for a LUN. You assign a label to the LUN while setting up an Xsan storage pool.

**label (verb)** Used by some sources (such as ADIC) to refer to the process of preparing a logical disk for use with a file system. In Xsan, however, *initialize* is used to refer to preparing a disk for use in a storage pool.

**LAN** Local area network. A network maintained within a facility, as opposed to a WAN (wide area network) that links geographically separated facilities.

**LAN Manager authentication** An authentication method required for some Windows clients to access the Windows services in Mac OS X Server.

**layer** A mechanism for prioritizing the tracks in a movie or the overlapping of sprites. When QuickTime plays a movie, it displays the movie's images according to their layer. Images with lower layer numbers are displayed on top; images with higher layer numbers may be obscured by images with lower layer numbers.

**LDA** Local delivery agent. A mail service agent that transfers mail messages from incoming mail storage to the email recipient's inbox. The LDA is responsible for handling local delivery of messages and for making mail accessible to the user's email application.

**LDAP** Lightweight Directory Access Protocol. A standard client-server protocol for accessing a directory domain.

**lease period** A limited period of time during which IP addresses are assigned. By using short leases, DHCP can reassign IP addresses on networks that have more computers than available IP addresses.

**Lightweight Directory Access Protocol** See **LDAP**.

**Line Printer Remote** See **LPR**.

**link** An active physical connection (electrical or optical) between two nodes on a network.

**link aggregation** Configuring several physical network links as a single logical link to improve the capacity and availability of network connections. With link aggregation, all ports are assigned the same ID. Compare to **multipathing**, in which each port keeps its own address.

**LIP** Loop Initialization Process. The process by which a Fibre Channel arbitrated loop network initializes when started up, or recovers after a failure occurs or a new device appears on the network.

**list administrator** A mailing list administrator. List administrators can add or remove subscribers from a mailing list and designate other list administrators. List administrators aren't necessarily local machine or domain administrators.

**load balancing** The process of distributing client computers' requests for network services across multiple servers to optimize performance.

**local area network** See **LAN**.

**local directory domain** A directory of identification, authentication, authorization, and other administrative data that's accessible only on the computer where it resides. The local directory domain isn't accessible from other computers on the network.

**local domain** A directory domain that can be accessed only by the computer it resides on.

**local home directory** See **local home folder**.

**local home folder** A home folder that resides on disk on the computer a user is logged in to. It's accessible only by logging directly in to the computer where it resides, unless you log in to the computer using SSH.

**local hostname** A name that designates a computer on a local subnet. It can be used without a global DNS system to resolve names to IP addresses. It consists of lowercase letters, numbers, or hyphens (except as the last characters), and ends with ".local" (For example, bills-computer.local). Although the default name is derived from the computer name, a user can specify this name in the Sharing pane of System Preferences. It can be changed easily, and can be used anywhere a DNS name or fully qualified domain name is used. It can only resolve on the same subnet as the computer using it.

**log in (verb)** To start a session with a computer (often by authenticating as a user with an account on the computer) in order to obtain services or access files. Note that logging in is separate from connecting, which merely entails establishing a physical link with the computer.

**logical disk** A storage device that appears to a user as a single disk for storing files, even though it might actually consist of more than one physical disk drive. An Xsan volume, for example, is a logical disk that behaves like a single disk even though it consists of multiple storage pools that are, in turn, made up of multiple LUNs, each of which contains multiple disk drives. See also **physical disk**.

**logical unit number** See **LUN**.

**long name** The long form of a user or group name. See also **user name**.

**loop** One of three physical topologies that Fibre Channel uses to interconnect nodes. In the loop topology, bandwidth is shared among all the nodes connected to the loop. See also **arbitrated loop**.

**loop initialization** See **LIP**.

**Loop Initialization Process** See **LIP**.

**LPR** Line Printer Remote. A standard protocol for printing over TCP/IP.

**LUN** Logical unit number. A SCSI identifier for a logical storage device. In Xsan, an unformatted logical storage device such as an Xserve RAID array or slice.

**LUN mapping** A way to avoid simultaneous writes to an array by assigning a specific LUN to a single host computer. LUN mapping happens at the RAID level. Compare to **LUN masking**.

**LUN masking** A way to avoid simultaneous writes to an array by hiding, or masking access to, a LUN for unwanted host computers within a specific zone. LUN masking is done at the Fibre Channel switch. Compare to **LUN mapping**.

## M

**M3U file** An audio metafile that's created using a text editor and saved to a web server. The file directs a user's web browser to an MP3 playlist residing on the same web server and opens the user's MP3 player.

**MAA** Mail access agent. A mail service that communicates with a user's email program to download mail message headers to the user's local computer.

**MAC** Media access control. See **MAC address**.

**MAC address** Media access control address. A hardware address that uniquely identifies each node on a network. For AirPort devices, the MAC address is called the AirPort ID.

**Mac OS X** The latest version of the Apple operating system. Mac OS X combines the reliability of UNIX with the ease of use of Macintosh.

**Mac OS X Server** An industrial-strength server platform that supports Mac, Windows, UNIX, and Linux clients out of the box and provides a suite of scalable workgroup and network services plus advanced remote management tools.

**mail access agent** See **MAA**.

**mail exchange record** See **MX record**.

**mail host** The computer that provides your mail service.

**mail transfer agent** See **MTA**.

**mail user agent** See **MUA**.

**mailing list** A mail service used to distribute a single email message to multiple recipients. Mailing list subscribers do not have to be mail users on your mail server. Mailing lists can be administered by someone other than a workgroup or server administrator. Mailing list subscribers can often add or remove themselves from lists.

**managed client** A user, group, or computer whose access privileges and/or preferences are under administrative control.

**managed network** The items managed clients are allowed to see when they click the Network icon in a Finder window. Administrators control this setting using Workgroup Manager. Also called a network view.

**managed preferences** System or application preferences that are under administrative control. Workgroup Manager allows administrators to control settings for certain system preferences for Mac OS X managed clients.

**management information base** See **MIB**.

**Manual Unicast** A method for transmitting a live stream to a single QuickTime Player client or to a computer running QTSS. An SDP file is usually created by the broadcaster application and then must be manually sent to the viewer or streaming server.

