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Redmond

THE INDEPENDENT VOICE OF THE MICROSOFT IT COMMUNITY

Bill 2.0

A 5-Year
Performance
Review of
Microsoft's Chief
Software Architect

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for the Worst**

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**Should You Dump
Internet Explorer?**

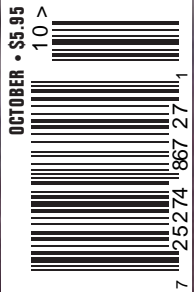
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116

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1

Storage
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27

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COVER STORY

Bill 2.0 5-Year Performance Review

Microsoft watchers give Bill Gates mixed reviews for his performance since relinquishing the CEO title to become Chief Software Architect.

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REDMOND REPORT

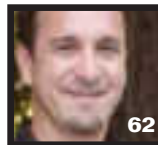
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REDMOND COMMUNITY

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FindIT code: Newsletters

• **Security Watch**—keep current on the latest Windows network security topics. This newsletter features news from ENT and exclusive, online columns by *Redmond* magazine contributing editor Roberta Bragg.

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We're proud to introduce Redmondmag.com, the official site for *Redmond* magazine. We're building in all the extras required to make this the site for the IT professional whose job is to stay informed and up-to-date on the Windows IT space.

Following is just a sample of what you'll find at Redmondmag.com:

- Breaking news updated daily.
- Online content that expands on the already informative articles you've just read in the print issue of *Redmond*.



"What About Steve?" Use FindIT code: Bill2.

• Redmond Report, the free, weekly newsletter filled with news and expert analysis on the most important Windows IT events.

To see for yourself, go to Redmondmag.com. Be sure to let us know what you think by posting online or e-mailing us at editor@redmondmag.com.

MCPMAG.COM

MCPmag.com lives on! Check out MCPmag.com and get original, expert technical articles and tips on troubleshooting and best practices for maintaining secure, networked Windows systems. Plus, keep up on the latest Microsoft training, certification and career news and analysis.

Here's what we have planned during October:

- Reader Reviews: SQL Reporting Services
- Bill Boswell's Q&A
- Don Jones' Windows Tip Sheet
- Pop Quiz: MCSA Core Exams
- Exam Spotlight: SBS 2003
- MCP Radio, the weekly audio roundup of IT news.

MCPmag.com's community also continues to thrive; join your fellow MCPs in live chats and discussion forums that feature expert moderators answering Windows, SBS, Exchange, and GPO troubleshooting problems around the clock.

FindITCodes

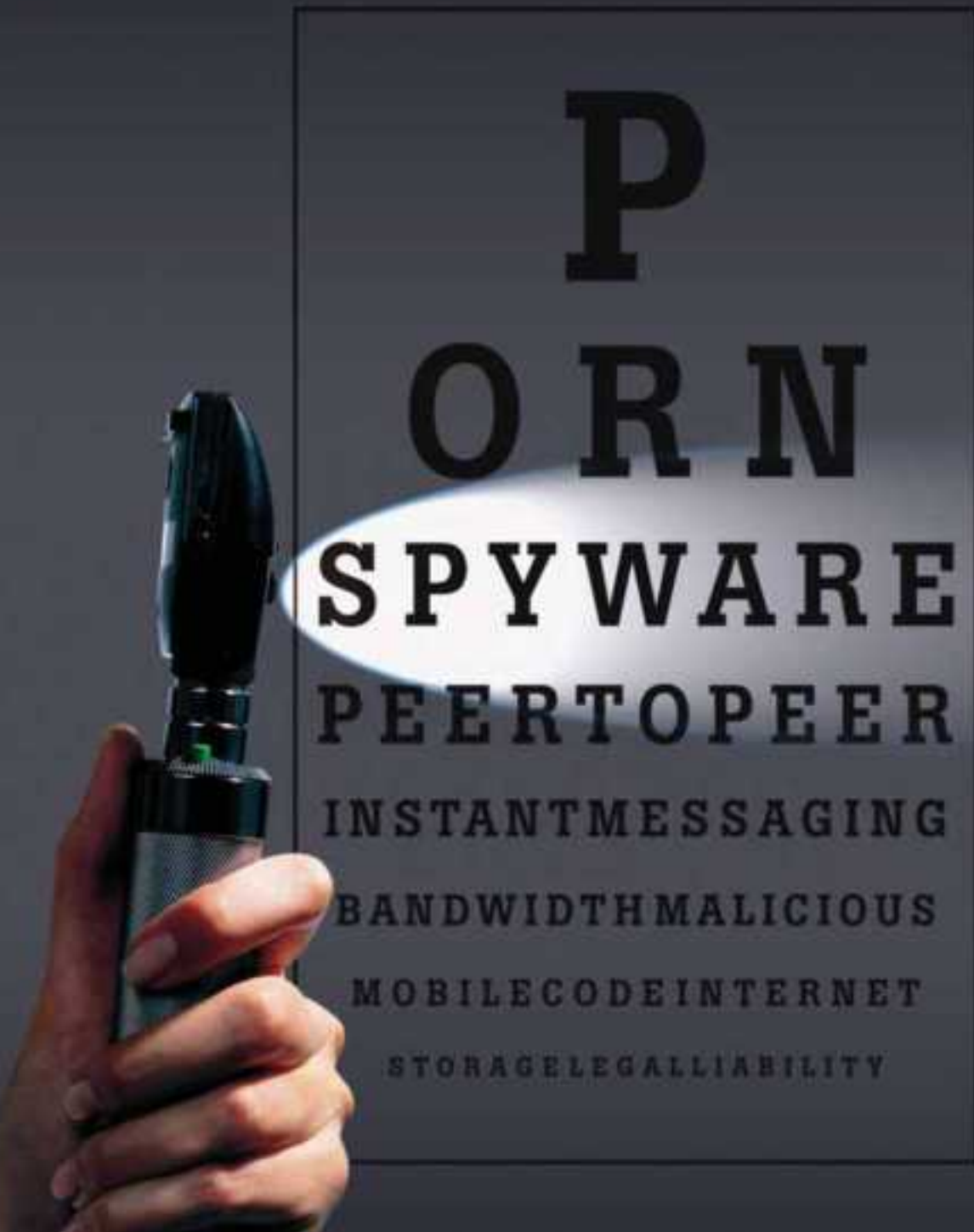
Throughout this issue of *Redmond*, you'll find boxes containing FindIT codes. You can key in those codes at Redmondmag.com to quickly get more information on the topics covered in articles containing the codes.

Some of the FindIT codes for this month include:

- **DDrill**: More information on performing a metadata cleanup of a restored Active Directory database.
- **PKI**: A list of resources for learning more about implementing PKI, including an overview of the PKI design process.
- **WUSbeta**: Installation tips and tricks for Windows Update Services.

Plus many more. Enter the code in the box at the top-right of every Redmondmag.com page. (Note that all FindIT codes are one word, and these codes are NOT case sensitive.)

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Chief Concerns

Doug Barney

MCPmag.com: It's Alive!

Good news, MCPs: *Microsoft Certified Professional Magazine* lives. Those who remember five pages back must be saying, "Hey, I just saw a magazine cover that said *Redmond*. What you talkin' 'bout Willis?"

And we thought you were tech savvy. Haven't you heard of the Internet? That is the future of *MCP Magazine*.

For nearly 10 years *MCP Magazine* has served the certified community a full plate of hands-on problem solving tactical hard-core tech info—with a healthy dose of certification and training coverage on the side.

Redmond magazine will continue with the hands-on problem solving, tactical hard-core tech info, but won't spend nearly as much time covering certification issues. That's where Michael Domingo, longtime editor of MCPmag.com, comes in. MCPmag.com not only lives on, but it will include far more certification news and analysis—thanks to Mike. If you feel as I do that certified professionals are a distinct community, then you'll want to hang out at MCPmag.com every day. And all the newsletters you were nice enough to sign up for will keep on coming to your inbox, right on time.

Another contender for your home page is Redmondmag.com. This site, freshly built by Becky Nagel (our new Redmondmag.com editor) and tech whiz Rita Zucher, is a rich array of strategic and technical information.

Redmondmag.com picks up where MCPmag.com leaves off, bringing you expert analysis of Microsoft's latest moves, tips on justifying technolo-

gy, getting a better deal, grappling with internal IT issues, and more. And we'll toss in a heaping helping of hard-core tech to boot!

And if you like newsletters, be sure to sign up for the all new *Redmond Report*, penned by our own Scott Bekker, editor of ENTmag.com and news editor for *Redmond* magazine. Each week, Scott will tell you what Microsoft is up to, and what it all means.

So Whaddya Think of *Redmond*?

