Chapter 1

Mountain Lion Server: An Overview

In This Chapter

- Answering the burning question: Why do I need a server?
- Discovering what you can do with Mountain Lion Server
- Setting up and managing with the Server application

For $20, you could buy a pair of movie tickets, or a good pizza, or a week's worth of dry cleaning.

$20 could also buy you an array of services: file sharing, calendaring, contact management, web, e-mail, instant messaging, device management, and more. The $20 Mountain Lion Server is versatile enough to support Macs, Windows PCs, and iPad, iPhone, and iPod touch devices. It will work at home as well as in a network of hundreds of devices.

Mountain Lion Server is reliable, built on the solid foundation of Unix. At the same time, it has the ease of use of a Macintosh. Anyone can set it up, get it running, and manage it. Seriously technical professionals will find tools for the kind of configuration customization that they're accustomed to.

So should you spend the $20? This chapter gives you reasons why you should. And if you already gave up a pizza for Mountain Lion Server, this chapter will help you decide what to use it for.

You now manage Mountain Lion Server almost entirely with a single tool, the Server application, as described later in the chapter. First, however, take a tour of Mountain Lion Server.

Why You Need Mountain Lion Server

You've probably discovered that you can have a small network without a server. Macs and PCs can talk to each other. Computers can share files and printers, and you may be able to use a router to share an Internet connection.

But a server enables users to collaborate in ways that aren't possible without it. A server gives you control; it centralizes data, making it easier to manage. A server provides fast access to information and collaborative tools and provides network security. It enables you to manage the computers and iPhones and iPads that are connected to it. And a server is always there when users need it.

Why you need Mountain Lion Server at home

Home use is *not* Mountain Lion Server's primary purpose, but there is certainly enough in it that justifies dedicating a Mac as a server. Here are the most common home uses of Mountain Lion Server:

- **File sharing:** Sure, you can share files without a server, but centralized storage takes shared files off your Mac and safely stores them where everyone can always get at them. Don't want your kids to get into your tax returns? You can prevent certain people from accessing private files. Mountain Lion Server also shares files with iPad, iPhone, and iPod touch devices running Apple's Keynote, Numbers, or Pages — wirelessly. You can't do that without OS X Server. Another great file-sharing feature is the capability to quickly search the server with Spotlight, which is important if you have a lot of stored files.
- **Centralized management of Macs, iPhones, iPods, and iPod touches:** OS X Server's Profile Manager lets you keep control of all your devices from a central location. You can set users' passwords and settings for network access and install software on the client computers from the server. Make changes from the server, and the new settings are pushed out to the devices automatically.
- **Automatic backups to a central location:** You don't need to remember to back up info for safekeeping. The server does it for you, and lets you restore when needed — even when you're away. You can back up Windows too, but you'll have to add software to your server Mac.
- **Secure remote access to home Macs:** Need to access information at your house while you're away? Remote access through the built-in virtual private network is simple enough to use at home.

Setting up Mountain Lion Server is more automated than ever. For home use, a quick setup procedure is all you need. I describe this process in Chapter 3. For a small business or a group in an enterprise, you can do more with Mountain Lion Server, with a little more work.

Why you need Mountain Lion Server in business and education

All the great things described in the preceding section make even more sense in business or education. For a small network, Mountain Lion Server will serve your PCs and your Macs, too. On a large network, Mac OS X will peacefully coexist with Windows servers, serving your Macs like no Windows server can.

A friend may roll his eyes and tell you that a Linux server is the only logical choice. He'll tell you that Linux is inexpensive and reliable, and that many of the servers powering the Internet are running Linux. All true, but it takes an expert to configure and maintain a Linux server. And it still doesn't support Mac clients as well as Mountain Lion Server does.

Still not convinced? Well, you probably are because you're reading this book. But maybe your boss isn't convinced. Here are some reasons why your server should be Mountain Lion Server.

The price is right

Windows and Linux servers can scale up to some very large networks, which OS X Server isn't designed to do. But Windows servers cost more than Mountain Lion Server, and Linux costs you in terms of technical expertise.

Better service for Mac clients

Mountain Lion Server supports Mac clients better than any other server. For example, Mountain Lion Server offers services specifically for the Apple software on your users' Macs and iOS devices, including Contacts and Calendar (known as Address Book and iCal on older Macs). Mountain Lion Server turns these apps into groupware and works more smoothly for the user and the administrator than other servers and Mac clients. A server version of the Mac's Spotlight makes searching the server quick and easy.