**master zone** The DNS zone records held by a primary DNS server. A master zone is replicated by zone transfers to slave zones on secondary DNS servers.

**MB** Megabyte. 1,048,576 (2<sup>20</sup>) bytes.

**MB/s** Abbreviation for megabytes per second.

**Mbit** Abbreviation for megabit.

**Mbit/s** Abbreviation for megabits per second.

**MBONE** Multicast backbone. A virtual network that supports IP multicasting. An MBONE network uses the same physical media as the Internet, but is designed to repackage multicast data packets so they appear to be unicast data packets.

**media** The material in a storage device on which data is recorded.

**media access control** See **MAC address**.

**megabyte** See **MB**.

**Message Integrity Check** See **MIC**.

**metadata** Information about a file system and the files it stores (for example, which disk blocks a file occupies or which blocks are available for use). In Xsan, metadata is managed by a metadata controller and exchanged over an Ethernet connection, while actual file data is transferred over a Fibre Channel connection.

**metadata controller** The computer that manages metadata in an Xsan storage area network.

**metapackage** A file package with the filename extension .mpkg. A metapackage is similar to an installer package, but contains resources for installing more than one piece of software.

**MIB** Management information base. A virtual database that allows a device to be monitored using SNMP applications.

**MIC** Message Integrity Check. A protocol that prevents an attacker from determining the encryption key used to encrypt packets on a wireless network.

**Microsoft Challenge Handshake Authentication Protocol** See **MS-CHAP**.

**MIDI** Musical Instrument Digital Interface. A standard format for exchanging music data and performance instructions among computers, synthesizers, and other electronic music devices.

**migrate** To transfer existing information, such as user and group accounts and user data, from one server or network to another server or network that's managed using different software.

**MIME** Multipurpose Internet Mail Extensions. An Internet standard for specifying how a web browser handles a file with certain characteristics. A file's suffix describes its type. You determine how the server responds when it receives files with certain suffixes. Each suffix and its associated response make up a MIME type mapping.

**mirrored** Refers to a disk array that uses RAID 1, or mirroring.

**mirroring** Writing identical copies of data to two physical drives. Mirroring protects data against loss due to disk failure, and is the simplest method of achieving data redundancy.

**mobile account** An account with both a local and a network home folder. Mobile accounts cache authentication information and managed preferences. In Mac OS X v10.4 and later, a mobile account includes a portable home directory, which is a synced subset of the local and network home folders.

**mode** A number that describes what access a file's owner, group, and others have to the file.

**modifier track** A track in a movie that modifies the data or presentation of other tracks. For example, a tween track is a modifier track.

**mount (verb)** To make a remote directory or volume available for access on a local system. In Xsan, to cause an Xsan volume to appear on a client's desktop, just like a local disk.

**mount point** In streaming, a string used to identify a live stream, which can be a relayed movie stream, a nonrelayed movie stream, or an MP3 stream. Mount points that describe live movie streams always end with a .sdp extension.

**mov** The Apple QuickTime movie file extension used to name both movie redirect files and actual QuickTime media files.

**movie** A structure of time-based data that's managed by QuickTime. A QuickTime movie may contain sound, video, animation, or a combination of data types. A QuickTime movie contains one or more tracks; each track represents a single data stream in the movie.

**MP3** MPEG layer 3. A popular format for compressing music.

**MPEG** Motion Pictures Experts Group.

**MPEG-4** An ISO standard based on the QuickTime file format that defines multimedia file and compression formats.

**MS-CHAP** Microsoft Challenge Handshake Authentication Protocol. The standard Windows authentication method for VPN. This authentication method encodes passwords when they are sent over the network and stores them in a scrambled form on the server. It offers good security during network transmission. MS-CHAP is a proprietary version of CHAP.

**MTA** Mail transfer agent. A mail service that sends outgoing mail, receives incoming mail for local recipients, and forwards incoming mail of nonlocal recipients to other MTAs.

**MUA** Mail user agent. A mail process on a user's local computer that works with the MAA to download mail messages and headers to the user's local computer. This is most commonly referred to as an email application, or email program.

**multicast** The simultaneous transmission of a message to a specific subset of computers on a network. See also **broadcast**, **unicast**. In QuickTime streaming, an efficient, one-to-many form of streaming. Users can join or leave a multicast but cannot otherwise interact with it.

**multicast backbone** See **MBONE**.

**multicast DNS** A protocol developed by Apple for automatic discovery of computers, devices, and services on IP networks. Called Bonjour (previously Rendezvous) by Apple, this proposed Internet standard protocol is sometimes referred to as ZeroConf or multicast DNS. For more information, visit [www.apple.com](http://www.apple.com) or [www.zeroconf.org](http://www.zeroconf.org). To see how this protocol is used in Mac OS X Server, see **local hostname**.

**multihoming** The ability to support multiple network connections. When more than one connection is available, Mac OS X selects the best connection according to the order specified in Network preferences.

**multipath method** An Xsan storage pool property. Specifies how Xsan uses multiple Fibre Channel paths between clients and storage. Can be set to static, which assigns each LUN in a storage pool alternately to one of the connections when the volume is mounted; or rotate, which alternates between the connections for higher performance.

**multipathing** The use of multiple Fibre Channel connections between a client and storage devices on a storage area network. See also **multipath method**.

**Multipurpose Internet Mail Extensions** See **MIME**.

**Musical Instrument Digital Interface** See **MIDI**.

**mutual authentication** Also known as two-way authentication. A type of authentication in which two parties authenticate with each other. For example, a client or user verifies their identity to a server, and that server confirms its identity to the client or user. Each side has the other's authenticated identity.

**MX record** Mail exchange record. An entry in a DNS table that specifies which computer manages mail for an Internet domain. When a mail server has mail to deliver to an Internet domain, the mail server requests the MX record for the domain. The server sends the mail to the computer specified in the MX record.

**MySQL** An open source relational database management tool frequently used by web servers.

## N

**N\_Port** In Fibre Channel networking, a port that connects a node to a fabric or to another node.

**name server** A server on a network that keeps a list of names and the IP addresses associated with each name. See also **DNS**, **WINS**.

**NAS** Network attached storage. Storage elements that connect to a network and provide file services to clients.

**NAT** Network address translation. A method of connecting multiple computers to the Internet (or any other IP network) using one IP address. NAT converts the IP addresses you assign to computers on your private, internal network into one legitimate IP address for Internet communications.