This is the first issue of *Redmond*, which we consider to be an evolution of *MCP Magazine*. We're pretty proud of it, but ultimately you will decide whether we hit the mark. What do you like, dislike? What technologies or issues should we cover? We created this magazine for you, so shoot me some mail at dbarney@redmondmag.com and let me know what you want us to tackle in the future. **R**

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Letters to Redmond

So, Why Get Certified?

It's interesting that your Salary Survey [September] results for "No Microsoft Certification" lists a better salary than most certified categories! Could it be that many in that category are supervisors or have been in the field long before certifications appeared? They may feel like they don't need certification and therefore don't think anyone else should, either. I've seen it everywhere when applying for a job—experience counts way more than any certification, especially when those interviewing you aren't certified. It's been my experience that certifications also have little to do with salary increases from year to year.

—An MCSE

Good observation, but the sample of people who have no certification changed this year. We decided to open the survey to those who hold other certifications but may not necessarily hold a Microsoft title. The No Microsoft Certification category doesn't exclude those who do hold other, salary-laden titles, such as the Cisco CCIE or any of the major security certifications. Naturally, this category could be composed of those who hold no certs whatsoever. So, you'd be partially right in your observation.

—Michael Domingo, Editor,
MCPmag.com

New Persona

The new name is going to be *Redmond* magazine, but the slogan is "The Independent Voice of the Microsoft IT Community?" No way those two things go together. I see the word "Redmond," and I think right off the bat that it's some sort of official Microsoft publication. It's not just the content of the magazine that makes it important, there are many other reasons as well.

I was unable to go to college for a variety of reasons and I struggled to afford training materials and take the tests. I am very proud of my certifications. Receiving a magazine called *Microsoft Certified Professional Magazine*

was a monthly reminder that I finally did it; that I finally got over the hump and I have a career doing something I love. Every time it arrived it told me "You did it!!"

Receiving *MCP Magazine* always made me feel like part of something larger, something that I had put a lot of effort into being a part of. As soon as I became an MCP I did it all: ordered the magazine, downloaded the official logos for use in my correspondence and I carry the wallet card with me every day. Having the mailroom drop off *Redmond* magazine in my office in-box just won't give me that same sense of pride and achievement. To be honest, even if the slogan were something along the lines of "The Independent Voice of Certified Professionals," it wouldn't bother me so much.

I understand that the current title probably excludes a lot of potential readers and makes it more of a niche publication. But that's kind of what I like best about it. There are already several "voices" of the general Microsoft IT community at-large. In fact, I already subscribe to several, and don't know if I really need another one. The fact that *MCP Magazine* was a special publication just for MCPs (or so I thought, or assumed, by the title) was

what made me want and read the magazine. Now, not so much.

—James Frasch
New Jersey

Yawn.

I throw away most of my *Infoweb* and *InfoWorld* magazines and rarely read more than one article per issue. I don't need another business magazine with "important" news about Microsoft policies and politics. I need a technical magazine that tells me how to write shortcuts for creating and deleting user accounts, how to recover from DNS problems, and how to implement Kerberos (all past features in *MCP Magazine*). I make it a priority to read *MCP Magazine* cover-to-cover.

Your magazine has been a magazine for the guy in the trenches who sits around waiting for servers to reboot. You'll lose your soul—and your readership—if you change that.

—Name withheld by request
Franconia, Pennsylvania

If relevance is what you want, we'll deliver. Redmond will continue to publish information that's tactical in nature, and you will still find your favorite IT personalities offering advice to make your networks faster and safer. We'll also offer new, compelling content that puts all your work into perspective, helping you deal with management-level challenges. And remember, we'll still provide Redmond magazine for free to those who qualify.

—The Editors

THE HARD QUESTIONS
We just had to ask
How does Bill Gates rate as a Chief Software Architect?
 Send your thoughtful responses to editor@redmondmag.com.

Middleware is Everywhere.

Can you see it?

2

5

4

3

1



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Feel Free To Be a Stick in the Mud

Treading softly with SP2 makes for sound security policy.

BY SCOTT BEKKER

It's been a little over a month since Microsoft started streaming SP2 to Windows XP Professional customers over Automatic Update. That means you've got another three weeks or so to go until Oct. 25—the two-month anniversary of the service pack's full U.S. release—before you should start installing it.

There's no question that you should be testing SP2 aggressively, deploying it on pilot systems and kicking homegrown applications back to in-house developers to get them in line with Microsoft's new specs. SP2 is a critical service pack to deploy, just as Microsoft says.

The well-publicized downside of all SP2's changes is the number of applications that break when Windows XP SP2 installs. Microsoft worked hard for nine months in advance of the release to help ISVs get their apps in shape. Still, the company discovered embarrassing last-minute problems with major applications including Microsoft CRM, Microsoft Security Baseline Analyzer and its popular game Halo. In all, Microsoft documented nearly 50 commercial applications that stop working properly when the firewall starts. Another Microsoft list shows 38 commercial applications that are known to suffer a loss of functionality, such as failing to install.

By now all the new features should be thoroughly familiar. The on-by-default Windows Firewall blocks many more types of traffic and is more config-

urable through Group Policy. The Windows Security Center dashboard shows whether anti-virus software is running, if a firewall is up and whether Automatic Updates is set to pull down new patches. New features in Internet Explorer protect against malicious Web downloads, and IE has stronger default settings in the Local Machine zone. The Add-on Manager helps detect spyware.

SP2 will also help protect your network against zero-day exploits, like those that targeted IE just before SP2 shipped. But those appear to be rare. Two extra months of testing shouldn't increase your exposure too much.

Microsoft has been forced to agree that it needed to give users more time

to get up to speed. The company provided a tool to allow administrators to instruct Windows XP systems to delay installing SP2 from Automatic Update for 120 days. Microsoft later expanded the tool's delay period to 240 days.

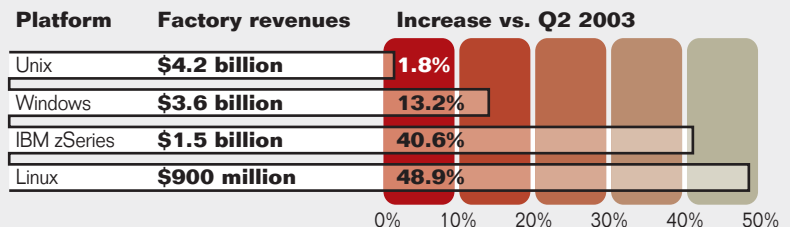
If Microsoft had problems with its own apps, you can bet that among ISVs—where anticipating the service pack was important, but far from job one—problems are still being discovered. Holding off on deployment will keep you out of your ISVs' de facto SP2 beta programs, as they continue to work through support bugs and get their Web site FAQs up to date. That can only make your eventual rollout go more smoothly. **R**



By the numbers

Hot Servers

The second quarter of 2004 was a good one for the server industry, according to researchers at IDC. The \$11.5 billion in factory revenues for Q2 2004 is nearly a 7 percent jump over Q2 2003. By platform, Windows showed strong growth while Linux flirted with the billion-dollar mark and IBM mainframes continued their comeback, with a third consecutive quarter of significant growth.



Note: Factory revenues include server hardware, operating system and other bundled software. Source: IDC, FRAMINGHAM, MASS.

— SCOTT BEKKER

EventLog

A roundup of recent Windows-related events

Microsoft Pipeline— Beta News

With Windows XP Service Pack 2 out the door, Microsoft unveiled a major shakeup to the next version of Windows, code-named “Longhorn.”

Breaking from a Longhorn tradition of dropping tantalizing hints and making unofficial statements about ship dates, in late August the company came out with a news release committing to a 2006 ship date for the Longhorn client and a 2007 ship date for Longhorn server.

A casualty of the new ship date is Windows Future Storage (WinFS), one of the three main pillars of Longhorn. (For analysis on what this means for the future of WinFS, see TechWatch, p. 15.) The other two pillars, the Indigo and Avalon technologies that make up the WinFX development platform, meanwhile, are no longer Longhorn exclusives. WinFX will be ported to Windows XP and Windows Server 2003. (See the cover story on Bill Gates for more about Longhorn, p.26.)

Microsoft’s other blockbuster product in beta also hit a pre-release milestone over the summer. The SQL Server 2005 database—a.k.a. Yukon—went into the Beta 2 testing stage, about two years behind schedule.

Microsoft announced a new pre-release build and a simpler name for the versions of Windows that will support the AMD64 and Intel Extended

Memory 64 Technology (EM64T) processors. Previously, Microsoft added “for Extended 64-bit Systems” to the end of each OS name. Now the products will be identified as x64 editions (see table, below).

