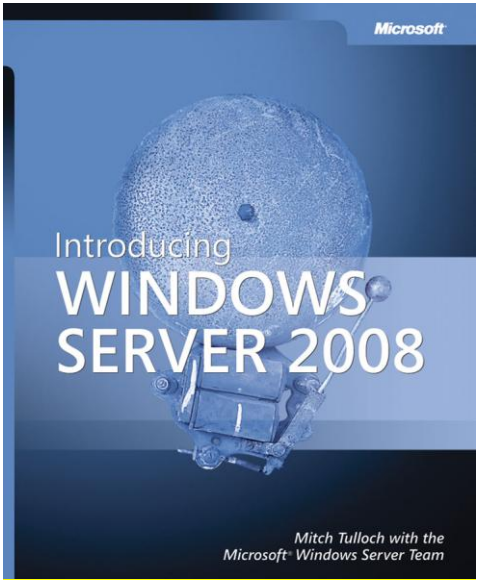

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Mitch Tulluch with the Microsoft Windows Server Team

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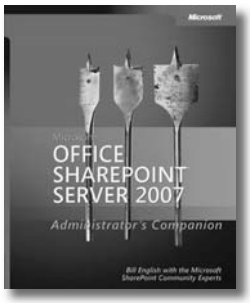

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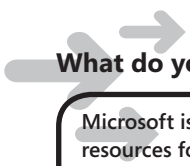

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Chapter 2

Usage Scenarios

In this chapter:

Before we jump into the technical stuff, let's pause and make a business case for deploying Microsoft Windows Server 2008 in your organization. Sure, there's a marketing element in doing this, and as a techie you'd rather get to the real stuff right away. However, reality for most IT pros means preparing RFPs for bosses, presenting slide decks showing ROI from planned implementations of products, and generally trying to work within the constraints of a meager budget created by pointy-headed executives who can't seem to understand how cool technology is and why they need it for their business.

So let's look briefly at how Windows Server 2008 can benefit your enterprise. I'm assuming you already know a few basic things about the new features and enhancements of the platform (otherwise, you wouldn't be going to TechEd '07 and similar events where this book is being distributed), but you might also want to give this chapter a re-read once you've finished the rest of the book. This will give you a better idea of what Windows Server 2008 is and what it's capable of.

Anyway, let's ask the sixty-four-dollar questions: Who needs Windows Server 2008? And why do I need it?

Oh yeah, I forgot:

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Providing an Identity and Access Infrastructure

At the core of any mid- or large-sized organization are controls—controls concerning who is allowed to access your organization's information resources, how you verify someone's identity, what they're allowed to do, how you enforce controls, and how you keep records for auditing and for increasing efficiency.

An umbrella name for all this is *Identity and Access Management*, or IDA. Organizations need an IDA solution that provides services for managing information about users and computers, making information resources available and controlling access to them, simplifying access using single sign-on, ensuring sensitive business information is adequately protected, and safeguarding your information resources as you communicate and exchange information with customers and business partners.

Why is Windows Server 2008 an ideal platform for building your IDA solution? Because it both leverages the basic functionality of Active Directory found in previous Windows Server platforms and includes new features and enhancements to Active Directory in Windows Server 2008. For example, you can now use Active Directory Domain Services (AD DS) auditing to maintain a detailed record of changes made to directory objects that records both the new value of an attribute that was changed and its original value. You can leverage the new support for Online Certificate Status Protocol in Active Directory Certificate Services (AD CS) to streamline the process of managing and distributing revocation status information across your enterprise. You can use several enhancements in Active Directory Rights Management Services (AD RMS) together with RMS-enabled applications to help you safeguard your company's digital information from unauthorized use more easily than was possible using RMS on previous Windows Server platforms. And you can use the integrated Active Directory Federation Services (AD FS) role to leverage the industry-supported Web Services (WS-*) protocols to securely exchange information with business partners and provide a single sign-on (SSO) authentication experience for users and applications over the life of an online session.

Want to find out more about these enhancements? Turn to Chapter 7, "Active Directory Enhancements," to learn about all this and more. And with Windows Vista on the client side, you have added benefits such as an integrated RMS client, improved smart card support, and better integration with SSO and other Active Directory enhancements in Windows Server 2008.