But even for generic services, such as file sharing, OS X Server supports Mac clients better than do other servers. OS X Server supports any filename that the Mac supports, and it doesn't split files into two parts or leave small, empty files on the server, which are problems that can occur when Mac clients access Windows and Linux servers.

OS X Server is also the best way to manage the settings for groups of Macs. And for public Macs, such as school computer labs, OS X is the best way to automatically keep control of what's on the Macs, including settings and software.

Support and management of iPad and iPhone devices

In a business setting, management of iOS devices — proliferating numbers of iPads and iPhones on your network — can present challenges in several ways. The more such devices and the larger the network, the higher the security risk. Mountain Lion Server provides a simple way to configure and manage iOS devices, as well as Mac clients running Mac OS X 10.7 or later.

You can also use Mountain Lion Server to integrate devices into your network directory, as well as to define management policies for iOS devices (as you can for computers, users, and groups).

Mountain Lion Server can push configuration changes, calendar invitations, and events to the devices using Apple push notification service. And the Server optimizes wikis and blogs for viewing on iOS devices.

The Servers in Mountain Lion Server

Mountain Lion Server is not one server but more than two dozen servers and tools for managing Mac clients. Figure 1-1 lists the services available to you, as you see them in the Server utility. Other services not displayed in the figure are also available. Many of them can be turned on and off with a few mouse clicks.

Figure 1-1: Lion Server is actually a set of servers.

Next is a quick look at what services you get, and what you can do with them. After this, we take a look at the management tools.

File server

The bread and butter of a server, the file server may be all that some people need from Mountain Lion Server. File servers provide folders that everyone on the network can see. You can also limit access so that some people can't get into certain folders. OS X Server provides file sharing via the Mac-native Apple Filing Protocol (AFP), which is Mac only, and Microsoft's Server Message Block (SMB), which Windows and Linux clients use. Mountain Lion Server also provides the WebDAV protocol for iPad devices and, optionally, for backing up Macs using Time Machine. You can also set up FTP, used for uploading and downloading big files over the Internet. If you're adept in the Unix command line, you have access to Network Files System (NFS) for Unix and Linux.

The file server also has a robust set of access controls, both the simpler Unix file permissions, as well as sophisticated access control lists used on Windows networks. The Mac's Spotlight search feature works with the access controls; Spotlight won't display a file in search results if the user doesn't have permission to see the file.

Directory services

OS X Server uses the standards-based Open Directory to store and manage user account info and other user data that all the services employ. You can connect the server to other directory services on the network, including Microsoft Active Directory. To keep the network secure, directory services authenticates clients that log in with the LDAP, Kerberos, and SASL standards.

Open Directory includes a feature called Locales, which lets you specify which replica directory server that a client computer will connect to based on a network location — a handy feature that keeps notebook computers connected to the directory no matter where they are.

Contacts Server

Contacts Server (formerly known as Address Book Server) enables users to share and synchronize both personal and group contacts with the Mac Contacts or Address Book application, and with the Contacts app on the iPhone, iPad, and iPod touch. It works also with a CardDAV-compatible client on Windows.

To the user, Contacts Server works like Apple's iCloud service. Changes in contacts appear automatically on all devices sharing the contacts. OS X Server does this through Apple push notification service. But by hosting the contacts on your local server rather than iCloud, you can integrate the contacts list with your local LDAP directory service, including Open Directory.

Calendar Server

With Calendar Server, users on the network can schedule events, book conference rooms, and view one another's calendars. People can send an invitation to a meeting that includes an agenda and accept the invitation. Contacts Server keeps track of who is inviting whom as well as what people are scheduling at any point in time. OS X Server can send e-mail invitations to people outside your group who don't have accounts on your network or Mac server.

OS X Server works with the calendar on OS X and on iPhone, iPad, and iPod touch devices, as well as with the older iCal application. Windows clients can add open source software supporting the CalDAV standard. And you can set up the server to provide access through a web browser.

As with Contacts Server, Calendar Server provides the user experience of Apple's iCloud service through the use of Apple push notification service. Changes to a shared calendar appear on all devices subscribing to the calendar.