Windows x64 Editions

Microsoft renamed versions of Windows for the AMD64 and Intel EM64T platforms. The current lineup:

■	Windows XP Professional x64 Edition
■	Windows Server 2003 Standard x64 Edition
■	Windows Server 2003 Enterprise x64 Edition
■	Windows Server 2003 Datacenter x64 Edition

RTM and Beyond

Microsoft Operations Manager (MOM) 2005, is released to manufacturing and should be generally available in the middle of this month. With the MOM 2005 RTM, Microsoft disclosed a new pricing structure that more than doubles the MOM 2000 list price of the central server to \$729 while eliminating per-processor requirements in favor of a simpler model similar to Client Access Licenses for managed servers. Microsoft also announced a \$499 Workgroup Edition for smaller organizations managing up to 10 servers.

Microsoft quietly finished coding Virtual Server 2005 in August, about a year behind schedule. General availability is planned for later this year. Host Integration Server 2004 also

reached the RTM milestone and the first service pack for Office 2003 is now available.

Microsoft carried through with plans to deliver a Windows XP “Lite” in some countries to encourage use and combat piracy by delivering limited functionality at a lower sticker price. Windows XP Starter Edition will be available in Thailand, Indonesia and Malaysia. Editions are coming for two more countries to be named later.

Odd Bits

The TerraServer project that began six years ago as a proof point for the scalability of the then-unreleased SQL Server 7.0 is live and still growing, serving up free aerial images of U.S. neighborhoods, stadiums and harbors at half-meter resolution. In 1998 scalability for a Microsoft database meant 1 TB of data and required a room full of disk drives and other hardware valued at \$2 million. Scalability now means a 20 TB TerraServer in two small racks on \$70,000 worth of hardware. The server’s images remain available at: <http://terraServer.microsoft.com>. **R**

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Cut From Longhorn, WinFS Is in Peril

BY SCOTT BEKKER

The Windows Future Storage (WinFS) technology that got cut out of Windows “Longhorn” is in serious trouble, and not just the hot water a feature might encounter for missing its intended production vehicle.

WinFS faces a much greater threat. It’s entering that resource allocation limbo that a Microsoft technology

TECHWatch

Tracking the Technology Lifecycle

encounters when it’s no longer on the priority list for the next major rev of Windows.

WinFS is an ambitious file system overhaul, aimed at making everything on a system searchable—from documents to media files to structured information—with a single set of search terms. It’s something Microsoft has tried to build for a decade.

WinFS was one of three main pillars of the Windows “Longhorn” client. The other two, “Indigo” and “Avalon” survived a late August round of feature trimming that signals Microsoft is getting serious about delivering Longhorn. The company now says the Longhorn client will ship in 2006 with those two pillars mostly intact.

Microsoft spun its decision to delay WinFS by laying out a seemingly solid roadmap for the technology. The company promises a beta version of WinFS add-on technology when the Longhorn client ships. But if a general availability ship date announcement from Microsoft is something to be taken with a grain of

salt, a beta commitment is something you can pour the whole shaker on.

Peter Spiro, pulled from the SQL Server team to spearhead the WinFS effort, will be hard pressed to keep top developers from defecting to nearer term projects with a better chance of being delivered. Involvement with a shipping project is a major mark of prestige at Microsoft, where the best developers are famous for jumping from project to project.

Spiro, one of Microsoft’s elite Distinguished Engineers, has something else to worry about—a server version of WinFS. As of the Professional Developers Conference last October, WinFS was a client-only play. Customers demanded the server tool to allow synchronization, according to Microsoft Group Vice President of Platforms Jim Allchin.

So now the add-on has to be rationalized against both the client

and server versions of Longhorn, which are shipping on different schedules. Microsoft has delivered major add-ons before, such as the .NET Framework, and a series of minor ones with Windows Server 2003, including Windows Share-Point Services. But a file system is very deep code that affects nearly everything else in the operating system. The idea of providing that technology as an add-on seems disruptive, to say the least.

Perhaps Chairman and Chief Software Architect Bill Gates’ large personal stake in WinFS will shepherd the technology to market either in Longhorn server or, even further out, the “Blackcomb” version of Windows. We will be keeping a close eye on WinFS. It’s a visionary, extremely useful idea, and we’d love to see it come to fruition. But it’s sure nothing to bet on right now. **R**

TechWatch Meter: WinFS



After being nixed from Longhorn, the future of WinFS is very much in doubt. It will likely take Bill Gates’ personal stake in the technology to save it.

ProductReview

INSIDE:

► Redmond reviews two leading virtual server software contenders.
Page 32

Bring Order to Hard Drive Chaos

PerfectDisk is an industrial-strength defragmentation solution.

PerfectDisk Version 6

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BY DAVID W. TSCHANZ

The files on your hard drive are like the stars and galaxies that make up the known universe, constantly pulling themselves apart—billions and billions of bits hurtling across the media in response to the laws of engineering and cosmology.

OK, Carl Sagan I am not. While there's little chance that a fragmented disk will cause your hard drive or the known universe to implode, fragmented program and data files are cumbersome and inevitable consequences of using a computer.

Fragmentation decreases a computer's performance by forcing it to use extra resources to read and write files; taking extra time to locate all portions of a document or program; and increasing downtime and required network maintenance. Fragmentation also causes unnecessary wear on your hard drive heads and can lead to data loss. A seriously fragmented hard drive makes your computer feel like it's trudging through molasses.

A defragmentation utility puts files back together, which helps the operating system read and use them faster, store them quicker and maintain them with fewer resources (such as CPU time, RAM and disk space). While Microsoft's operating systems ship with a built-in disk defragmenting application, it is basic in scope and limited in functionality.

Flexible Management

Raxco Software's PerfectDisk Version 6 (PDV6) is a disk defragmentation program that works with Windows Server 2003, Windows 2000 Professional or Server and Windows XP Home or Professional PCs, workstations and servers. PDV6 is touted as an industrial-strength defragmentation solution for distributed Windows networks. It works on every type of file on Windows 2003/2000 and XP PCs, including the Master File Table, all NTFS metadata, paging

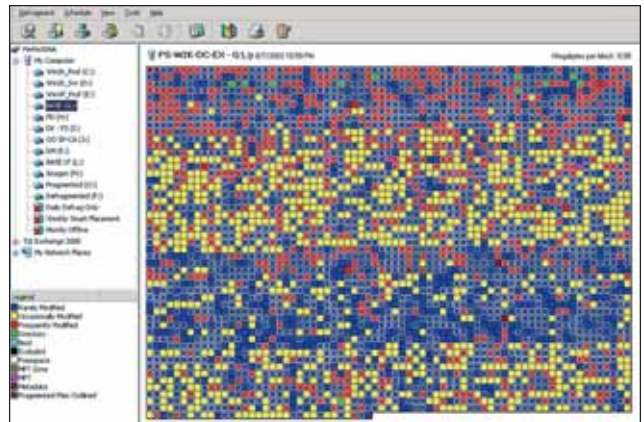


Figure 1. After PerfectDisk does its initial scan and Drive Health Report, it will give you a graphic representation of just how badly your drive is fragmented.

files, hibernation files and directories. The software is designed to defragment data files in a single pass, consolidate free space and organize hard disks according to usage patterns.

The program's Perfect Management technology integrates with Active Directory for flexible

“Installing PDV6 is child's play, requiring little more than the CD and the click of a mouse.”

enterprise management according to a preset, adjustable fragmentation level (threshold) or automated scheduling across a network. It can also work with PerfectDisk for Exchange to automate the

offline defragmentation of Exchange data stores. PDV6 can defrag hard drives with as little as 5 percent of free disk space remaining on the drive. It can also defrag disks of a terabyte in size or more. PDV6 includes boot time defragmentation, network management, command line support and a few other tasty bits as well.

Installing PDV6 on a single computer is child's play, requiring little more than the CD and the ability to click a mouse. Simplicity is a sure sign of good engineering.

You'll need Windows 2000/2003 or XP for successful installation. A minimum of 64MB of RAM is required, but at least 128MB is recommended.

When installed, PDV6 requires 2.5MB of disk space.

You can easily deploy PerfectDisk on remote systems using any of the following: Active Directory Group Policy, Windows Installer and SMS. It also supports remote deployment using most third-party remote deployment tools with the PerfectDisk command line installation interface.

First Pass

When you run PerfectDisk for the first time, the application makes a pass through your hard drive and determines the extent to which the drive is fragmented. After this initial analysis, the program shows you a “Drive Health” report, which outlines overall fragmentation, as well as the fragmentation levels of specific files, directories, page file and NTFS metadata. It

also indicates the amount of free space available on the drive.

PerfectDisk then offers a defragmentation recommendation based on the information retrieved during its analysis.

Two Choices

If PerfectDisk determines that your drive needs a defrag, it gives you the option to defrag in one of two ways; Smart Placement Defrag or Defragment Only.