Ensuring Security and Policy Enforcement

Do users and computers connecting to your network comply with your company's security policy requirements? Is there any way to enforce that this is indeed the case? Yes, there is. In addition to standard policy enforcement mechanisms such as Group Policy and Active Directory authentication, Windows Server 2008 also includes the new Network Access Protection (NAP) platform. NAP provides a platform that helps ensure that client computers

trying to connect to your network meet administrator-defined requirements for system health as laid out in your security policy. For example, NAP can ensure that computers connecting to your network to access resources on it have all critical security updates, antivirus software, the latest signature files, a functioning host-based firewall that's properly configured, and so on. And if NAP determines that a client computer doesn't meet all these health requirements, it can quarantine the computer on an isolated network until remediation can be performed or it can deny access entirely to the network. By using the power of NAP, you can enforce compliance with your network health requirements and mitigate the risk of having improperly configured client computers that might have been exposed to worms and other malware.

Want to find out more about NAP? Turn to Chapter 10, "Implementing Network Access Protection," where I have a comprehensive description of the platform and how it's implemented using Windows Server 2008 together with Windows Vista.

And if you *really* want to enhance the security of your servers, try deploying the Windows server core installation option of Windows Server 2008 instead of the full installation option. The Windows server core installation option has a significantly smaller attack surface because all nonessential components and functionality have been removed. Want to learn about this installation option? Turn to Chapter 6, "Windows Server Core," for a detailed walkthrough of its capabilities and tasks related to its management.

Easing Deployment Headaches

Do you currently use third-party, image-based deployment tools to deploy your Windows servers? I'm not surprised—until Microsoft released the Windows Automated Installation Kit (Windows AIK), you were pretty much limited to either deploying Windows using third-party imaging tools or using Sysprep and answer files. The Windows AIK deploys Windows Vista based on Vista's new componentized, modular architecture and Windows image (.wim) file-based installation media format. Windows Vista and the Windows AIK has changed everything, and now Microsoft has finally come on strong in the deployment tools arena. And with the release of the Microsoft Solution Accelerator for Business Desktop Deployment (BDD) 2007 customers now have a best-practice set of comprehensive guidance and tools from Microsoft that they can use to easily deploy Windows Vista and the 2007 Office system across an enterprise.

So deploying Windows clients is a snap now, but what about deploying Windows servers? Windows Server 2008 includes huge improvements in this area with its new Windows Deployment Services role, an updated and redesigned version of the Remote Installation Services (RIS) feature found in Windows Server 2003 and Windows 2000 Server. Windows Deployment Services enables enterprises to rapidly deploy Windows operating systems using network-based installation, a process that doesn't require you to be physically present at each target computer or to install directly from DVD media.

And if you liked BDD 2007, you'll like the similar set of guidance and tools that Microsoft is currently developing for deploying Windows Server 2008 machines. This new set of tools and best practices will be called the *Solution Accelerator for Windows Server Deployment* and it will integrate the capabilities of Windows AIK, ImageX, Windows Deployment Services, and other deployment tools to provide a point-and-click, drag-and-drop deployment experience similar to what you've experienced with BDD 2007 if you've had a chance to play with it already.

Deploying systems is a headache sometimes, but managing licensing and activation of these machines can bring on a migraine. Instead of taking two pills and going to bed, however, you'll find that the enhancements made to Volume Activation 2.0 in Windows Server 2008 take the pain away. This improved feature will also help you sleep at night, knowing that your machines are in compliance with licensing requirements.

Want to read more about all these improvements? Crack open Chapter 13, "Deploying Windows Server 2008," and you'll find everything you need to get you started in this area.

Making Servers Easier to Manage

I usually don't get excited about tools—they're designed to get the job done and nothing more. Sure, some people might buy a new compound miter saw, show it to all their neighbors, and go "Ooh, aah." Not me—maybe it's because I'm a geek and I get excited about quad-core processors instead! Still, you've gotta love tools when they make life easier, and Windows Server 2008 includes a slate of new and improved tools for managing Windows Server 2008 machines throughout your enterprise.

There's Server Manager, an integrated MMC console that provides a single source for managing your server's roles and features and for monitoring your server's status. Server Manager even comes in a command-line version called ServerManagerCmd.exe, which you can use to quickly add role services and features or perform "what if" scenarios such as, "What components would get installed if I added the Web Server role on my system?"