Messages Server

Instant messaging isn't just for mobile phones. Users of Mac OS X, Windows, iPhones, and iPads can have a virtual meeting by using Messages instant messaging. Messages Server supports audio and video, as well as file transfers. Users can access persistent chat rooms, which are always there. The server also stores each user's account info so that a user can use the service from any computer. Messages Server replaces iChat Server, which is found in earlier versions of OS X Server.

Network services for Internet connections

You can use Mountain Lion Server as a stand-alone system in your organization or home. But Server also provides network services that enable it to interact with the Internet. You can get these services in other ways, such as in a wireless router or from other servers on a larger network, but OS X Server has them if you need them. These services are

- **Domain name service (DNS):** DNS translates a domain name, such as `mycomany.com`, from an IP address. DNS is required somewhere on the network for just about all network services that you share with the Internet, including web hosting, mail, and calendaring.
- **Firewall:** Mountain Lion comes with a firewall to protect your server from intruders. Chapter 18 describes Mountain Lion Server's firewall.
- **Virtual private network (VPN) service:** VPN is a secure method of enabling people to access your network and server through the Internet from home or on the road. The VPN service in Mac OS X Server supports several standard methods of access.

Mail Server

Mail Server provides standard e-mail service for Macs, PCs, and hand-held devices. Through integration with Apple push notification service, the server can notify iPhone and iPad devices when they have mail.

OS X Server enables users to search the content of files attached to e-mail stored on the server. This search works for Microsoft Office and iWork files, PDF files, and others.

As a full-featured e-mail server, Mail Server blocks spam and e-mail that contain viruses from reaching users' desktops and can make e-mail available from a web browser. You can read more about the e-mail server in Chapter 13.

Web hosting

You can use OS X Server to host one or more of your own websites fairly easily, with default settings that take care of a lot of what is required to get your content on the Internet. A single mouse click in the Websites pane of the Server app (shown in Figure 1-2) enables these settings. Mountain Lion Server supports virtual hosting of multiple sites, and lets you use multiple IP addresses and virtual domains, all without programming. The web server in Mountain Lion Server is a marked improvement over the one in the previous version, Lion Server.

Figure 1-2: The Websites pane of the Server app makes it easy to enable server features.

Mountain Lion Server's web server is really a package of technology, starting with the Apache web server, the most popular web server on the Internet. The web server also includes the powerful PostgreSQL database engine. A Perl plug-in is loaded with the web server, enabling you to use Common Gateway Interface (CGI) scripts for creating dynamic web pages and for functions, such as taking data that a user enters in a web-based form and moving it to the database. PHP for dynamic content is also included. For security, SSL is provided.

You don't need to be a programmer to take advantage of these features because a lot of this technology sits under the hood working with your content. Mountain Lion Server has the infrastructure needed to make WordPress or Druple run, should you need to add them.

Wiki Server

Built on OS X Server's under-the-hood web technology is Wiki Server. This feature provides an automatically created, full-featured *wiki,* which is a type of website that users can edit from their web browser. (This is the *wiki* in *Wikipedia.*) You can use a wiki as a group collaboration tool for projects or brainstorming. Users can edit text, add hyperlinks to web pages, upload photos and documents to share, and then review the history of the changes that have been made and revert to earlier versions. Wikis automatically update to tell readers what changes other users have made.

Wiki Server also integrates blogging software. Blogs in your organization are great for posting status updates and reports. Like blogs on the Internet, the Mountain Lion Server blog feature has a space at the bottom for users to post comments.

Wiki Server sites look great on an iPad in Safari. The site automatically creates a special view on an iPad to make it easier to use. Each wiki appears as a stack of documents that you tap to enter. From Apple's Pages, Numbers, and Keynotes apps, iPad users can create content and upload and download files attached to a wiki.

Profile Manager for iOS and OS X

Mobile device management is reason enough for businesses and schools that have iOS devices to run Mountain Lion Server. Profile Manager is a web app for creating and distributing configuration files that can automatically set up iOS devices, as well as Macs running OS X 10.7 and later. A profile can contain basic network settings and user accounts for mail, calendar, contacts, and other things.

Profile Manager also lets you place restrictions, such as rules for passwords and restrictions on what a user may access. For example, if you don't want your students downloading Angry Birds from the App Store, you can block App Store access on all your devices at once. You can distribute profiles to devices via e-mail or have users download them from a self-service web page. You can also have the push notification service automatically deliver updates to configuration profiles on devices.

