Mac OS X Server FAQ

General Information

Q. What is Mac OS X Server?

A. Mac OS X Server is the first in a line of new server software products that demonstrate Apple's commitment to providing servers that meet the needs of its customers. The first release of Mac OS X Server will be available in both software and hardware configurations. It is the first product built on the core technology of Mac OS X, the desktop operating system scheduled for later in 1999. It includes innovative services such as the Apache web server, WebObjects application server, NetBoot workgroup management technology, and Apple file services.

Q. When will Mac OS X Server be available?

A. Mac OS X Server is now available in English in the U.S. and Canada. It is scheduled to be available worldwide in April in English, Japanese, French, and German.

Q. Who is the target customer for Mac OS X Server?

A. Mac OS X Server is designed for use by experienced system and network administrators, who typically have had previous experience with configuring and managing at least two of the following:

- AppleShare IP and At Ease for Workgroups
- Complicated networks, including routing between subnets
- Other UNIX servers, such as Solaris and Linux

Q. Is Mac OS X Server the same as Mac OS X?

A. No. The client (end-user) version of the Mac OS X operating system is scheduled to be available at the end of the year. While Mac OS X will include an upgraded version of the Mac OS X Server foundation, the user experience will be optimized for a desktop operating system and will be more familiar to today's Mac OS users.

Unlike Mac OS X, Mac OS X Server does not include Carbon, the technology for porting today's Mac applications to the new foundation.

Q. How does Mac OS X Server differ from AppleShare IP?

A. The two servers offer different types of services. AppleShare IP is a general-purpose server that includes a fully integrated set of services based on the familiar Mac OS 8.5 operating system, delivering high performance and exceptional ease of use. Some key services are unique to AppleShare IP, such as mail servers, SMB support, and firewalls.

Mac OS X Server provides innovative services such as an Apache web server, WebObjects network application services, and the revolutionary new NetBoot server software for easily managing numerous Mac systems. Mac OS X Server provides these services through a powerful core operating system, which features advanced capabilities such as preemptive multitasking and protected memory for incredible stability and scalability.

Q. How does Mac OS X Server provide greater scalability than AppleShare IP?

A. Mac OS X Server is scalable in four key ways:

- The core system supports over 1,000 simultaneous user connections.
- The multithreaded file system can handle over 4,000 open files per process.
- Advanced networking provides support for multiple 100-megabit-per-second network interface cards, allowing simultaneous full-bandwidth file transfers across multiple subnets.

Q. Will there be future releases of Mac OS X Server?

A. Yes. Mac OS X Server lays the foundation for Apple's future server software. Over time, it will incorporate features currently available only in AppleShare IP Mac OS X Server will evolve into a bundle of services built on top of Mac OS X, similar to the way AppleShare IP currently builds services on top of Mac OS 8.

Q. Will there be future releases of AppleShare IP?

A. Yes, but Apple is not announcing specific plans at this time. Over time, Mac OS X Server will incorporate identical or equivalent functionality to AppleShare IP, and will become Apple's sole server operating system product.

Q. Is Mac OS X Server the same as Rhapsody?

A. No. Mac OS X Server leverages a number of the technologies formerly called Rhapsody. In addition, it includes some innovative services that were not part of the original Rhapsody project.

Operating System

Q. What is the foundation for Mac OS X Server?

A. Mac OS X Server is based on a Mach microkernel that roughly corresponds to Mach 2.5. This microkernel is integrated with an implementation of BSD 4.4 to provide a full UNIX-style operating environment.

Q. Is Mac OS X Server based on UNIX?

A. Mac OS X Server is built on UNIX technologies, implementing most of the POSIX APIs, which makes it easy to port UNIX applications, particularly those from a BSD heritage. The main exception is applications with a graphical user interface, because Mac OS X Server doesn't include the X Window System UI toolkits. Mac OS X Server is built around a graphical interface, unlike traditional UNIX systems that rely on the command line. However, Mac OS X Server cannot be called a UNIX operating system, as it does not fully comply with the POSIX and X/OPEN specifications required for use of the UNIX trademark.