**near-line storage** A class of storage in which data isn't immediately available but can be quickly obtained, often by moving data from one media to another. See also **offline**, **online**.

**nested group** A group that is a member of another group. Nested groups enable administrators to manage groups of users at a global level (to influence all members of a group) and at a smaller level (to influence only certain members of a group).

**NetBIOS** Network Basic Input/Output System. A program that allows applications on different computers to communicate within a local area network.

**NetBoot server** A Mac OS X server you've installed NetBoot software on and have configured to allow clients to start up from disk images on the server.

**NetInfo** An older Apple protocol for accessing a directory domain.

**network address translation** See **NAT**.

**network attached storage** See **NAS**.

**Network File System** See **NFS**.

**Network Image Utility** A utility provided with Mac OS X Server software that allows you to create disk images for NetBoot and Network Install services. Disk images can contain the Mac OS X operating system, applications, or both.

**network installation** The process of installing systems and software on Mac OS X client computers over the network. Software installation can occur with an administrator attending the installations or completely unattended.

**network interface** Your computer's hardware connection to a network. This includes (but isn't limited to) Ethernet connections, AirPort cards, and FireWire connections.

**network interface card** See **NIC**.

**Network Time Protocol** See **NTP**.

**network view** See **managed network**.

**NFS** Network File System. A client/server protocol that uses Internet Protocol (IP) to allow remote users to access files as though they were local. NFS exports shared volumes to computers based on IP address, rather than user name and password.

**nfsd daemon** An NFS server process that runs continuously behind the scenes and processes read and write requests from clients. The more daemons that are available, the more concurrent clients can be served.

**NIC** Network interface card. An adapter that connects a computer or other device to a network. NIC is usually used to refer to adapters in Ethernet networking; in Fibre Channel networking, the interface is usually called a host bus adapter (HBA).

**node** A processing location. A node can be a computer or some other device, such as a printer. Each node has a unique network address. In Xsan, a node is any computer connected to a storage area network.

**NTP** Network Time Protocol. A network protocol used to synchronize the clocks of computers across a network to some time reference clock. NTP is used to ensure that all the computers on a network are reporting the same time.

## O

**object class** A set of rules that define similar objects in a directory domain by specifying attributes that each object must have and other attributes that each object may have.

**offline** Refers to data that isn't immediately available, or to a device that is physically connected but not available for use.

**online** Refers to data, devices, or network connections that are available for immediate use.

**Open Directory** The Apple directory services architecture, which can access authoritative information about users and network resources from directory domains that use LDAP, Active Directory protocols, BSD configuration files, and network services.

**Open Directory master** A server that provides LDAP directory service, Kerberos authentication service, and Open Directory Password Server.

**Open Directory password** A password that's stored in secure databases on the server and can be authenticated using Open Directory Password Server or Kerberos (if Kerberos is available).

**Open Directory Password Server** An authentication service that validates passwords using a variety of conventional authentication methods required by the different services of Mac OS X Server. The authentication methods include APOP, CRAM-MD5, DHX, LAN Manager, NTLMv1, NTLMv2, and WebDAV-Digest.

**open relay** A server that receives and automatically forwards mail to another server. Junk mail senders exploit open relay servers to avoid having their own mail servers blacklisted as sources of junk mail.

**Open Relay Behavior-modification System** See **ORBS**.

**open source** A term for the cooperative development of software by the Internet community. The basic principle is to involve as many people as possible in writing and debugging code by publishing the source code and encouraging the formation of a large community of developers who will submit modifications and enhancements.

**oplocks** See **opportunistic locking**.

**opportunistic locking** Also known as oplocks. A feature of Windows services that prevents users of shared files from changing the same file at the same time. Opportunistic locking locks the file or part of the file for exclusive use, but also caches the user's changes locally on the client computer for improved performance.

**Option 95** A new option in the Bootstrap Protocol (BootP) and the Dynamic Host Configuration Protocol (DHCP) that lets clients find LDAP servers, their ports, base distinguished names (DNs), and other attributes. The configuration is returned to the DHCP client as a list of LDAP URLs according to a predefined syntax.

**ORBS** Open Relay Behavior-modification System. An Internet service that blacklists mail servers known to be or suspected of being open relays for senders of junk mail. ORBS servers are also known as black hole servers.

**out-of-band** Refers to a network in which the management signals are carried on a separate path from data. For example, in an Xsan storage area network, metadata is transferred over Ethernet, and file data over a Fibre Channel fabric. Compare to in-band.

**owner** The owner of an item can change access permissions to the item. The owner may also change the group entry to any group the owner is a member of. By default, the owner has Read & Write permissions.

## P

**package install image** A file that you can use to install packages. Using NetBoot, client computers can start up over the network using this image to install software. Unlike block copy disk images, you can use same package install image for different hardware configurations.

**packet** A unit of data consisting of header, information, error detection, and trailer records. QTSS uses TCP, UDP, and IP packets to communicate with streaming clients.

**PAP** Printer Access Protocol. The standard protocol based on AppleTalk that is used on Mac OS X, Mac OS X Server, and other platforms for transmitting print job data to a printer or print server.

**parent** A computer whose shared directory domain provides configuration information to another computer.

**parity** In RAID storage, a data-protection method that provides the ability to reconstruct data. When data is protected by parity, it's still available if a drive fails. Parity protects stored information without requiring data duplication.

**partition** A subdivision of the capacity of a physical or logical disk. Partitions are made up of contiguous blocks on the disk.

**password** An alphanumeric string used to authenticate the identity of a user or to authorize access to files or services.

**password policy** A set of rules that regulate the composition and validity of a user's password.

**Password Server** See **Open Directory Password Server**.

**pathname** The location of an item within a file system, represented as a series of names separated by slashes (/).

**PDA** Personal digital assistant. A hand-held wireless device that provides personal computing and storage as well as Internet connectivity. PDAs may support date books, address books, email, data messaging, word processing, and other features.

**PDC** Primary domain controller. In Windows networking, a domain controller that has been designated as the primary authentication server for its domain.

**permissions** Settings that define the kind of access users have to shared items in a file system. You can assign four types of permissions to a share point, folder, or file: Read & Write, Read Only, Write Only, and No Access. See also **privileges**.