Smart Placement Defrag defrags your files, arranges free space in contiguous blocks and optimizes your files based on the frequency with which they are accessed. Placing files in a logical order helps reduce unnecessary drive head movement, thereby reducing wear and tear and hopefully prolonging the life of the drive itself. According to Raxco, Smart Placement Defrag also optimizes the

drive so refragmentation occurs at a slower rate.

If you choose Defragment Only, PDV6 will defrag only your fragmented files. It will not place them in any particular order based on usage patterns and it doesn't consolidate free disk space on your drive. If you just need to perform a fast defrag of your data files, this is the option to choose.

Network Scheduling

You can configure PDV6 to perform defrag routines using threshold-based defragmentation, wherein it will only defragment a drive once it reaches a certain level of fragmentation. Alternatively, an internal wizard lets you schedule unattended defragmentations that run as background operations. I was particularly impressed with the network scheduling capabilities. PDV6 lets both users and administrators easily schedule online and boot time defragmentation runs throughout a network. You can cancel or change schedules easily through the scheduling interface. A Schedule Query Wizard helps you determine when PDV6 is scheduled to run on any system in a network.

The Disk Trending tool lets you collect detailed fragmentation statistics for a system over a period of time, with the statistics collection running in the background on a scheduled basis. The data is stored in a comma delimited file that you can import into

Excel, Access or any other program capable of reading a CSV file. You can use the data to help you make decisions about when and how to run defragmentation routines in the future, either by automated schedule or manually.

An AutoUpdate Feature periodically checks Raxco's support site for newer versions, or you can customize it to check for updates on your own update server. PDV6 also not only provides its own independent GUI, but can also be used as a Microsoft Management Console—a nice feature.

Industrial Strength

PerfectDisk 6 lives up to its billing as an industrial strength defragmentation utility for both Windows 2003/2000 servers and Windows 2000/XP workstations. With support for RAID and Volume Set, PDV6 can provide high level defragmentation capabilities for even large and complex environments with multiple storage arrays and volumes.

If you want more control of your hard drive defragging chores, PerfectDisk is a well-suited, reasonably priced solution for getting the job done. **R**

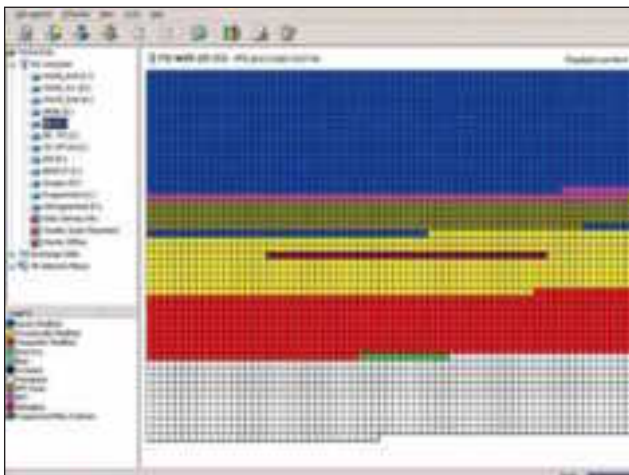


Figure 2. Run the Smart Defrag option, and PerfectDisk will defragment your hard drive and reposition data in order of most frequent use, reducing wear and tear on drive heads and slowing the refragmentation process.

David W. Tschanz, Ph.D., MCSE, A+, regularly maintains a variety of projects related to Web-accessible information, training, applications and information security. Contact him at desertwriter1121@yahoo.com.

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ProductReview

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BY GERRY O'BRIEN

Everyone has heard complaints from users about slow e-mail, not enough space in their mailboxes or problems connecting to the mail server remotely through Outlook Web Access. Like any other Exchange administrator, you want to know how your Exchange server is handling your applications, how they're performing and what they're being used for so you'll have a ready answer when those questions arise.

NetIQ's AppAnalyzer can help. AppAnalyzer has some unique features to help you better understand how your group is using Exchange and how you can configure your Exchange server for smoother sailing.

Careful Planning

The installation and operation requirements are a bit complicated for what looks like a simple product.

Fortunately, NetIQ provides an excellent quick start guide and verification utility that will warn you if

you forget to install any required element. This is one of the features that I liked best about AppAnalyzer. It's important to get an installation completed successfully and correctly on the first try. It's far too costly in man-hours to botch application installations and then have to start over—not to mention the potential for messing up other applications or settings on your servers. Using AppAnalyzer through its Web-based interface is a snap. You can run it on any platform that supports HTML 4.0, or a later version. Its Web-based interface is written in Microsoft's ASP.NET using version 1.1 of the .NET framework. This lets you run applications on multiple platforms, because ASP.NET renders the necessary HTML based on your browser's capabilities. At the very least, your browser must support HTML 4.0 and some form of ECMA compliant script-

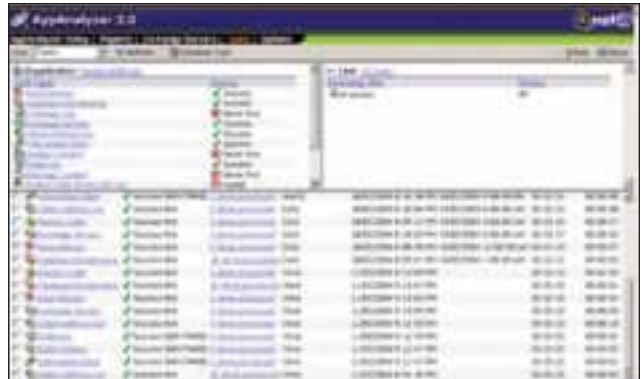


Figure 1. AppAnalyzer's Web-based interface makes it a snap to generate reports on Exchange server usage and performance.

ing, like Jscript or JavaScript.

The tasks page shown in Figure 1 has three panes. The upper left pane shows the tasks configured to run on this server. At a quick glance, you can see which tasks have been successfully completed, which haven't run yet and those that have errors or have failed.

The upper right screen lets you see all the Exchange servers in your organization and to connect to each one to verify that tasks have been set up for that server. The bottom pane shows you statistics on the tasks that have been configured and executed on the server. These statistics include the date and time of the task, number of items processed and the frequency of execution for tasks.

Serving Up Reports

AppAnalyzer uses SQL

Server and OLAP Services to gather data and produce detailed reports about your Exchange server. Once you've configured the necessary settings for generating reports, AppAnalyzer begins collecting data based on your chosen parameters and time frames. You can schedule tasks to start at a later date and time or run a task immediately using the WebAdmin Console.

Once that data has been collected, you can view a report to see details of the specific Exchange feature you've selected. AppAnalyzer processes the data cube through OLAP in SQL Server and presents a graphical representation of the data analysis.

NetIQ has also added something that is a "must have" in today's virus-riddled world of e-mail. AppAnalyzer can report on

and forward or delete messages based on their content, scanning for elements like keywords or certain types of attachments. Running the reporting functions at the appropriate times can also help significantly reduce the number of macro virus issues you'll have to face on a daily basis. I run Microsoft's ISA Server 2000 for my company's firewall and if you have ever attempted to install content filtering for ISA Server 2000 to provide the same functionality, you'll appreciate the ease with which you can configure this option with AppAnalyzer.

Using the virus filtering, you can report on messages by attachment. This lets you view a report on selected mailboxes to determine the attachment file extension and name. The report also includes the sender and receiver's e-mail addresses. AppAnalyzer also lets you monitor outgoing traffic with the same parameters. This provides you with a great opportunity to watch the mail traffic coming into and leaving your organization so you can determine whether or not employees are abusing the system and possibly opening your company up to legal liabilities.

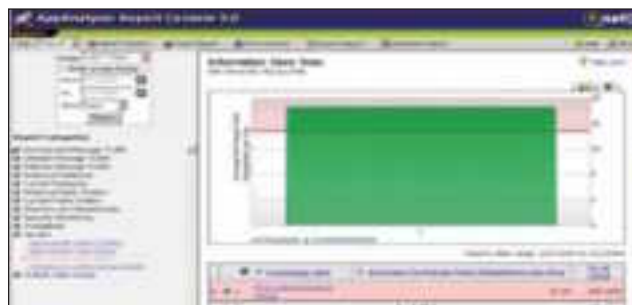


Figure 2. The AppAnalyzer Report Console is also Web-based, so you view it in a browser window. Shown is a report on the Information Store Sizes.

ties. You can also simply examine the volume of e-mail traffic per user.

Although there are some significant software and installation requirements you'll need to address, no Exchange Administrator should be without this tool. **R**

Gerry O'Brien, MCP, MCT, MCSD, MCDBA is a network administrator and IT instructor for the CompuCollege School of Business in Moncton, New Brunswick, Canada. Reach him at gobrien8199@rogers.com.