Q. Does Mac OS X Server use a command line interface?

A. The primary interface is a Mac-like user interface, allowing administration with graphical tools. For administrators who prefer the command line interface or make use of Telnet/rlogin for remote administration, a Terminal application and several UNIX shells are included, as well as standard tools such as NFS, FTP, Perl, Tcl, and Emacs.

Q. Does configuring Mac OS X Server require editing configuration files?

A. No. Mac OS X Server provides a friendly Setup Assistant and a rich set of graphical administration tools. Editing configuration files is not required for basic use of any of the core services. However, certain UNIX-derived services such as Apache use their existing configuration files for advanced administration.

Q. Does Mac OS X Server support remote administration?

A. Yes. There are currently several options, each suited to different purposes. Users, groups, and mountable volumes can be managed via a web-based remote-administration tool, similar to the one in AppleShare IP Configuration information can also be managed from another Mac OS X Server system via NetInfo, the built-in Network Directory Service. In addition, UNIX-savvy system administrators can enable Telnet for command line–based remote administration.

Services

Q. What are the key services provided with Mac OS X Server?

A. There are four primary services in this release of Mac OS X Server:

- Apache web server
- WebObjects network application services
- NetBoot and Macintosh Management server software for workgroup administration
- Apple file services

Q. What is Apache?

A. Apache is today's most popular web server, serving over half of the public web sites on the Internet. Apache is an open-source HTTP server developed by the Apache Group (www.apache.org). The Apache source code is freely available, making it easy for a large community to assist in fixing bugs, porting to new platforms, and customizing for special purposes.

Q. What version of Apache is included in Mac OS X Server?

A. Mac OS X Server includes Apache 1.3.4, the latest version available at the time of release. We are working with the Apache Group to ensure that future versions of Apache will compile directly on Mac OS X Server.

Q. How is Apache administered?

A. Basic administration of Apache is very simple. The Setup Assistant and control panels allow for easy on/off configuration, as well as selection of the hostname and documents directory. For advanced configuration, you can edit the same configuration files used by Apache on other platforms.

Q. What is WebObjects?

A. WebObjects is the industry's leading application server, with a flexible, scalable architecture for creating and deploying network applications. WebObjects provides a dynamic object-oriented environment for creating applications that can draw their data from a database server and run their user interface on any standard web browser. WebObjects makes it easy to develop personalized content, e-commerce solutions, and MIS applications. For more information, see www.apple.com/webobjects.

Q. Which version of WebObjects is included with Mac OS X Server?

A. Mac OS X Server includes WebObjects 4.0.1, along with a 50-transaction-per-minute deployment license. The deployment license can be used for testing or for low-volume usage, or it can be upgraded for full-scale Internet deployment. For the first release of Mac OS X Server, Apple is including all of the WebObjects developer tools. These tools can be used for compiling WebObjects network applications, database client/server applications, or UNIX server applications.

The included license covers only the tools and runtimes for Mac OS X Server. WebObjects 4.0.1 for Windows NT and UNIX platforms will continue to be available as a separate product.

Q. What is NetBoot?

A. NetBoot is a revolutionary Apple technology for managing Macintosh networks. System and user files are stored on the server, bypassing the local hard disk drive, thus making it easy to centrally administer large networks of Macintosh clients. Mac OS X Server also includes Macintosh Manager, a tool for allowing users of both NetBoot and non-NetBoot client computers to access their personal files and desktop environment from anywhere on the network.

Q. Which Apple file services are included?

A. Mac OS X Server includes a high-performance native implementation of AFP, the Apple File Protocol, allowing it to share HFS Plus volumes with any AppleShare client over TCP/IP or AppleTalk. You need to update client systems to the latest AppleShare client (version 3.8.2 or later) to ensure reliability, performance, and security. User, group, and mountable volume information can be managed remotely using a web-based remote-administration tool, similar to the one in AppleShare IP.

Q. Can I transfer my AppleShare IP user and group information to Mac OS X Server?

A. Yes. AppleShare IP includes the ability to export its user information, which can then be imported into Mac OS X Server. It does not export passwords and group information, however, so that information will need to be re-created.

