Preface

It's nine in the morning and you've just arrived at the computer center after a refreshing night's sleep. Your pager hasn't gone off in months. Life is pretty good as a system administrator—and why shouldn't it be, with the network you're running? Two hundred identical machines, all running the same operating system. All of the printers are networked, accessible from anywhere in the building, and the auto-configuration scripts that the manufacturer supplied ensure that everyone in the company has a consistent view of the shared disks you've set up. Yes, this is the good life. You lean back and take that first delicious sip of morning coffee….

And then, the alarm clock jolts you out of your blissful reverie. If you're like most system administrators, this could only be a dream. Your morning probably starts with a tireless struggle to get four different computer platforms running three different operating systems simply to talk to each other—that is, if the phone ever stops ringing. Most of your users don't understand why it's so hard to access a file on another computer or to send a job to a remote printer. The logs show that the backups are late. For some reason the PCs on the second floor can't find the tape server. With all these headaches, what's a network administrator to do?

Easy: take the day off, read this book, and learn Samba!

The Samba Suite

Samba is a suite of tools for sharing resources such as printers and files across a network. This may be a bit of an oversimplification, but Samba is really designed to make your life easier. Samba uses the Server Message Block (SMB) protocol, which is endorsed jointly by Microsoft and IBM, to communicate low-level data between Windows clients and Unix servers on a TCP/IP network.

Four features of Samba make it extremely attractive:

- Samba speaks the same SMB protocol that Microsoft and IBM operating systems have used as their standard since DOS 3.0. This means that almost all Windows machines already understand it and there is no extra client software to install.
- Samba runs on a variety of platforms, including most variants of Unix, OpenVMS, OS/2, AmigaDOS, and NetWare. This means that you can use a single program on the server to provide files and printers to a community of PCs.
- Samba is free. There are several commercial products that duplicate Samba's features, and some of them are quite expensive. Samba offers you an alternative to packages that could gobble up a significant portion of your IS budget. Samba is distributed under the GNU General Public License (GPL), and is considered by its authors to be *Open Source* software. In other words, you can freely download both the application and the accompanying source code to your computer, and even improve on the original Samba programs if you like.
- Samba administration is centralized on the server. You don't have to visit every one of your machines, floppy or CD-ROM in hand, to upgrade the client software.

Samba is a complete solution for local area networks (LANs) of all sizes—everything from the two-computer home network to corporate installations with hundreds of nodes. Samba is simple to set up and to administer, and presents itself as a transparent network environment that offers users access to all of the resources they need to get their work done. Once you've set it up, Samba will let you:

- Serve Unix files to Windows, OS/2, and other OS clients
- Allow Unix clients to access PC files
- Serve network printers to Windows clients
- Provide name services (broadcast and WINS)
- Allow browsing of network resources from Windows clients
- Create Windows workgroups or domains
- Enforce username and password authentication of clients

Audience for this Book

The primary audience of this book is Unix administrators who need to support PCs on their network, and anyone who needs to provide a Unix server in a PC environment. But we don't want to burden you with an endless series of arcane system administration tools and vocabulary. While we assume you are familiar

with basic Unix system administration, we will *not* assume you are a networking expert. We'll do our best along the way to help out with unusual definitions and terms.

Because we don't assume a tremendous amount of experience with Microsoft Windows, we will go through the PC side of the installation task in considerable detail and give examples for both Windows 95/98 and Windows NT, which are subtly different. For the Unix side, we will give examples for common Unix operating systems, such as Linux 2.0 or Solaris 2.6.

Samba Installation Checklist

Before you get started, you should have:

- Either the CD-ROM from this book (which contains both source and binary distributions of Samba 2.0.5) or the latest Samba distribution, which you can download directly off the Internet at *http://www.samba.org/*.
- The names and IP addresses of the servers and client machines you plan to use, the netmask of your network, and the names and IP addresses of your domain name (DNS) servers.

Organization

The book can be roughly divided into two sections: Samba installation (Chapter 1 through Chapter 3) and Samba configuration and optimization (Chapter 4 through Chapter 9). Here is a detailed breakdown of each of the chapters:

Chapter 1, *Learning the Samba*
: This chapter introduces each of the Samba components and gives a brief overview of NetBIOS and Windows networking.

Chapter 2, *Installing Samba on a Unix System*
: This chapter covers configuring, compiling, installing, and testing the Samba server on a Unix platform.

Chapter 3, *Configuring Windows Clients*
: This chapter explains how to configure Microsoft Windows 95/98 and NT 4.0 clients to participate in an SMB network. It also gives a brief introduction to the SMB protocol in action.

Chapter 4, *Disk Shares*
: This chapter gets you up to speed with the individual parts of the Samba configuration file and shows you how to configure disk services.

Chapter 5, *Browsing and Advanced Disk Shares*
: This chapter continues the discussion of disk options and examines browsing with Samba.

Chapter 6, *Users, Security, and Domains*
: This chapter discusses how to set up users, introduces you to Samba security, and shows you how to work with encrypted and non-encrypted passwords. We also discuss how to set up Samba as a primary domain controller for Windows 95/98 and NT clients.

Chapter 7, *Printing and Name Resolution*
: This chapter discusses printer and Windows Internet Naming Service (WINS) setup with Samba.

Chapter 8, *Additional Samba Information*
: This chapter bundles several miscellaneous activities associated with Samba, such as configuring Samba shares for programmers, internationalization issues, and backing up with *smbtar*.

Chapter 9, *Troubleshooting Samba*
: If you have problems installing Samba, this comparatively large chapter is packed with troubleshooting hints and strategies as to what might be going wrong.

Appendix A, *Configuring Samba with SSL*
: This appendix shows you the nitty-gritty of setting up Samba with Secure Sockets Layers (SSL) connections between the server and its clients.

Appendix B, *Samba Performance Tuning*
: This appendix discusses various techniques to optimize Samba processing on your network.

Appendix C, *Samba Configuration Option Quick Reference*
: This appendix covers each of the options used in the *smb.conf* file.

Appendix D, *Summary of Samba Daemons and Commands*
: Each of the server daemons and tools that make up the Samba suite are covered in this appendix. In addition, we provide a list of mirror sites on the Internet from which Samba can be downloaded.

Appendix E, *Downloading Samba with CVS*
: This appendix explains how to download the latest version of Samba with CVS.

Appendix F, *Sample Configuration File*
: This appendix provides a large-scale Samba configuration file, which you might find in place at a large corporation. We have embedded comments in the file to explain the more arcane options.

Conventions

The following font conventions are followed throughout this book:

Italic
: Filenames, file extensions, URLs, Internet addresses, executable files, commands, and emphasis.

`Constant Width`
: Samba configuration options and other code that appear in the text, and command-line information that should be typed verbatim on the screen.

`Bold Constant Width`
: Commands that are entered by the user, and new configuration options that we wish to bring to the attention of the reader.

`Constant Width Italic`
: Replaceable content in code and command-line information.

The owl icon designates a note, which is an important aside to the nearby text.

The turkey icon designates a warning related to the nearby text.

Request for Comments

As a reader of this book, you can help us to improve the next edition. If you find errors, inaccuracies, or typographical errors anywhere in the book, please let us at O'Reilly know about them. Also, if you find any misleading statements or confusing explanations, let us know that as well. Send all correspondence to:

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Please let us know what we can do to make the book more helpful to you. We take your comments seriously, and will do whatever we can to make this book as useful as it can be.

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