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Updates Made Easy

Microsoft Windows Update Services (WUS), the much-anticipated (and renamed) version 2.0 of Software Update Services (SUS), is due out late this year at the earliest. But I, Beta Man, got my hands on an early version of WUS and can report that, while it won't

replace a high-end management tool like Systems Management Server (SMS), for a free tool it is impressive indeed.

SUS 1.0 provides basic, centralized administration of Microsoft's Windows Update service. Essentially, SUS downloads all of Microsoft's updates and leaves it up to you to approve them for use; once you do, they're fair game for all of your clients. To get the updates, you program your client computers (Windows 2000 and later) to

including approving updates, on the central server; the replicas follow its lead. In Autonomous mode (the only mode available in the beta), each WUS server can receive updates from an upstream WUS server (or from Microsoft), but you must approve updates on each server individually.

Like SUS, WUS installs and uses the Background Intelligent Transfer Service (BITS) 2.0, which allows it to download updates using the server's "spare" bandwidth. The difference is that SUS uses BITS only for server-to-client transfers, whereas WUS uses it for all file transfers, including server-to-Microsoft synchronizations. BITS throttles the bandwidth used by its host server's NIC to ensure that a download doesn't overwhelm your LAN. (It does not, however, detect when WAN bandwidth is in high demand.) If the server wants to use the network for something else, WUS will throttle down and release bandwidth; when nothing else is going on, WUS will ramp up and use everything it can get.

Good Grouping

Another key new feature in WUS—one requested by many SUS administrators—is the ability to create groups for your computers, and to approve updates only for specific groups. This allows you to group two or three test computers into a pilot group, then deploy updates to them first for testing, for example. You can also prioritize updates, specifying that certain high-priority updates

must be applied, and whether they'll require a restart of the target computer.

You also get granular control over what updates a WUS server will handle, with the ability to choose specific products and update classifications—Security Updates, Critical Updates, Service Packs, Feature Packs and so on. Here's how it works: You create one or more subscriptions. Each subscription has an associated schedule (or can be run manually), and synchronizes updates for the products and categories you specify. Perhaps you want to get security updates every night, but download feature packs only monthly.

Reporting and Security

WUS also includes extensive reporting capabilities, something completely lacking in SUS. The coolest is the pre-deployment check, where WUS sends a request to all clients to see how many would install an update if it were made available. Responses shoot up to the WUS server, enabling you to get an impact report prior to actually deploying the update. This information can be used to limit the daily deployment of updates that prove risky during testing, and to alert your help desk to the potential increase in call volume.

You can also get status reports for individual updates, providing much-needed feedback. Unlike SUS, which pretty much just threw the update out there, WUS keeps track of who has yet to install it so you can watch the rollout progress. In the beta, this feature rolls deployment data up only from one WUS server to a parent server; anything deeper than that (say, three

Windows Update Services (WUS) 2.0

Version reviewed: Beta 1

Current status:

In development—no new dates

Expected release:

Late 2004 to early 2005

look at your SUS server rather than the Windows Update site. You can even cut off direct access to Windows Update if you like. SUS also supports a hierarchical infrastructure, meaning one SUS server can pull updates from another, allowing you to tier your network to minimize WAN utilization.

WUS operates in much the same fashion, although it will offer two distinct server roles: Autonomous and Replica. In Replica mode, you manage a single WUS server, and it synchronizes to multiple subordinate replica servers, perhaps located at remote offices. You perform all administration,

BETA MAN'S ROUTINE DISCLAIMER

The software described here is incomplete and still under development; expect it to change before its final release—and hope it changes for the better.

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or four tiers of WUS servers) won't report correctly. It's not clear whether Microsoft plans to address that issue before the final release.

The company did beef up security in WUS: The client only trusts content signed by Microsoft, so spoofed updates can't easily sneak into the database. The WUS client and server mutually authenticate one another as well, so your clients know they're talking to the intended WUS server, not a server trying to impersonate the official one. Any data exchange between client and server is encrypted.

More Control

You can look forward to some new control features in WUS, too:

- Updates that don't require a restart can be installed in the background, without users' knowledge.

- The new WUS client hides the Microsoft license agreements you normally associate with the Windows Update Web site, providing a transparent experience.

- You can schedule when updates occur, how frequently clients check for updates, and even schedule update downloading to occur during a specified block of time. Because BITS can resume a download where it left off, large updates can even download over several days, in the block of time you desire, finally installing when the download is complete.

What's Missing?

While WUS is a step in the right direction, it doesn't include everything you might like to see. My nits include:

- Microsoft built Microsoft Baseline Security Analyzer (MBSA) 1.2 to look

redmondmag.com

Don't install WUS without checking out what Beta Man has to say about:

- Installation, including tips and considerations
 - The role of SQL Server 2000
 - Competing products, including SMS and ConfigureSoft's ECM
- FindIT code: WUSbeta

to your SUS server, if you have one, and to ignore any updates which aren't approved on the SUS server. The theory is, if you didn't approve it, you don't want it, so there's no point in MBSA complaining that the update isn't installed. This feature of MBSA 1.2 doesn't work with WUS, although that'll doubtless go away by the time WUS releases, either in

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One Integrated Solution

additional WUS support or in a new version of MBSA.

- The SMS Feature Pack providing SUS integration also doesn't work with WUS. Again, that support will doubtless come in the final release of WUS or in a new Feature Pack.

- The WUS administrative console, like SUS, inexplicably uses an HTML interface instead of an MMC console. This interface also requires that IE be set up to allow Active Scripting, which in practice means you'll need to uninstall the Enhanced IE Security Configuration on Windows 2003 (and likely something similar on XP SP2).

WUS Gets It Done

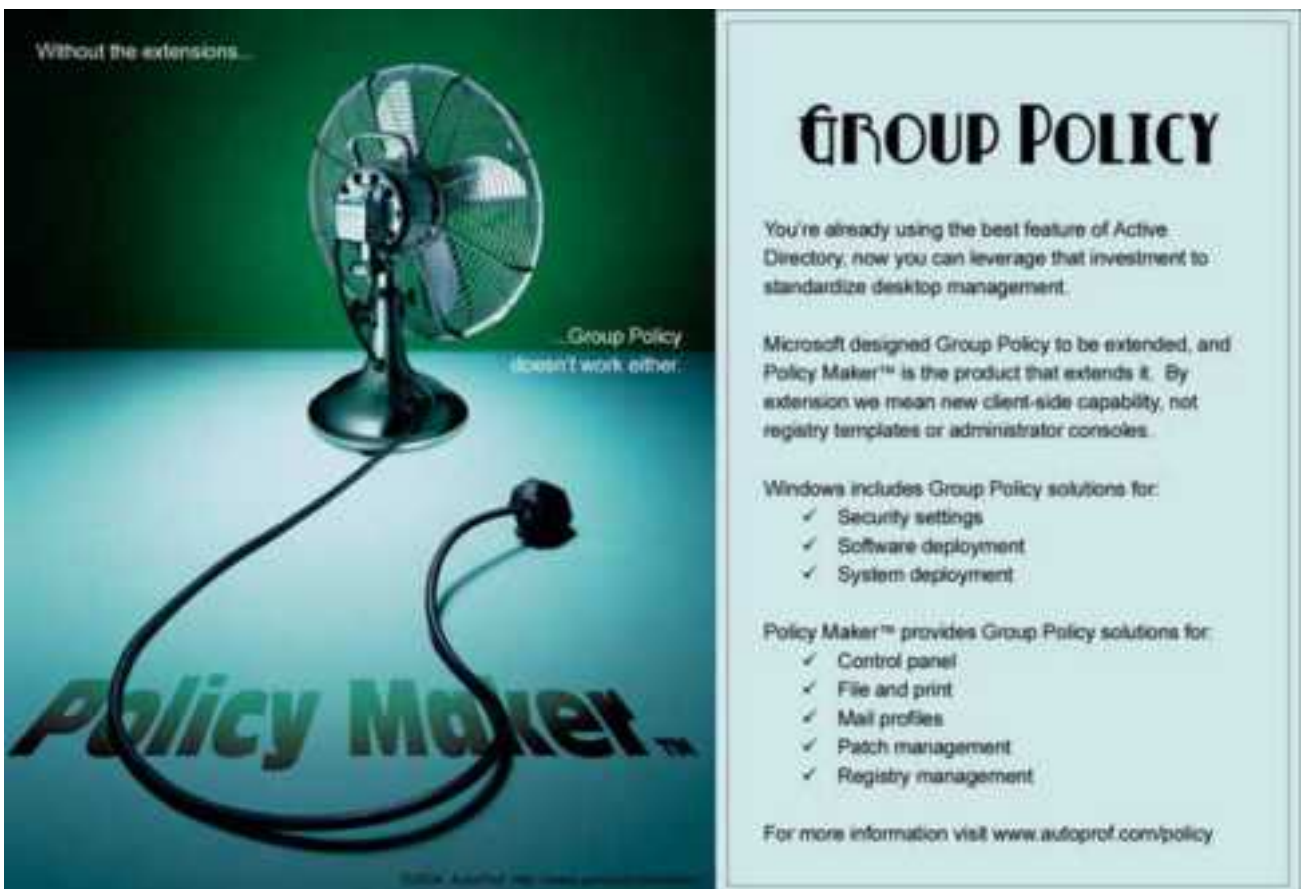
If your usual answer to, "How do you handle patch management?" is "Oh, look, it's coffee break time," you should get on the stick with SUS and

WUS post-haste. Both are free, easy to install and effective. Getting some practice in with SUS now will help prepare you for WUS, which is similar and extends SUS capabilities in several important directions.