Q. Does Mac OS X Server support Windows clients via SMB file sharing?

A. This version does not provide integrated support for native Windows (SMB) file sharing. However, Mac OS X Server can support Windows clients that function as AppleShare clients. Several third-party solutions should be available, including the free SAMBA server.

Q. Is QuickTime streaming available with Mac OS X Server?

A. At Macworld, Apple demonstrated the ability of Mac OS X Server to simultaneously stream 50 high-resolution QuickTime movies. This demo was intended to show the power of Mac OS X Server. A preview version of the QuickTime Streaming Server is included with Mac OS X Server. For information on the availability of compatible clients and the final version of the server, visit www.apple.com/quicktime. Mac OS X Server also supports HTTP-based streaming to QuickTime 3–equipped clients using the Apache web server.

Q. Is print spooling available?

A. Yes. Macintosh customers can use the Desktop Printer Utility LPR support to connect to a Mac OS X Server print spooler. Mac OS X Server can spool files to any PostScript-capable network printer over either AppleTalk or TCP/IP. There are also a number of third-party print-spooling products available for the publishing industry.

Q. How many clients can Mac OS X Server support?

A. The Macintosh Server G3 with Mac OS X Server configuration running a single service, if properly configured, can support:

- Millions of web transactions a day
- Approximately 50 NetBoot clients
- Over a thousand AppleShare clients
- Thousands of Macintosh Manager clients

The actual number of clients supported depends on your network environment, usage scenarios, and hardware configuration.

Q. Can Mac OS X Server run all these services at the same time?

A. Not quite. Thanks to the power of preemptive multitasking, you can efficiently run multiple services on a single server. However, this requires more memory than running a single service, and it reduces the maximum load sustainable by any given service. The exact details depend strongly on your usage patterns. More information on optimal configurations will be available in Apple's Tech Info Library at til.info.apple.com.

Q. Do all these services use the same user and group information?

A. No. Apple file services (and NFS) use the native users and groups based on NetInfo, allowing the information to be shared among computers. Macintosh Manager maintains its own user and group information, as does Apache. WebObjects applications can be designed to work with Apache users and groups, but often verify against the underlying database used by the application.

Q. Is a backup utility available with Mac OS X Server?

A. No. A native backup solution is being developed by the Omni Group and will be available free to Mac OS X Server customers at www.omnigroup.com/Software/Backup.

NetBoot

Q. What are the advantages of the NetBoot server?

A. The NetBoot server makes it easy to manage a network of Macintosh computers. With a traditional network, adding an application or changing a system component requires administrators to physically update every computer on the network. NetBoot-capable Macintosh computers—called NetBoot clients—share the same System Folder and applications stored on the NetBoot server. Updating the shared System Folder or adding an application to the server immediately updates every NetBoot client on the network. The shared system components are protected to prevent users from corrupting the system. Since new NetBoot client computers on the network don't require any configuration, adding one system or creating a new lab of computers is fast and simple. Users also have access to their applications, documents, and personal desktop environment at any Macintosh on the network.

Q. Who should use the NetBoot server?

A. The NetBoot server is designed for any organization using Macintosh computers on a network. It helps educators bring technology to the classroom with low-cost, easy-to-manage computers like the iMac. NetBoot helps educators who want to:

- Improve the student to computer ratio
- Achieve technology goals under tight fiscal constraints
- Reduce the cost of managing their computing infrastructure
- Use existing technology resources

The NetBoot server is also ideal for business customers with Macintosh networks, particularly those who want to replace data entry or editorial terminals. It allows them to reduce their computer costs through low-cost Macintosh hardware and reduced administration requirements.

Q. What components are included with the NetBoot server?

A. The NetBoot server runs on Macintosh G3 computers with the Mac OS X Server operating system. NetBoot includes:

- Three server applications: a BootP server, an AFP server, and a Macintosh Management server
- Mac OS 8.5.1 system software and accompanying applications used by the NetBoot client computers
- Two administration applications: NetBoot Desktop Admin for installing applications for use by NetBoot clients, and Macintosh Manager for administering users and groups on the network

Q. What types of Macintosh computers can I use with the NetBoot server?

A. All iMac computers and the new Power Macintosh G3 computers introduced at Macworld 1999 have the necessary hardware and firmware needed to support NetBoot. Future Macintosh computers may also be NetBoot-capable.