**personal digital assistant** See **PDA**.

**Personal mode** Refers to one of the modes of WPA security. See **WPA Personal**.

**phishing** An attempt to masquerade as a trusted organization or individual to trick others into divulging confidential information.

**PHP** PHP Hypertext Preprocessor (originally Personal Home Page). A scripting language embedded in HTML that's used to create dynamic webpages.

**physical disk** An actual, mechanical disk. Compare with **logical disk**.

**PID** Process ID. A number assigned to a UNIX process when it starts. The PID allows you to refer to the process at a later time.

**pixel** A single dot in a graphic image with a given color and brightness value.

**PKI** Public Key Infrastructure. A mechanism that allows two parties to a data transaction to authenticate each other and use encryption keys and other information in identity certificates to encrypt and decrypt messages they exchange.

**plaintext** Text that hasn't been encrypted.

**playlist** A set of media files in the QTSS media folder specified to play in order or in random sequence.

**plenum-rated** Describes items such as cables and devices that meet safety standards for being installed in air-handling spaces above a ceiling.

**PoE** Power over Ethernet. The ability of a device to receive power over an Ethernet connection.

**Point to Point Tunneling Protocol** See **PPTP**.

**point-to-point** One of three physical topologies that Fibre Channel uses to interconnect nodes. The point-to-point topology consists of a single connection between two nodes. See also **arbitrated loop, fabric**.

**pointer record** See **PTR record**.

**POP** Post Office Protocol. A protocol for retrieving incoming mail. After a user retrieves POP mail, it's stored on the user's computer and is usually deleted automatically from the mail server.

**port** A sort of virtual mail slot. A server uses port numbers to determine which application should receive data packets. Firewalls use port numbers to determine whether data packets are allowed to traverse a local network. "Port" usually refers to either a TCP or UDP port.

**port name** A unique identifier assigned to a Fibre Channel port.

**port zoning** See **zoning**.

**portable home directory** A portable home directory provides a user with both a local and network home folder. The contents of these two home folders, as well as the user's directory and authentication information, can be automatically kept in sync.

**POSIX** Portable Operating System Interface for UNIX. A family of open system standards based on UNIX, which allows applications to be written to a single target environment in which they can run unchanged on a variety of systems.

**Post Office Protocol** See **POP**.

**Postscript Printer Description file** See **PPD file**.

**power over Ethernet** See **PoE**.

**Power Sourcing Equipment** See **PSE**.

**PPD file** Postscript Printer Description file. A file that contains information about the capabilities of a particular printer model. The PPD file provides the controls you need to take advantage of special features such as multiple paper trays, special paper sizes, or duplex printing. The printer model you choose when you add a printer specifies the PPD file used with the printer.

**PPTP** Point to Point Tunneling Protocol. A network transport protocol used for VPN connections. It's the Windows standard VPN protocol and uses the user-provided password to produce an encryption key.

**predefined accounts** User accounts that are created automatically when you install Mac OS X. Some group accounts are also predefined.

**preference manifest** A file that describes the structure of and default values for an application's preferences (for example, what the various preference keys do). Workgroup Manager's preferences editor uses these files to make it easier for an administrator to edit an application's managed preferences.

**preferences cache** A storage place for computer preferences and preferences for groups associated with that computer. Cached preferences help you manage local user accounts on portable computers.

**presets** Default attributes you specify for accounts you create using Workgroup Manager. You can use presets only during account creation.

**primary domain controller** See PDC.

**primary group** A user's default group. The file system uses the ID of the primary group when a user accesses a file he or she doesn't own.

**primary group ID** A unique number that identifies a primary group.

**principal, Kerberos** The name and other identifying information of a client or service that Kerberos can authenticate. A user principal is usually a user's name or user's name and Kerberos realm. A service's principal is usually the service name, server's fully-qualified DNS name, and Kerberos realm.

**print queue** An orderly waiting area where print jobs wait until a printer is available. The print service in Mac OS X Server uses print queues on the server to facilitate management.

**Printer Access Protocol** See PAP.

**private key** One of two asymmetric keys used in a PKI security system. The private key is not distributed and is usually encrypted with a passphrase by the owner. It can digitally sign a message or certificate, claiming authenticity. It can decrypt messages encrypted with the corresponding public key and it can encrypt messages that can only be decrypted by the private key.

**private loop** A Fibre Channel arbitrated loop with no fabric attachment. Compare to **public loop**.

**privileges** The right to access restricted areas of a system or perform certain tasks (such as management tasks) in the system.

**process** A program that has started executing and has a portion of memory allocated to it.

**process ID** See PID.

**program** A set of instructions stored in a file and executed by a computer. In Mac OS X Server documentation, programs designed for client or administrator use are typically referred to as applications.

**progressive download** Movie data that's pushed via HTTP to the client. The movie can be viewed by the user as it's being transferred. This isn't a form of media streaming.

**protocol** A set of rules that determines how data is sent back and forth between two applications.

**proxy server** A server that sits between a client application, such as a web browser, and a real server. The proxy server intercepts all requests to the real server to see if it can fulfill the requests itself. If not, it forwards the request to the real server.

**PSE** Power Sourcing Equipment.

**PTR record** Pointer record. A DNS record type that translates IP (IPv4) addresses to domain names. Used in DNS reverse lookups.

**public key** One of two asymmetric keys used in a PKI security system. The public key is distributed to other communicating parties. It can encrypt messages that can be decrypted only by the holder of the corresponding private key, and it can verify the signature on a message originating from a corresponding private key.

**public key certificate** See **certificate**.

**public key cryptography** A method of encrypting data that uses a pair of keys, one public and one private, that are obtained from a certification authority. One key is used to encrypt messages, and the other is used to decrypt them.

**public key infrastructure** A secure method of exchanging data over an unsecure public network, such as the Internet, by using public key cryptography.

**public loop** A Fibre Channel arbitrated loop with an attachment to a fabric. Compare to **private loop**.

**pull technology** The transmission of information in response to a specific request for that information. Opening a webpage in a browser is an example of pull technology. Compare to **push technology**.

**push technology** The transmission of information that hasn't been requested by the receiver. Compare to **pull technology**.

## Q

**qtaccess** The name of the plain text access file that contains information about users and groups who are authorized to view media in the folder where the access file is stored.