If you've got SUS already, upgrading to WUS will be a no-brainer. You'll get all the features you've probably been wishing SUS had, plus an easy migration path that, even in beta, has given me no problems. If you have a better patch management solution—SMS, ConfigureSoft's Enterprise Configuration Manager (ECM), or something else—stick with it. While WUS will offer some neat integration tricks for SMS (a la the SUS Feature Pack already released for SMS), SMS is a better overall tool by far, as are tools like ECM (see our online sidebar for more information).

But for a free patch management solution, WUS is an impressive offering. Kudos to Microsoft for (finally) offering a robust, scalable patch management solution that doesn't require expensive per-client licenses (or indeed, any licenses beyond Windows itself) and doesn't need a month of planning and deployment. Look for WUS in late 2004, or early 2005 if things slip. WUS does depend on the public release of Windows Update v5, so a delay in that product's development will also postpone WUS. **R**

Don Jones is a contributing editor for Redmond magazine and the owner of ScriptingAnswers.com, a Web site for automating Windows administration. His most recent book is Managing Windows with VBScript and WMI (Addison-Wesley). Reach him at donj@braincore.net.



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B I L L 2.0

5-YEAR PERFORMANCE REVIEW



PHOTO BY SPENCER PLATT/GETTY IMAGES

MICROSOFT WATCHERS GIVE BILL GATES MIXED REVIEWS FOR HIS PERFORMANCE SINCE RELINQUISHING THE CEO TITLE TO BECOME CHIEF SOFTWARE ARCHITECT.

When Microsoft Chairman Bill Gates traded his chief executive officer title for the newly crafted chief software architect role nearly five years ago, the company spin was that he would work in areas that most interested him—and best used his talents.

Microsoft's bottom line: Gates didn't want to be so involved in the day-to-day running of the company. Turning that over to his trusted lieutenant Steve Ballmer gave Gates the time to think about future technologies and drive product development.

Some at the time read something more desperate into the move. *Wall Street Journal* reporter David Bank argued that Gates mishandled the U.S. government's antitrust case against Microsoft and needed to be shunted aside. Other experts agreed with the Microsoft public relations machine, and believed Gates simply had enough of the relentless business decision-making and wanted to return to his first love: technology.

Examining what Gates has actually done in the last five years shows that he has taken to his chief software architect role with gusto. He's left obvious fingerprints on enough recent Microsoft projects and decisions to show that he is more involved in software and technology direction than those high-profile critics ever expected. He's also more involved in pure business decisions than the skeptics predicted. Perhaps that shouldn't be a surprise. After all, while he is no longer CEO, Gates never gave up his other Microsoft title: chairman.

Long-Delayed-Horn

Gates' primary responsibility as chief software architect is leading software development, and on no project is that more evident than Longhorn, the successor to Windows XP.

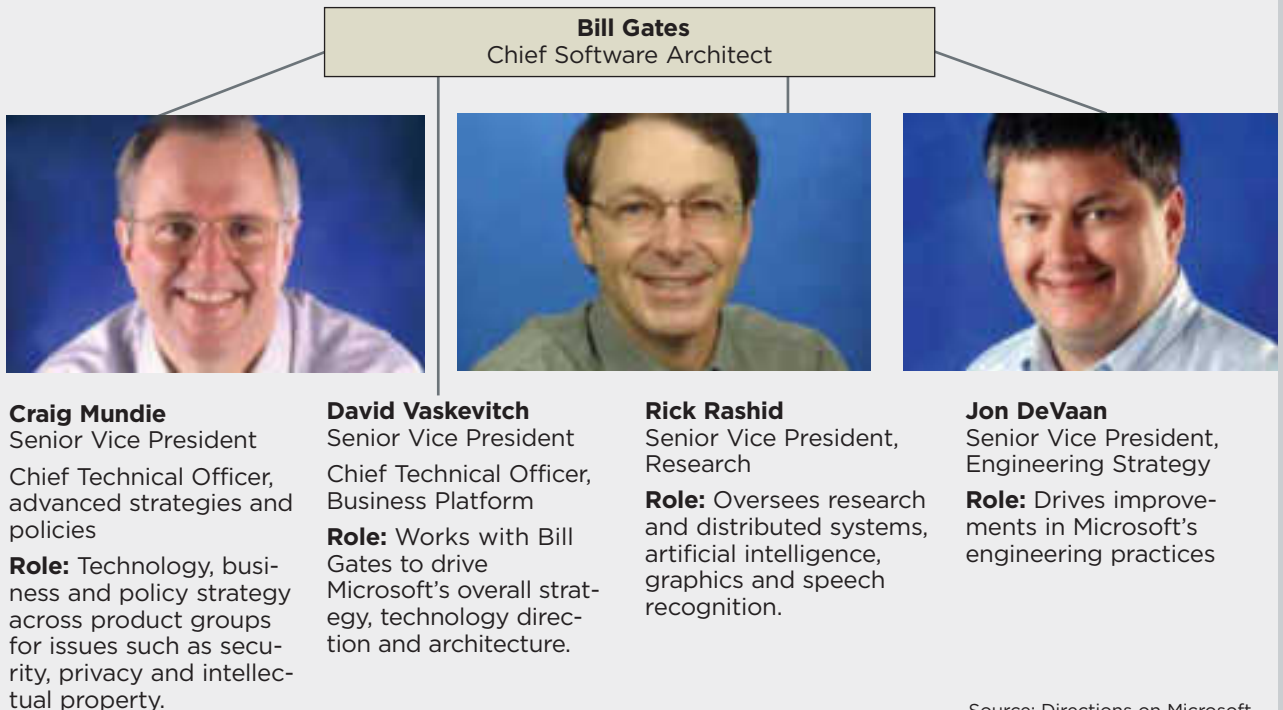
"Longhorn is the first release that Bill has been intimately involved with since its inception," says Greg DeMichillie, an analyst with Directions on Microsoft who spent nine years in Redmond as a group program manager. In June 2002, Gates was reportedly spending roughly a quarter of his time with developers shaping Longhorn. His intensive, early involvement helped push forward several priorities, including:

- New graphics and UI technology, code-named Avalon

■ BY KEITH WARD AND SCOTT BEKKER

Bill's Guys

Since Bill Gates became chief software architect, most high-level Microsoft executives report to Steve Ballmer. Ballmer still reports to Gates, who retains the title of chairman. But as chief software architect, Gates has just four direct reports, according to Directions on Microsoft, an analyst firm that keeps close tabs on Microsoft's organizational chart.



- Communications infrastructure for Web services, code-named Indigo

- Integration of the file system and database, known as WinFS

Gates has long been enamored with the WinFS idea, also known as unified storage. At last October's Professional Developers Conference, Gates declared, "Some of you here have heard me talk about unified storage for more than a decade. The idea of taking the XML flexibility, database technology, getting it into the file system: that's been a Holy Grail for me for quite some time." Indeed, the idea was included in Cairo, a Gates-backed object-oriented, RDBMS-based OS under development in the mid-1990s that never shipped.

On Aug. 2, 2004, in a speech to the Microsoft Research team, Gates called WinFS, "A very large investment for us...we need to have lots of developers building on top of that showing us

where we can take that idea of storage in a very different way."

Delivering on that vision is proving difficult. Longhorn was first mentioned as a deliverable as early as the second half of 2004, but more recently experts were saying it would ship in 2007. On Aug. 27, less than four weeks after Gates' speech to the research team, Microsoft said it would ship Longhorn in 2006, but with only two of the original three pillars: WinFS will have to wait longer still.

Tech Drivers

While his visions may not always come to fruition, among the countless technical geniuses in Redmond, Gates is the software visionary who defines the key issues.

Perhaps the simplest way to tell what technology Gates deems important is to read his periodic executive e-mails. In the last two years, he's penned mis-

sives on trustworthy computing, with two subsequent security progress reports; spam; and preserving the value of e-mail. These memos are nothing new, of course; perhaps the most famous is the "The Internet Tidal Wave" memo he issued on May 26, 1995, just months before the launch of Windows 95. The memos serve as marching orders for thousands of Microsoft developers.