Q. What is Macintosh Manager, and how does it interact with At Ease for Workgroups?

A. Macintosh Manager is a technology for storing the user's computing environment on the server, so that the user can obtain his or her environment from any Macintosh on the network. This can include application preferences, desktop patterns, and fonts, depending on the level of customization allowed by the administrator. Macintosh Manager is based on, and can be considered a replacement for, At Ease for Workgroups, an earlier Apple product available only to education customers. Macintosh Manager on Mac OS X Server systems can serve both NetBoot and non-NetBoot clients, and there will be a version of Macintosh Manager for Mac OS 8.5–based servers.

Q. Can I manage non-NetBoot clients with Macintosh Manager?

A. Yes. An installer is provided that adds the necessary components to non-NetBoot Macintosh computers.

Q. Can other Mac systems be upgraded to support NetBoot?

A. No. Systems that are not NetBoot-capable can only take advantage of the file, web, and Macintosh Management services of Mac OS X Server.

Q. How does a Macintosh start up from the network?

A. At startup, the NetBoot client computer broadcasts a BootP request on the network. BootP is a standard industry protocol for allowing computers to discover information about their network settings and the location of files to execute from a network server. The NetBoot server receives the BootP request and replies to the client's request with the information needed to start up. The client uses the information to configure its network settings and begins a TFTP download of the Mac OS into RAM. The client uses this file to finish booting.

Q. How do I set up a Macintosh to start up from the server?

A. A NetBoot-capable Macintosh requires no software setup to start up from the NetBoot server. To make a Macintosh boot the first time, hold down the "N" key until the Mac OS logo appears. After the computer is booted, simply set the Startup Disk control panel to start up from the network drive. From then on, the Macintosh will boot from the network without the aid of the "N" key.

Q. What version of the Mac OS runs on a NetBoot client?

A. NetBoot clients run Mac OS 8.5.1 with some minor modifications. These modifications allow the Macintosh to operate over the network and do not affect the user experience.

Q. Do I need special applications for NetBoot client computers?

A. NetBoot clients run most Macintosh applications available today. NetBoot does not include any special provisions for software licensing. You need to work with individual vendors to ensure that you have the appropriate number of licenses required by each application used on NetBoot clients.

Q. Does a NetBoot client use its own hard disk drive?

A. The NetBoot client does not normally use its hard disk drive. The NetBoot software includes a special system extension that unmounts the local hard disk drive, making it unavailable to the user. Administrators can disable this extension and make the local drive available for use. The local drive can be used normally for storing files and applications and providing disk space for the computer's virtual memory requirements.

Q. If there is no local hard disk drive, where are files stored?

A. In the NetBoot environment, every user has a home folder. These home folders can be located on the NetBoot server or on any AppleShare server connected to the network. The user's home folder appears on the desktop whenever the user logs in. Users can access their home folders via AppleShare from any Macintosh on the network, not just from NetBoot clients.

Q. Why do users log in to their computers?

A. The NetBoot server maintains a directory of users. When users log in, the server provides them with their personal desktop and data files, no matter which computer on the network they are using. It also provides a security mechanism for protecting the network from rogue users.

Q. What are the NetBoot server requirements?

A. The NetBoot server requires Mac OS X Server software running on a Macintosh G3 computer. The minimum recommended configuration is a 5GB hard disk and 64MB of RAM. A server can support different quantities of client computers, depending on its configuration.

Q. What are the networking requirements?

A. The NetBoot server should connect to the network at no less than 100 Mbps for each connected port. NetBoot clients should also have at least 100-Mbps shared connections or 10-Mbps switched (dedicated) connections.

Q. Can NetBoot be used across the Internet?

A. No. Currently the NetBoot server is designed only for use on 100-Mbps Ethernet networks.

Q. Is Apple making "diskless" computers?

A. No. NetBoot gives users the flexibility to boot their computers from the local hard disk drive or from the NetBoot server.