**QTSS** QuickTime Streaming Server. A technology that lets you deliver media over the Internet in real time.

**QTSS Publisher** An Apple application (included with Mac OS X Server) for managing QuickTime media and playlists, and preparing media for streaming and downloading.

**queue** An orderly waiting area where items wait for some type of attention from the system. See also **print queue**.

**QuickTime** A set of Macintosh system extensions or a Windows dynamic-link library that supports the composition and playing of movies.

**QuickTime Player** An application, included with the QuickTime system software, that plays QuickTime movies.

**QuickTime Pro** A version of QuickTime Player with advanced features that include editing capabilities.

**QuickTime Streaming Server** See **QTSS**.

## R

**RADIUS** Remote Authentication Dial-In User Service.

**RADIUS server** A computer on the network that provides a centralized database of authentication information for computers on the network.

**RAID** Redundant Array of Independent (or Inexpensive) Disks. A grouping of multiple physical hard disks into a disk array, which either provides high-speed access to stored data, mirrors the data so that it can be rebuilt in case of disk failure, or both. The RAID array is presented to the storage system as a single logical storage unit. See also **RAID array**, **RAID level**.

**RAID 0** A RAID scheme in which data is distributed evenly in stripes across an array of drives. RAID 0 increases the speed of data transfer, but provides no data protection.

**RAID 0+1** A combination of RAID 0 and RAID 1. This RAID scheme is created by striping data across multiple pairs of mirrored drives.

**RAID 1** A RAID scheme that creates a pair of mirrored drives with identical copies of the same data. It provides a high level of data availability.

**RAID 10** A hybrid RAID level that uses software RAID striping to stripe data across RAID 1 (or mirrored) arrays.

**RAID 3** A RAID scheme that stripes data across two or more drives and stores parity data on a dedicated drive. In the event of a disk failure, the redundant parity bits can be used to reconstruct data on any drive.

**RAID 30** A hybrid RAID level that uses software RAID striping to stripe data across RAID 3 arrays.

**RAID 5** A RAID scheme that distributes both data and parity information across an array of drives one block at a time, with each drive operating independently. This enables maximum read performance when accessing large files.

**RAID 50** A hybrid RAID level that uses software RAID striping across RAID 5 arrays.

**RAID array** A group of physical disks organized and protected by a RAID scheme and presented by RAID hardware or software as a single logical disk. In Xsan, RAID arrays appear as LUNs, which are combined to form storage pools.

**RAID level** A storage allocation scheme used for storing data on a RAID array. Specified by a number, as in RAID 3 or RAID 0+1.

**RAID set** See **RAID array**.

**RBL** Real-time black-hole list. An Internet service that blacklists mail servers known to be or suspected of being open relays for senders of junk mail.

**Real Time Streaming Protocol** See **RTSP**.

**real-time black-hole list** See **RBL**.

**Real-Time Transport Protocol** See **RTP**.

**realm** General term with multiple applications. See **WebDAV realm**, **Kerberos realm**.

**record type** A specific category of records, such as users, computers, and mounts. For each record type, a directory domain may contain any number of records.

**recursion** The process of fully resolving domain names into IP addresses. A nonrecursive DNS query allows referrals to other DNS servers to resolve the address. In general, user applications depend on the DNS server to perform this function, but other DNS servers do not have to perform a recursive query.

**redundancy** The duplication of data, or the inclusion of extra components in a system (such as additional disk drives), in order to recover data or continue the operation of the system after the failure of a system component.

**Redundant Array of Independent (or Inexpensive) Disks** See **RAID**.

**reference movie** A .mov file created using a utility program like MakeRefMovie-X, available at no cost from Apple. The file contains the location of a streaming media file and can also contain the locations of multiple streaming files. A reference file linked from a webpage, for example, can direct a client player to the on-demand presentation encoded for its particular connection speed.

**reflected stream** A live broadcast delivered as a unicast stream. Movie and MP4 playlists also generate reflected streams.

**relay** In QuickTime Streaming Server, a relay receives an incoming stream and then forwards that stream to one or more streaming servers. Relays can reduce Internet bandwidth consumption and are useful for broadcasts with numerous viewers in different locations. In Internet mail terms, a relay is a mail SMTP server that sends incoming mail to another SMTP server, but not to its final destination.

**relay point** See **open relay**.

**relayed stream** A stream that's passed from one server to one or more other servers. Relays can also be used to generate a multicast stream. QTSS doesn't support relaying of MP3 streams.

**removable media** Storage media (such as optical discs, removable hard disks, or other magnetic disks) that can be removed from a computer and easily transported.

**Rendezvous** See **Bonjour**.

**replication** The creation of duplicate copies of a directory domain in order to improve performance or ensure uninterrupted network services in the event of a system failure.

**rich media** Media that has been enhanced with animation or video. Mainly used to describe Internet advertising.

**roaming user profiles** The set of personal desktop and preference settings that a user makes, the Windows domain controller stores on a server, and Windows applies when the user logs in to the Windows domain from any workstation.

**rogue computer** A computer that is set up by an attacker for the purpose of infiltrating network traffic in an effort to gain unauthorized access to your network environment.

**root** An account on a system that has no protections or restrictions. System administrators use this account to make changes to the system's configuration.

**round robin** An Xsan storage pool allocation strategy. In a volume consisting of more than one storage pool, Xsan allocates space for successive writes to each available pool in turn.

**router** A computer networking device that forwards data packets toward their destinations. A router is a special form of gateway which links related network segments. In the small office or home, the term router often means an Internet gateway, often with Network Address Translation (NAT) functions. Although generally correct, the term router more properly refers to a network device with dedicated routing hardware.

**RSA** Rivest Shamir Adleman algorithm. A public key encryption method that can be used both for encrypting messages and making digital signatures.

**RSS** Really Simple Syndication. An XML format that facilitates publicizing, distributing, and gathering web-based content. When webpages publish content using RSS (known as RSS feeds), applications called RSS aggregators can discover that content. Safari has a built-in RSS aggregator that lets you organize and browse RSS feeds, including feeds generated by blogs hosted using Mac OS X Server's Web service.

**RTP** Real-Time Transport Protocol. An end-to-end network-transport protocol suitable for applications transmitting real-time data (such as audio, video, or simulation data) over multicast or unicast network services.