One long-time hot-button is alternative input, including speech recognition and pen computing. Here Gates is either ahead of his time or overly optimistic. Take the Tablet PC, which debuted in November 2002. The following March, at the Mobility Developers Conference, Gates called the Tablet PC "an explosive form factor, because things like annotation and reading, note taking, haven't really been possible," and spoke of vendors selling out of their units.

But the Tablet PC has yet to capture the public's imagination. Analyst DeMichillie says it's a "product that probably would have been killed had it not been for Bill's personal advocacy."

Gates makes time for nearly all Microsoft products. Development projects are still subject to the legendary "Bill Review," where Gates grills product teams about their wares ("Gestapo-style" is how one IT consultant who's worked with Microsoft described it).

As is to be expected for a chief software architect, and the man who launched the division, Gates is intimately involved with Microsoft Research. He talks up its advances regularly in speeches and interviews—and funds it generously. Michael Fleisher, chairman and CEO of Gartner, said in a recent speech that in the five years since Gates became chief software architect, Microsoft Research's budget has more than doubled, from \$3 billion to \$6.8 billion (a figure, Gates is quick to point out, that far surpasses IBM's \$5 billion R&D budget). With that money comes accountability: One of only four people who report directly to Gates is Rick Rashid, who runs Microsoft Research's worldwide operations. (See chart for his other direct reports.)

While Gates is constantly and aggressively pushing the Microsoft technology agenda, he now does so in a less public manner. Consider that in 1999—his last year as CEO—Gates delivered at least 31 public speeches, according to transcripts posted on his official Microsoft Web page. Last year, the number was 17. He also doesn't speak to the press as much, declining to be interviewed for this story (along with Ballmer and every other Microsoft employee contacted by *Redmond* magazine). Ballmer, on the other hand, agreed to answer questions from readers for the August 2004 cover story of *Redmond's* predecessor, *Microsoft Certified Professional Magazine*.

Still Showing Business Savvy

While Gates appears happy focusing on technology, CEO Ballmer has changed the way Microsoft does busi-



Bill with his other love—Melinda.

ness, offering olive branches and in some cases billions of dollars to formerly bitter rivals. Where Gates fought tooth and nail against every antitrust allegation, Ballmer has been far more practical. Since the settlement of the U.S. Department of Justice antitrust trial in 2001, Ballmer is widely credited with a more conciliatory legal strategy that has led to numerous settlements. In 2003 and 2004 Microsoft settled at least 14 class-action, trademark infringement and antitrust lawsuits.

"There have been a number of legal settlements since Steve's been on board," says Mary Jo Foley, editor of the newsletter *Microsoft*

Watch. She chalks it up to "Bill's antagonistic, take-no-prisoners attitude." She pointed to the recent settlement with Sun over Microsoft's implementation of Java as an example. Microsoft paid out almost \$2 billion to bury the hatchet.

The Sun deal also points to how Gates and Ballmer have settled into their assigned roles. A deal with Sun was the technology equivalent of the Eagles reunion—years of bad blood and mutual sniping swept under the rug with a big public announcement, and lots of money changing hands. The gala press conference featured business heads Ballmer and Scott McNealy. But to lay the technical groundwork, Gates met with Sun CTO Greg Papadopoulos on and off for a year.

It's a mistake to think Gates focuses solely on technology these days. The chairman remains interested in decisions that are almost all business, such as mergers and investments in competitors. One example came out of the Oracle-PeopleSoft court battles. Oracle entered into evidence a June 2003 e-mail from Gates to Ballmer suggesting that it's "time we bought SAP," and advocating a minority investment in PeopleSoft to "bolster their independence." The talks with SAP fell apart in the early stages.

Still, his main interest is product development. In an interview last year with *Seattle Times* Reporter Brier Dud-



Bill Gates with his soon-to-be CEO Steve Ballmer in 1998.



Bill Gates in 2000 with a group of mothers and their children in New Delhi after Gates announced his foundation awarded \$30 million in grants to benefit children and students in India.

ley, Gates said he spends two-thirds of his time in his role as chief software architect. “One of the big changes with his job is that he’s able to become involved in the product development process earlier, where before he might become involved late, which would frustrate him,” Dudley says.

A Sketchy Track Record

But is his earlier involvement good for Microsoft?

If you try to answer the question by looking at Longhorn, the picture is not so rosy. After suffering several delays, the product will now ship with only two of its three original legs—a .666 batting average may be outstanding for a baseball player, but it’s not so hot for a software company.

WinFS is an ambitious idea, intended to be a file system that allows users to search through documents, media

and structured data using a single set of search terms. It would embed database technology from SQL Server into the operating system.

While Gates championed the WinFS technology, Group Vice President for platforms Jim Allchin and legendary Microsoft shipper Brian Valentine polled developers for their status and gathered customer and partner feedback. The conclusion: WinFS would hold up delivery until 2007. At the time, Gates remarked that he, Allchin, Ballmer and other executives were having “a lot of dialogue.”

Indeed, heavy Gates involvement with a product’s development hasn’t always been a good thing. Many projects Gates pushed passionately simply fell flat. “He’s always been a huge proponent of alternative input—voice, joysticks, pen computing. But those products haven’t been that successful,” says Barb Darrow, a veteran Microsoft watcher for *Computer Reseller News*.

Part of the problem is Gates’ refusal to look beyond the company’s Windows-centric strategy, argues Michael Cusumano, a professor at the MIT Sloan School of Management in Cambridge, Mass., and author of the book *Microsoft Secrets*.

“There’s no reason Microsoft could not have developed a state-of-the-art OS for handheld PDAs or cellphones that really optimized their functional-

ty,” Cusumano says. “Instead, [Gates’] Windows-centric strategy demanded they create a version of Windows for those devices. Windows CE and all those versions of handheld OSs are very large and clunky and not as good as specialized OSs. That’s why they’ve had a tough time in those markets.”

The example points to the downside of Gates’ deepening involvement with development. “There’s not as much intellectual variety in the company,” Cusumano says. “They are susceptible to group-think, all basically following a similar line.”

Seeing the Big Picture

One positive that Gates brings to the table is first-hand knowledge of everything Microsoft is doing, from Microsoft Research to the seven business divisions, on down to the product development teams.

This becomes clear during the “Bill Reviews” which occur once or twice a year for major products, according to DeMichillie. “The main value he adds is that he’s the only one who can point out overlaps between groups that they might not otherwise know about,” he says.

Joe Wilcox, a senior analyst for Jupiter-media Corp., agrees: “I’m convinced that if there’s a person who understands everything Microsoft is doing in terms of software, it’s Bill Gates.”

GetMoreOnline

- Check out our companion story, “What About Steve?” on how CEO Ballmer is faring, along with links to more fodder on Gates and his role as Chief Software Architect.

FindIT code: Bill2

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WHERE THE MONEY COMES FROM

Microsoft wrapped its fiscal 2004 in July. Here's how the seven major divisions fared.

Segment	Revenues (millions)	Operating Income (millions)
Client	\$11,546	\$8,015
Server and Tools	\$8,483	\$96
Information Worker	\$10,800	\$7,151
Microsoft Business Solutions	\$667	(\$255)
MSN	\$2,216	\$121
Mobile and Embedded Devices	\$247	(\$224)
Home and Entertainment	\$2,876	(\$1,215)

Another of Gates' historical strengths is having an understanding of not just Microsoft technology, but every competitor's strengths and weaknesses. And Gates still carefully tracks what the competition is doing, as the Oracle-PeopleSoft example demonstrates.

One thing that has changed is that Microsoft is no longer Gates' sole focus. Gates' long-time bridge buddy and fellow billionaire Warren Buffett has said that Gates found a rhythm to balance work, family and philanthropy. Gates is not only married with three children, but also spends a healthy amount of time on the Bill and Melinda Gates foundation, which has a staggering endowment of some \$27 billion. Interestingly, the foundation started in January 2000, the same

month Gates handed over the CEO reigns to Ballmer.

"If he appears to have mellowed at all, it's because he has other things in his life besides Microsoft, but that doesn't diminish Microsoft's importance," says the *Seattle Times*' Dudley. "Frankly, he's earned a break. He may not take one, but he's earned it."

"Microsoft is still clearly his priority, although not more than his family," says Cusumano. "It's good for him psychologically to be not so tied to the company. It's not healthy for someone to spend 100 percent of his time on Microsoft stuff."