Q. How does NetBoot relate to Apple Network Assistant and At Ease?

A. Apple has continually evolved Apple Network Assistant and At Ease for better system management of Macintosh clients. NetBoot takes system management one step further and introduces a new model for keeping Mac clients up to date. Many of the features in Apple Network Assistant and At Ease are incorporated in NetBoot. Apple will continue to develop these products to support Mac clients that are not NetBoot-capable.

Hardware and Compatibility

Q. What are the hardware requirements for Mac OS X Server?

A. Mac OS X Server requires a Power Macintosh G3 computer or Macintosh Server G3 with at least 64MB of memory and a 1GB hard disk drive. For heavily loaded servers, at least 128MB of RAM is recommended, and 200MB or more for multiple services. Mac OS X Server is supported only on Power Macintosh G3 and Macintosh Server G3 computers.

Q. Will Mac OS X Server be available for Intel machines?

A. Apple has no plans to provide Mac OS X Server for any architecture other than PowerPC.

Q. Does Mac OS X Server support all the Power Macintosh G3 build-to-order options?

A. No. It supports ATA and SCSI drives, Ethernet, and limited USB (for keyboard and mouse). There is currently no support for serial ports, FireWire, or LocalTalk.

Q. Does Mac OS X Server support RAID?

A. Mac OS X Server does not include RAID software. However, it is compatible with a number of Ultra2 SCSI–based RAID devices, including those from MicroNet.

Pricing and Availability

Q. What is the price of Mac OS X Server?

A. The Mac OS X Server software is $499 and is available to education customers for $249. The hardware configuration, Macintosh Server G3 with Mac OS X Server, is $4,999.

Q. What licensing do I get for that price?

A. Just about everything. You get unlimited client access (as much as your hardware can handle) for:

- Apache web server
- Apple file services
- NetBoot network startup
- Macintosh Manager (both NetBoot and non-NetBoot systems)

For WebObjects, you get a basic 50-transaction-per-minute deployment license. You can purchase WebObjects upgrade licenses through the normal Apple Enterprise Software channels. For more information, see www.apple.com/webobjects.

Q. What is included in the Macintosh Server G3 with Mac OS X Server configuration?

A. The Macintosh Server G3 with Mac OS X Server includes a 400-MHz PowerPC G3 processor with 1MB of backside cache, 256MB of high-performance PC100 SDRAM, two 9GB 10,000-rpm Ultra2 LVD SCSI hard disk drives, built-in 10/100BASE-T Ethernet connector and four-port 10/100BASE-T Ethernet PCI card, CD-ROM drive, and Mac OS X Server software (preinstalled). This hardware configuration includes an unlimited-client license for Apple file services, NetBoot clients, and Macintosh Manager clients, and a 50-transaction-per-minute deployment license for WebObjects.

Q. What build-to-order (BTO) options are available for the Macintosh Server G3 with Mac OS X Server?

A. The Macintosh Server G3 with Mac OS X Server will offer the following BTO options:

- 256MB, 384MB, 512MB, 768MB, or 1GB of PC100 SDRAM
- Two or three 9GB 10,000-rpm Ultra2 LVD SCSI hard disk drives
- One, two, or three 36GB 7,200-rpm Ultra2 LVD SCSI hard disk drives
- Dual-channel Ultra2 LVD SCSI PCI card with any hard disk drive configuration
- Ultra SCSI PCI card
- Gigabit Ethernet PCI card
- LaCie external DDS-3 tape drive

For up-to-date information about options and availability, visit www.apple.com/store.

Q. Where will the software and hardware be available?

A. They will be available through most traditional Apple channels, including the online Apple Store, Apple sales agents, and most Apple resellers.

Q. Will the products be available from Apple Enterprise Sales?

A. Yes. For this release, Mac OS X Server will be the only vehicle for purchasing WebObjects 4 for Power Macintosh systems. WebObjects deployment licenses and consulting services will continue to be available solely through Apple Enterprise Sales.

Q. Are there any upgrade or volume discounts?

A. No. This is the first in a new line of server products.

For More Information

For more information about Mac OS X Server, visit www.apple.com/macosx.

Apple Computer, Inc.

1 Infinite Loop
Cupertino, CA 95014
(408) 996-1010
www.apple.com

March 1999 L03625A