**RTSP** Real Time Streaming Protocol. An application-level protocol for controlling the delivery of data with real-time properties. RTSP provides an extensible framework to enable controlled, on-demand delivery of real-time data, such as audio and video. Sources of data can include both live data feeds and stored clips.

## S

**SACL** Service Access Control List. Lets you specify which users and groups have access to specific services. See **ACL**.

**Samba** Open source software that provides file, print, authentication, authorization, name resolution, and network service browsing to Windows clients using the SMB protocol.

**sample rate** The number of samples per second used for audio. Higher sample rates yield higher quality audio than lower sample rates.

**SAN** Storage area network. In general, a network whose primary purpose is the transfer of data between computer systems and storage elements and among storage elements. In Xsan, a SAN is a combination of one or more controllers, storage volumes, and storage clients.

**SASL** Simple Authentication and Security Layer. An extensible authentication scheme that allows the Open Directory Password Server to support a variety of network user authentication methods required by the different services of Mac OS X Server.

**scale** To resize (usually, to expand) a system or network in such a way that it continues to provide functions or services at the same level of performance.

**schema** The collection of attributes and record types or classes that provide a blueprint for the information in a directory domain.

**scope** A group of services. A scope can be a logical grouping of computers, such as all computers used by the production department, or a physical grouping, such as all computers located on the first floor. You can define a scope as part or all of your network.

**screen name** An instant messaging address. It may include both a user name and a chat server address.

**SCSI** Small Computer System Interface. A parallel interface that connects computers with other devices. The SCSI protocols can be used on Fibre Channel (where they are called FCP).

**SCSI 3** A more recent version of the original SCSI standard, which provides improvements such as faster data transfer and longer cables between devices.

**SD video** Standard Definition video.

**SDP** Session Description Protocol. A text file used with QuickTime Streaming Server that provides information about the format, timing, and authorship of a live streaming broadcast and gives the user's computer instructions for tuning in.

**search base** A distinguished name that identifies where to start searching for information in an LDAP directory's hierarchy of entries.

**search path** See **search policy**.

**search policy** A list of directory domains searched by a Mac OS X computer when it needs configuration information; also, the order in which domains are searched. Sometimes called a search path.

**secure hash** An algorithm that can be used to encrypt passwords used in user authentication. A secure hash, also known as a one-way hash function, generates a specific encrypted value from particular user input, but cannot be used to recreate the original password from the encrypted output. See also **hash**.

**Secure Sockets Layer** See **SSL**.

**security identifier** See **SID**.

**server** A computer that provides services (such as file service, mail service, or web service) to other computers or network devices.

**Server Message Block** See **SMB**.

**Service Location Protocol Directory Agent** See **SLP DA**.

**session** The period of time during which two programs, or two users running programs, communicate across a network. For example, when a user logs in to a file server, a session is initiated that continues until the user logs out or the session is terminated by the file service.

**Session Description Protocol** See **SDP**.

**SFP** Small Form-factor Pluggable. A type of connector used on Fibre Channel copper cables.

**shadow image** A file created by the NetBoot daemon process for each NetBoot client where applications running on the client can write temporary data.

**shadow password** A password that's stored in a secure file on the server and can be authenticated using a variety of conventional authentication methods required by the different services of Mac OS X Server. The authentication methods include APOP, CRAM-MD5, DHX, LAN Manager, NTLMv1, NTLMv2, and WebDAV-Digest.

**share** See **share point**.

**share point** A folder, hard disk (or hard disk partition), or optical disc that's accessible over the network. A share point is the point of access at the top level of a group of shared items. Share points can be shared using AFP, SMB, NFS (an export), or FTP.

**shared secret** A value defined at each node of an L2TP VPN connection that serves as the encryption key seed to negotiate authentication and data transport connections.

**shell** A program that runs other programs. You can use a shell to interact with the computer by typing commands at a shell prompt. See also **command-line interface**.

**shell prompt** A character that appears at the beginning of a line in a command-line interface and indicates that you can enter a command.

**short name** An abbreviated name for a user. The short name is used by Mac OS X for home folders, authentication, and email addresses.

**SID** Security identifier. A unique value that identifies a user, group, or computer account in a Windows NT-compatible domain.

**Simple Authentication and Security Layer** See **SASL**.

**Simple Finder** A user environment featuring panels and large icons that provide novice users with an easy-to-navigate interface. Mounted volumes or media to which users are allowed access appear in panels instead of on the standard desktop.

**Simple Mail Transfer Protocol** See **SMTP**.

**Simple Network Management Protocol** See **SNMP**.

**single sign-on** An authentication strategy that relieves users from entering a name and password separately for every network service. Mac OS X Server uses Kerberos to enable single sign-on.

**slave zone** The DNS zone records held by a secondary DNS server. A slave zone receives its data by zone transfers from the master zone on the primary DNS server.

**slice** A logical subdivision of a RAID array. Each slice is a separate LUN and appears as a separate volume on a host computer.

**SLP DA** Service Location Protocol Directory Agent. A protocol that registers services available on a network and gives users easy access to them. When a service is added to the network, the service uses SLP to register itself on the network. SLP DA uses a centralized repository for registered network services.

**Small Computer System Interface** See **SCSI**.

**Small Form-factor Pluggable** See **SFP**.

**smart card** A portable security device that contains a microprocessor. The smart card's microprocessor and its reader use a mutual identification protocol to identify each other before releasing information. The smart card is capable of securely storing passwords, certificates, and keys.

**SMB** Server Message Block. A protocol that allows client computers to access files and network services. It can be used over TCP/IP, the Internet, and other network protocols. SMB services use SMB to provide access to servers, printers, and other network resources.

**SMTP** Simple Mail Transfer Protocol. A protocol used to send and transfer mail. Its ability to queue incoming messages is limited, so SMTP is usually used only to send mail, and POP or IMAP is used to receive mail.

**SNMP** Simple Network Management Protocol. A set of standard protocols used to manage and monitor multiplatform computer network devices.

**SO/HO** Small Office/Home Office network.

**spam** Unsolicited email; junk mail.

**Spotlight** A comprehensive search engine that searches across your documents, images, movies, PDF, email, calendar events, and system preferences. It can find something by its text content, filename, or information associated with it.