Then there's Windows PowerShell, a command-line shell and scripting language that includes more than 130 *cmdlets*, plus an intuitive scripting language specifically designed for IT pros like you. As of the Beta 3 release of Windows Server 2008, PowerShell is now included as an optional component you can install. PowerShell is a powerful tool for performing administration tasks on Windows Server 2008, such as managing services, processes, and storage. And PowerShell can also be used to manage aspects of certain server roles such as Internet Information Services (IIS) 7.0, Terminal Services, and Active Directory Domain Services.

Then there's the Windows Remote Shell (WinRS) and Windows Remote Management (WinRM) components first included in Windows Vista; enhancements to Windows Management Instrumentation (WMI), also introduced in Windows Vista; improvements in

how Group Policy works, including both changes in Windows Vista and in Windows Server 2008; and more.

Where can you learn more about these different tools? Try Chapter 4, "Managing Windows Server 2008" for a start. Then turn to Chapter 6 and to Chapter 11, "Internet Information Services 7.0," for more examples of seeing these tools at work. Managing your Windows servers has never been easier than using what the Windows Server 2008 platform provides for you to do this.

Supporting the Branch Office

It would be nice if all your servers were set up in a single location so that you could keep an eye on them, wouldn't it? Unfortunately, today's enterprise often consists of a corporate headquarters and a bunch of remote branch offices, sometimes scattered all around the globe. What's worse, you might be the main IT person stuck there at headquarters, while people who don't know a router from a switch have hands-on physical access to your servers, which just happen to be located out there in remote sites instead of being safe under your watchful eye. What can you do to maintain control? "My precioussss! gollum..."

Windows Server 2008 has several technologies that help you keep control and be Lord of the Servers in your enterprise. Read-Only Domain Controllers (RODCs) are a new type of domain controller that hosts a read-only replica of your Active Directory database. If you combine RODCs with the BitLocker Drive Encryption feature first introduced in Windows Vista, you no longer have to worry about thieves (or silly employees) walking off with one of your domain controllers and all your goodies. Restartable Active Directory Domain Services lets you stop Active Directory services on your domain controllers so that updates can be applied or offline defragmentation of the database can be performed, and it can do this without requiring you to reboot your machine. This is a big improvement that not only reduces downtime, but makes your domain controllers easier to manage, which is a plus when they're located at a remote site. Other improvements—such as delegation improvements, the new SMB 2.0 protocol, and the enhanced DFSR introduced in Windows Server 2003 R2—help make Windows Server 2008 an ideal platform for domain controllers that need to be located at branch offices.

Want to find out more about these improvements? Chapter 7 covers RODC and Restartable AD DS, while various other improvements can be found in Chapter 12, "Other Features and Enhancements."

Providing Centralized Application Access

Mobile users can be a pain to support. Although virtual private network (VPN) technologies have made remote access simpler, giving remote users full access to your internal network from over the Internet is often not the best solution. With the improvements to Terminal

Services in Windows Server 2008, however, users (both remote and on the network) can securely access business applications running on your Terminal Servers and have the same kind of experience as if these applications were installed locally on their machines.

Terminal Services Gateway (TS Gateway) lets remote users securely punch through your perimeter firewall and access Terminal Servers running on your corpnet. Terminal Services RemoteApp enables remoting of individual application windows instead of the whole desktop so that an application that is actually running on a Terminal Server looks and feels to the user as if it were running on her own desktop. And Terminal Services Web Access makes application deployment a snap—the user visits a Web site, clicks on a link or icon, and launches an application on a Terminal Server located somewhere in a galaxy far, far away.

Interested in learning more about these new features and enhancements to Terminal Services in Windows Server 2008? Flip to Chapter 8, "Terminal Services Enhancements," and you'll find a ton of information on the subject.

Deploying Web Applications and Services

Does your organization rely on providing Web applications and Web services to customers? Is the Web a way of life for your business? The new features and enhancements found in Internet Information Services 7.0 are going to excite you if that's the case.

Hosting companies will benefit from xcopy deployment, which copies both a site's content and its configuration to the Web server in one single action. The new modular architecture of IIS 7.0 will make a difference in datacenters because it enables you to deploy Web servers that have a low footprint and minimal attack surface.