Software Update Server

Mac users can choose whether or not to update their software through the Mac's Software Update feature, but this can lead to different users running different versions of software in an organization. Software Update Server controls what versions of updates from Apple get installed on your Macs.

You can restrict what software updates are installed on client Macs, as well as when they get installed, so that you can test updates first. The client Macs get the updates from the server instead of downloading them individually.

Software Update Server lets you install an update to multiple Macs all at once, without having to go around to each Mac.

NetInstall

NetInstall lets you deploy Mac OS X and application upgrades on users' Macs, which prevents you from having to go to each Mac and install and configure software manually.

NetInstall also lets you restore, from the server, a customized OS X configuration to Macs that need it.

NetBoot

NetBoot is great for a group of Macs that are available to multiple users, such as in a school computer lab or a classroom. This service enables Mac clients to boot up from the serverrather than from their own hard drives. The NetBoot server can use a single disk image to boot multiple Macs. This process prevents the boot system from being altered or tampered with and makes sure that every system boots in exactly the same configuration. NetBoot also lets you update the system software of all the Macs at one time, simply by updating the disk image on the server.

Spotlight searching

For Mac users, Spotlight is an indispensable search feature that lets you find a file almost instantaneously. OS X Server does the same for files on the server without bogging down server performance by indexing the content of the files. Users get advanced search features, including Boolean logic and the use of quoted phrases, and stores search criteria in the form of Smart Folders.

Time Machine backup

OS X Server works with the Time Machine backup software in all Mac clients to have them automatically back up to the server. You can also use Time Machine to back up the server data to a backup hard drive. When disaster strikes, Time Machine will back up both clients and the server.

Management Tools in Mountain Lion Server

Flipping through this book, you see that I mostly describe two tools: the Server application and Workgroup Manager, which plays a smaller, more specialized role.

The Server app is included with Mountain Lion Server. You'll find it in the Applications folder, but you won't find Workgroup Manager. You have to go get it yourself from Apple at this location: `http://support.apple.com/kb/DL1567`.

Introducing the Server App

Previous versions of OS X Server gave you a folder full of stuff to administrate the server. With Mountain Lion Server, Apple centralized the administration of OS X Server in a single application, the Server app (shown in Figure 1-3). This is where you not only set up file sharing and manage devices but also install the server software itself.

Figure 1-3: The Server app gives you easy access to configuring services.

The Server app enables you turn services on and off and configure them. You can assign user passwords and manage mail, calendar, and messaging services. You can also turn on remote access via a virtual private network. The Time Machine icon in the Server app lets you set automated backups of server data.

Configuring services and accounts with the Server app

To start a service, click an icon under Services in the left sidebar. The pane at the right displays configuration options for that service, as shown in Figure 1-4. Click the big switch in the upper right to turn on the service. (It may take a few seconds for the service to start.)

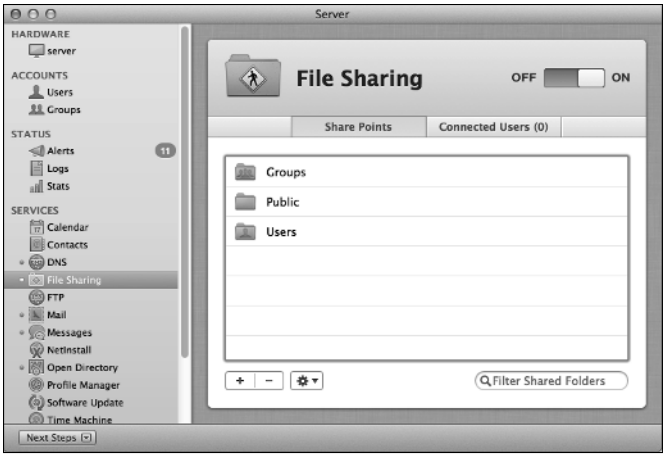

Figure 1-4: The File Sharing pane of the Server app.

You also use the Server app to create user and group accounts. (Workgroup Manager can also create user accounts and gives you more configuration options.) Click Users or Groups under Accounts in the sidebar. You can then enter user and group names and passwords.