**sprite** An animated image that's managed by QuickTime. A sprite is defined once and is then animated by commands that change its position or appearance.

**SSL** Secure Sockets Layer. An Internet protocol that allows you to send encrypted, authenticated information across the Internet. More recent versions of SSL are known as TLS (Transport Level Security).

**standalone server** A server that provides services on a network but doesn't get directory services from another server or provide directory services to other computers.

**Standard Definition video** See **SD video**.

**standby controller** In an Xsan storage area network, a computer that serves as a backup metadata controller if the main controller fails.

**static IP address** An IP address that's assigned to a computer or device once and is never changed.

**storage area network** See **SAN**.

**storage class** A way of ranking storage media based on the requirements of the data being stored. The more critical the data, the higher the storage class.

**storage pool** A group of logical disks that share common characteristics, such as throughput or latency, across which user data is striped. In Xsan, storage pools are combined into volumes. ADIC's StorNext File System calls this a stripe group.

**storage virtualization** Grouping physical storage devices into one logical unit of storage that can be managed from a central location and presented to clients as a single volume. See also **virtualization**.

**Stratum 1** An Internet-wide, authoritative Network Time Protocol (NTP) server that keeps track of the current UTC time. Other stratum servers are available (2, 3, and so forth); each takes its time from a lower-numbered stratum server.

**streaming** Delivery of video or audio data over a network in real time, as a stream of packets instead of a single file download.

**strict locking** A feature of Windows services that prevents users of shared files from changing the same file at the same time. With strict locking, the Windows server checks whether a file is locked and enforces file locks, rather than relying on the client application to do so.

**strip** A **stripe element**.

**stripe (noun)** A partition of a drive in a RAID array.

**stripe (verb)** To write data to successive stripes in a RAID array or LUN.

**stripe breadth** An Xsan storage pool property. The number of bytes of data, expressed as a number of file system blocks, that Xsan writes to a LUN in a storage pool before moving to the next LUN in the pool.

**stripe element** A single portion of a stripe that's located on a specific disk in a disk array. Also called a **strip**.

**stripe group** The StorNext File System term for an Xsan storage pool.

**stripe size** The number of blocks in a stripe.

**striped array** A disk array on which data is striped, but not mirrored. Striped arrays provide faster performance, but do not protect against data loss.

**stripeset** A **striped array**.

**striping** A data-storage method in which drives in a RAID array are divided into partitions, or stripes, and data is written in turn to each stripe in the array.

**subdirectory** A directory within a directory.

**subdomain** Sometimes called the host name. Part of the domain name of a computer on the Internet. It does not include the domain or the top-level domain (TLD) designator (for example, .com, .net, .us, .uk). The domain name "www.example.com" consists of the subdomain "www," the domain "example," and the top-level domain "com."

**subnet** A grouping on the same network of client computers that are organized by location (for example, different floors of a building) or by usage (for example, all eighth-grade students). The use of subnets simplifies administration. See also **IP subnet**.

**subnet mask** A number used in IP networking to specify which portion of an IP address is the network number.

**suffix, search base** The distinguished name of the entry (object) that contains all other entries in an LDAP directory.

**switch** Networking hardware that connects multiple nodes (or computers) together. Switches are used in both Ethernet and Fibre Channel networking to provide fast connections between devices.

**switched** Also called switched fabric; a Fibre Channel topology. See **fabric**.

**systemless client** A computer that doesn't have an operating system installed on its local hard disk. Systemless computers can start up from a disk image on a NetBoot server.

## T

**TB** Terabyte. 1,099,511,627,776 (2<sup>40</sup>) bytes.

**TCP** Transmission Control Protocol. A method used with the Internet Protocol (IP) to send data in the form of message units between computers over the Internet. IP handles the actual delivery of the data, and TCP keeps track of the units of data (called packets) into which a message is divided for efficient routing through the Internet.

**temporal compression** Image compression that's performed between frames in a sequence. This compression technique takes advantage of redundancy between adjacent frames in a sequence to reduce the amount of data that's required to accurately represent each frame in the sequence. Sequences that have been temporally compressed typically contain key frames at regular intervals.

**Temporal Key Integrity Protocol** See **TKIP**.

**terabyte** See **TB**.

**theme** A stylesheet that controls the appearance of blogs hosted by Weblog service.

**throughput** The rate at which a computer can process data.

**ticket, Kerberos** A temporary credential that proves a Kerberos client's identity to a service.

**ticket-granting ticket** A special Kerberos ticket that enables a client to obtain tickets for services within the same realm. A client gets a ticket-granting ticket by proving identity, for example by entering a valid name and password during login.

**time server** A network server whose clock other computers on the network synchronize their own clocks to, so that all computers report the same time. See also **NTP**.

**time-to-live** See **TTL**.

**TKIP** Temporal Key Integrity Protocol. A data encryption technology.

**Tomcat** The official reference implementation for Java Servlet 2.2 and JavaServer Pages 1.1, two complementary technologies developed under the Java Community Process.

**topology** The type and layout of connections among devices in a network. Fibre Channel, for example, supports **point-to-point**, **arbitrated loop**, and **fabric** topologies.

**track** A QuickTime data structure that represents a single data stream in a QuickTime movie. A movie may contain one or more tracks. Each track is independent of other tracks in the movie and represents its own data stream.

**trackback** An electronic link between two blog entries. A blogger would use a trackback to respond or refer to another blogger's entry. To create a trackback, a blogger posts an entry on his or her blog and includes in it a link to the other blogger's entry. When you read the other blogger's entry, you can view the contents of the entry that created the trackback and click a link that takes you to the blog on which that entry is posted.

**Transmission Control Protocol** See **TCP**.

**trusted binding** A mutually authenticated connection between a computer and a directory domain. The computer provides credentials to prove its identity, and the directory domain provides credentials to prove its authenticity.

**TTL** Time-to-live. The specified length of time that DNS information is stored in a cache. When a domain name–IP address pair has been cached longer than the TTL value, the entry is deleted from the name server's cache (but not from the primary DNS server).

**tunneling** A technology that allows one network protocol to send its data using the format of another protocol.

**tween track** A track that modifies the display of other tracks.

**two-factor authentication** A process that authenticates through a combination of two independent factors: something you know (such as a password), something you have (such as a smart card), or something you are (such as a biometric factor). This is more secure than authentication that uses only one factor, typically a password.