Enterprises that build B2B and B2C solutions that rely on the .NET Framework 3.0 can use the Application Server role of Windows Server 2008 to leverage industry-standard Web Services (WS-*) protocols for building these solutions on top of IIS 7.0. And Windows System Resource Manager and other components can help you make efficient use of your hardware resources and ensure a consistent end-user experience.

Want to learn more about IIS 7.0 and the Application Server role? Turn to Chapter 11 for a whirlwind tour of these topics.

Ensuring High Availability

I get miffed when I try to buy a book online from some bookstore and have to wait more than five seconds for the check-out page to appear, or if the site temporarily seems to go down. What's wrong with these guys? Don't they understand high availability? What, are they running their entire store on a single box? Don't they know *single point of failure*?

Whatever applications are critical to the operation of your business, you need to use some form of clustering to make sure they never go down or become inaccessible to customers. Windows Server 2008 includes two enhancements in the area of high availability. First, server clusters (now called *failover clusters*) have been significantly improved to make them simple to set up and configure, easier to manage, more secure, and more stable. Improvements have been made in the way the cluster communicates with storage, which can increase performance for both storage area network (SAN) and direct attached storage (DAS). Failover clusters also offer new configuration options that can eliminate the quorum resource from being a single point of failure.

Network Load Balancing (NLB) has also been improved in Windows Server 2008 to include support for IPv6 and the NDIS 6.0 specification. And the WMI provider has been enhanced with new functionality to make NLB solutions more manageable.

Has this piqued your interest? Check out Chapter 9, "Clustering Enhancements," and find out more.

Ensuring Secure and Reliable Storage

I used to think file servers were boring until I learned about the new storage features and enhancements in Windows Server 2008. Not any more. The Share And Storage Management snap-in provided by the File Server role makes managing volumes and shares easier than ever before with its two new wizards. The Provision Storage Wizard provides an integrated storage provisioning experience for performing tasks like creating a new LUN, specifying the LUN type, unmasking a LUN, and creating and formatting a volume. The wizard also supports multiple protocols—including Fibre Channel, iSCSI, and SAS—and it requires only a VDS 1.1 hardware provider. The Provision A Shared Folder Wizard provides an integrated file-share provisioning experience that lets you easily configure permissions, quotas, file screens, and other settings for SMB shares, and it supports NFS shares also.

Then there's Storage Explorer, a new MMC snap-in that provides a tree-structured view of detailed information concerning all the components of your Fibre Channel or iSCSI SAN, including Fabrics, Platforms, Storage Devices, and LUNs. And it provides integrated support for Microsoft Multipath IO (MPIO), which enables software and hardware vendors to develop multipathing solutions that work effectively with solutions built using Windows Server 2008 and vendor-supplied storage hardware devices. And the built-in iSCSI Initiator lets you configure a target iSCSI storage device, plug your server and storage device into a Gigabit Ethernet switch, and—presto!—you've now got high-speed block storage over IP. And there's iSCSI Boot, which lets you install Windows Server 2008 directly to an iSCSI volume on a SAN. The enhanced Windows Server Backup uses the same block-level, image-based (.vhd) backup technology that is used by the CompletePC Backup And Recovery feature of Windows Vista.

How's all that for your lowly, much-maligned file server? Find out more about storage improvements and lots more in Chapter 12.

Leveraging Virtualization

Last but not least (in fact, so *not* least that we'll be covering this topic in our very next chapter), there's Windows Server Virtualization, which will change (once it's released after Windows Server 2008 is released) the entire architecture of Windows servers in fundamental ways. And even though Windows Server Virtualization is still in an early stage of development at the time of writing this book, IT pros like you already know the power virtualization technologies have to affect today's enterprises through server consolidation, business continuity management, development and testing environments, application compatibility, and datacenter workload decoupling.

I won't go into more details about Windows Server Virtualization here—turn to Chapter 3, "Windows Server Virtualization," and get a preview.

Conclusion

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Whew, that's a relief! That's not the hat I usually wear, because I'm a geek and not a hawker of wares and potions. I'm glad that's over with because now we can get to the technical stuff that we IT pros love to talk about. But, in point of fact, I respect the marketing professionals for what they have to do. If they don't get the news out there about Windows Server 2008, who's going to buy it? And if people don't buy it, how can Microsoft stay in business? And if Microsoft goes out of business, how can I write about their products, make money, and feed my family?

Anyway, now that all that's out of the way, let's dig into the technical stuff and get down and geeky.