The Server app includes built-in guidance to help you configure Mountain Lion Server. Click the Next Steps button in the lower left of the Server app to expand the bottom of the window. Several new buttons appear, as shown in Figure 1-5. Clicking one of the buttons displays information about your server's current setup and provides links to settings windows that will enable you to complete other tasks.

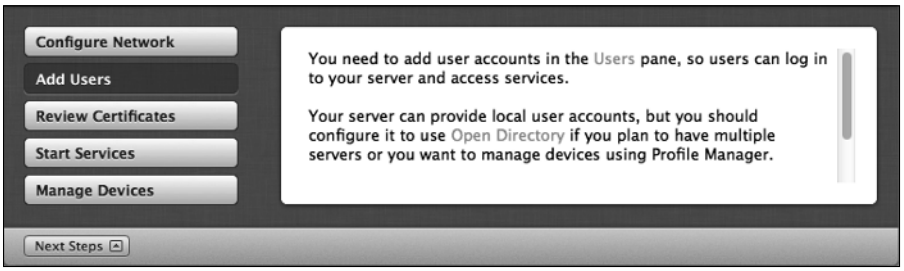

Figure 1-5: The Next Steps button provides information about configuring your server.

For example, in Figure 1-5, the Server app tells you that the users added are local user accounts, residing only on the server Mac and not in a network directory. Clicking the Open Directory link in the text takes you to a screen where you can start setting up Open Directory.

Monitoring your server and making general settings changes

The Server app provides several ways to view the status of your server. In the sidebar under Status are three items:

- **Alerts:** Here, you find alerts that Mountain Lion Server can send you. You're alerted to conditions of low disk space, e-mails that might contain a virus, expired SSL certificates, changes to network settings, and available software updates. You can also use this pane to designate an e-mail address where Mountain Lion Server can e-mail alerts to you.
- **Logs:** This item represents the log files for the various services, which track what's going on under the hood. Log files can be useful when troubleshooting.
- **Stats:** Stats provides live graphs of your server's processor usage, memory usage, and network traffic.

Under Hardware, you can click the name of your server to get access to four tabs of information and some settings as well:

- **Overview:** This tab (refer to Figure 1-3) provides information about the Mac model and hardware configuration, the version of OS X Server, and how long the server has been running.
- **Settings:** Here, you can change settings for remote login and administration, screen sharing, push notifications, and SSL certificates.
- **Network:** This tab displays (and lets you change) the Mac's computer name and the server's host name. It displays also the IP addresses of your network interfaces.
- **Storage:** This tab displays the amount of free space on any storage devices attached to the server. It also lets you change permissions for shared folders (see Chapter 8).

Workgroup Manager

Workgroup Manager is a more advanced tool for setting and managing user accounts than the Server app. You can use Workgroup Manager to control aspects of users' computers, doing some of the things that Profile Manager can do. But Profile Manager doesn't support Macs running operating systems earlier than OS X 10.7. You can use Workgroup Manager to manage your older Macs or all your Macs.

For example, you can require users to change passwords at regular intervals, create standardized preference settings for client Macs, or allow only certain applications to run. You can use Workgroup Manager also to configure certain security measures, such as blocking computers from seeing external hard drives or from burning CDs and DVDs. And you can create groups to manage settings for multiple sets of computers at once.

For more on Workgroup Manager, see Chapter 16.

Command-Line Administration

The Server app is really just a front end to a set of server software that lies below the service. Much to the chagrin of some Mac administrators, Apple has been simplifying the graphics front-end management tools of OS X Server to make OS X "the server for everyone."

But most of the less frequently used, more technical features and settings of previous versions are still in OS X Server. The only way to reach them, however, is through the Unix command line. If you're experienced in the Unix shell and networking, you can administer the entire OS X Server without ever having to launch the Server app.

Unix commands are accessible in the Terminal application, which comes with every version of Mac OS X. You can use one of the Unix shells that come with Terminal: `bash` (the default), `sh`, `csh`, `tsh`, and `zsh`. If you're managing one or more servers over a network, use `ssh`, or Secure Shell. Many of OS X Server's features can be managed with the `serveradmin` command-line tool.

But even if you aren't a Unix geek, you may come across a tip that can work around a problem by typing a couple lines of text. You occasionally find such tips throughout this book.

You can find more information about OS X Server's command-line tools at `www.apple.com/osx/server/specs/` and `www.apple.com/server/docs/Command_Line.pdf`.