**TXT record** Text record. A DNS record type that stores a text string for a response to a DNS query.

## U

**UCE** Unsolicited commercial email. See **spam**.

**UDP** User Datagram Protocol. A communications method that uses the Internet Protocol (IP) to send a data unit (called a datagram) from one computer to another on a network. Network applications that have very small data units to exchange may use UDP rather than TCP.

**UID** User ID. A number that uniquely identifies a user within a file system. Mac OS X computers use the UID to keep track of a user's folder and file ownership.

**unicast** The transmission of data to a single recipient or client. If a movie is unicast to a user using RSTP, the user can move freely from point to point in an on-demand movie.

**Unicode** A standard that assigns a unique number to every character, regardless of language or the operating system used to display the language.

**Uniform Resource Locator** See **URL**.

**Universal Serial Bus** See **USB**.

**universal time coordinated** See **UTC**.

**upgrade install** An installation that upgrades a previous version of the same software.

**upgrading** Updating software to a more recent version.

**URL** Uniform Resource Locator. The address of a computer, file, or resource that can be accessed on a local network or the Internet. The URL is made up of the name of the protocol needed to access the resource, a domain name that identifies a specific computer on the Internet, and a hierarchical description of a file location on the computer.

**USB** Universal Serial Bus. A standard for communicating between a computer and external peripherals using an inexpensive direct-connect cable.

**User Datagram Protocol** See **UDP**.

**user ID** See **UID**.

**user name** The long name for a user, sometimes referred to as the user's real name. See also **short name**.

**user profile** The set of personal desktop and preference settings that Windows saves for a user and applies each time the user logs in.

**UTC** Universal time coordinated. A standard reference time. UTC is based on an atomic resonance, and clocks that run according to UTC are often called atomic clocks.

## V

**variable bit rate** See **VBR**.

**VBR** Variable bit rate. A method of compressing data that takes advantage of changes in the media's data rate.

**virtual disk** See **logical disk**.

**virtual domain** Another domain that can be used in email addresses for your mail users. Also, a list of all the domain names for which your mail server is responsible.

**Virtual Private Network** See **VPN**.

**virtual user** An alternate email address (short name) for a user. Similar to an alias, but it involves creating another user account.

**virtualization** The act of combining multiple network devices or services into what appears as a single device or service in order to provide improved performance or increased functionality, while also maintaining simplicity. See also **storage virtualization**.

**volume** A mountable allocation of storage that behaves, from the client's perspective, like a local hard disk, hard disk partition, or network volume. In Xsan, a volume consists of one or more storage pools. See also **logical disk**.

**VPN** Virtual Private Network. A network that uses encryption and other technologies to provide secure communications over a public network, typically the Internet. VPNs are generally cheaper than real private networks using private lines, but they rely on having the same encryption system at both ends. The encryption may be performed by firewall software or by routers.

## W

**WAN** Wide area network. A network maintained across geographically separated facilities, as opposed to a LAN (local area network) within a facility. Your WAN interface is usually the one connected to the Internet.

**wav** A Windows format for sound files.

**webcast** A broadcast of live video or audio on the Internet.

**WebDAV** Web-based Distributed Authoring and Versioning. A live authoring environment that allows client users to check out webpages, make changes, and then check the pages back in to the site while the site is running.

**WebDAV realm** A region of a website, usually a folder or directory, that's defined to provide access for WebDAV users and groups.

**weblog** See **blog**.

**Weblog service** The Mac OS X Server service that lets users and groups securely create and use blogs. Weblog service uses Open Directory authentication to verify the identity of blog authors and readers. If accessed using a website that's SSL enabled, Weblog service uses SSL encryption to further safeguard access to blogs.

**WEP** Wired Equivalent Privacy. A wireless networking security protocol.

**Wi-Fi Protected Access** See **WPA**.

**wide area network** See **WAN**.

**wiki** A website that allows users to collaboratively edit pages and easily access previous pages using a web browser.

**wildcard** A range of possible values for any segment of an IP address.

**Windows domain** The Windows computers on a network that share a common directory of user, group, and computer accounts for authentication and authorization. An Open Directory master can provide directory services for a Windows domain.

**Windows Internet Naming Service** See **WINS**.

**WINS** Windows Internet Naming Service. A name resolution service used by Windows computers to match client names with IP addresses. A WINS server can be located on the local network or externally on the Internet.

**Wired Equivalent Privacy** See **WEP**.

**WLAN** A wireless local area network.

**workgroup** A set of users for whom you define preferences and privileges as a group. Any preferences you define for a group are stored in the group account.

**world wide name** See **WWN**.

**Worldwide Port Name** See **WPN**.

**WPA** Wi-Fi Protected Access. A security protocol for wireless networks.

**WPA Enterprise** Used in Apple documentation to refer to the mode of WPA used in large networks (requiring a RADIUS server).

**WPA Personal** A subset of the Wi-Fi Protected Access wireless network security system. WPA is a traffic encryption system designed to work with an 802.1X authentication system. WPA-Personal is simpler than a full WPA system. It uses a single pre-shared key (also called WPA-PSK) among all the clients, and does not use 802.1X authentication. Compare **WPA Enterprise**.

**WPN** Worldwide Port Name. A unique 16-character identifier assigned to each port on a Fibre Channel card. Used in LUN mapping.

**write-back cache** A caching scheme in which the writing client is informed of write success as soon as the data is in the storage write cache, and the data is actually written to disk at a later time.

**write-through cache** A caching scheme in which the writing client isn't informed of write success until the data is actually written to disk.

**WWN** World wide name. A unique number assigned by a recognized naming authority that identifies a connection or a set of connections to the network.

## X

**XLR plug** A three-pin audio connector that can be used with three-wire balanced cables, which cause electromagnetic interference to be canceled out.

**XML** An extensible markup language, similar to HTML but more formal and more flexible.

## Z

**zone transfer** The method by which zone data is replicated among authoritative DNS servers. Slave DNS servers request zone transfers from their master servers to acquire their data.

**zoning** A method of dividing a storage area network into zones, or subsets of nodes on the network. Storage area network nodes outside a zone cannot communicate with nodes inside the zone.