The Road Ahead

Maybe not 100 percent of his time, but Gates isn't about to start slacking off,

especially as Microsoft faces its biggest threats ever. Linux, not only in the server room, but increasingly on the desktop, is worrying plenty of folks in Redmond. And Microsoft has been much less successful in its ventures outside of operating systems and Office applications. Meanwhile profits from those core products are leveling off (Microsoft's Client, Server and Tools, and Information Worker businesses together accounted for nearly \$30.8 billion of Microsoft's \$36.8 billion in revenues in fiscal 2004), forcing Microsoft to be more creative in its quest to grow.

Gates has some tricky and fundamental technical decisions to make. "Any dominant company has this problem. You don't want to throw away a dominant position," Cusumano says. "It would have been in Microsoft's best interest to allow more work around open source, [such as] Linux and Java, and to handle multiple technologies other than its own. IBM has done that very well; Microsoft will have to do the same."

IBM has also done one other thing: It's made lots of money consulting, another possible revenue stream for Microsoft to explore, Cusumano says. "IBM's software products have been flat, [but] it makes three times that money in the service business. Again, Microsoft has not done [that]. That's something they may have to do 10 years in future, when the Windows market really flattens."

In his interview with the *Seattle Times* Gates speculated about that future. "By the time I'm 60 someone else will be doing my job ... I can see at least 10 years of work yet to be done that I think I can help with. And so somewhere in my late 50s, someone else will step up."

It will be virtually impossible for that person to have the impact on a company, or an industry, that Bill Gates has had. **R**

Ward is managing editor and Bekker is news editor of Redmond magazine. Executive Editor, Reviews, Lafe Low also contributed to this story.



Last year Bill Gates delivered 17 speeches, down from at least 31 in 1999, his last year as CEO.

RedmondRoundup

Virtual Servers in the Real World

Server consolidation may be a necessary evil, but either Virtual Server 2005 or GSX Server can ease the pain.

In this Roundup

Virtual Server 2005

\$499 standard edition, supports up to four processors
\$999 enterprise edition, supports unlimited processors

Microsoft Corp.

800-426-9400

www.microsoft.com

GSX Server

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\$6,050 for four processors

VMware Inc., a subsidiary of EMC Corp.

650-475-5000

www.vmware.com

BY DON JONES

Server consolidation is a big deal. The “do more with less” economy in which we’re living has companies wanting to rid themselves of old, insecure and unmanageable Windows NT file servers, Linux servers and who knows what else. Upgrading old servers isn’t always a viable option and buying new ones may not be feasible either. There’s also the time and expense required to migrate files, folders and printers to the new servers and re-educate users, explaining that Server51 through Server55 are going away and will be replaced by the new BigServer2.

Enter virtual server software. By running multiple servers on one physical box, IT can consolidate servers using what they have—and not spend a lot of dough. And users can still access Server52, not realiz-

ing it’s actually running as a guest on BigServer2.

Going Virtual

Microsoft’s latest virtual server offering, Virtual Server 2005, is expected in the latter half of 2004. Virtual Server will run on Windows Server 2003 (including Small Business Server and XP Pro). The Standard Edition supports up to four processors, while the Enterprise Edition runs as many as 32 processors.

VMware, which is owned by EMC, checks in with GSX Server. This utility runs on Windows Server 2000, Windows 2003 and certain Linux installations. VMware also has a high-end edition called ESX Server, which is actually its own standalone operating system loosely based on Linux. The theory with ESX Server is that by having a single-purpose operating system, you can squeeze more virtual machines onto one physical box.

► For more reviews, turn to our **Product Review** section that begins on **Page 16**.

Both Virtual Server and GSX Server emulate the complete set of server hardware:

memory, processor, IDE bus, BIOS, video, SCSI bus, network adapters and so on. Most emulated hardware simply passes through to the physical hardware, with that pass-through managed and arbitrated. Disks are a notable exception. Each virtual machine disk is encapsulated into a single file on the host operating system. This makes moving virtual



Figure 1. You’ll be directed to the HTML-based administration page as soon as you complete installation of Virtual Server 2005.

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machines from host to host a piece of cake. Just copy a configuration file and all the disk files.

Like Virtual PC and GSX Server, SWSOft's Virtuozzo (see "And Now for Something Completely Different: Virtuozzo Virtual Server Software," p. 38) lets you run multiple virtual servers on one physical box, but that's where the similarities end. SWSOft takes a completely different approach to virtualization, since its original target market was application hosting providers needing large-scale virtualization on Linux-based boxes. Rather than emulating the hardware, Virtuozzo emulates the host operating system kernel.

Virtual Server 2005: An Eye Toward Automation

Microsoft's offering is based on the Virtual PC technology it acquired from Connectix. Installation of the release candidate on my Windows 2003 system was uneventful, and I was quickly referred to the product's HTML-based administration page, shown in Figure 1 on p. 32. This Web-based administration is a new and unwelcome trend in Microsoft products. Microsoft has a perfectly good management interface in the Microsoft Management Console (MMC). In the case of Virtual Server

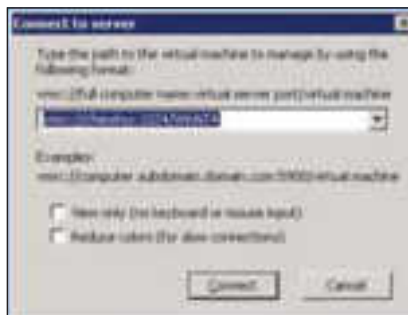


Figure 2. Virtual machine remote control gives you a "desktop-in-a-window" view.

2005, an MMC-based administrative interface would have been more functional and easier to use than the Web-based one.

You'll use the Virtual Machine Remote Control Client (RCC) to work with Virtual Server. As shown in Figure 2, the RCC uses a new, proprietary Virtual Machine Remote Control (VMRC) protocol to attach to running virtual servers. This gives you a "desktop-in-a-window" view, similar to running a virtual machine under Microsoft Virtual PC or VMware Workstation. Performance of the RCC seemed adequate, although less sophisticated than VMware's GSX Server Virtual Machine Console. Before you can use VMRC with a virtual server, however, you need to specifically enable it to do so.

Virtual Server 2005 also includes an ActiveX implementation of the RCC, which you can launch from within the Web-based administrative user interface (which only works with Internet Explorer, by the way). The ActiveX control is pretty bare-bones and isn't as satisfying as the RCC.

One feature that Virtual Server 2005 has over GSX Server is differencing drives. Keep in mind that all virtual machine hard drives exist as single files on the host computer. A differencing drive is a file that outlines differences between an existing, read-only virtual hard disk and the virtual machine's current condition.

Suppose you create a virtual server running Windows NT 4.0. You get the operating system fully installed and then shut it down. You then create two differencing drives, named DiffA and DiffB. Both are based on the original NT 4.0 virtual machine hard disk. You now create two new virtual machines, ServerA and ServerB, and instruct them to use DiffA and DiffB as their hard drives. Any changes made to ServerA or ServerB are written to the DiffA and DiffB drives, preserving the "base" NT drive. You can't modify the base NT drive without invalidating the two differencing drives, but you've saved disk space. Instead of having two virtual disks with a full copy of Windows NT, you have only one.

Virtual Server does let you allocate the physical machine's resources across virtual machines. As shown in Figure 3, you can specify percentage levels for processor utilization, as well as weighting information. You can reserve a percentage of the processor for a particular virtual machine and limit the processor overhead a virtual machine can consume. You can also specify memory allocations, which is done as part of each virtual machine's configuration.

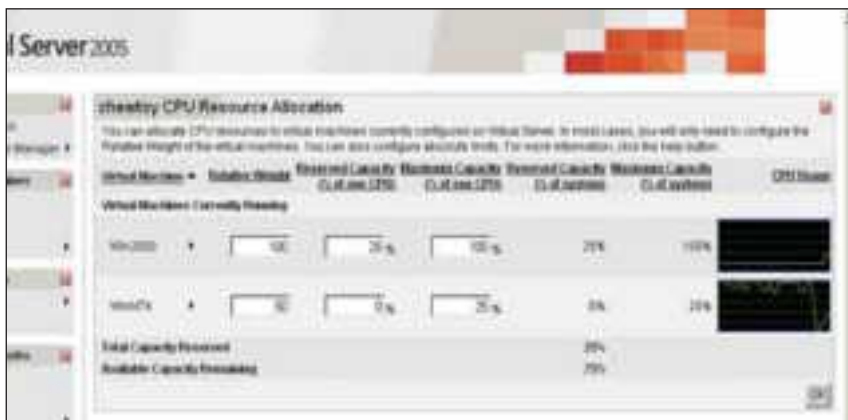


Figure 3. You can specify percentages for processor utilization, reserve capacity and weighting for each of your virtual machines.



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Virtual Server 2005 has sensible default settings. For example, when a virtual machine stops, Virtual Server saves its status, which helps you quickly restart it later right where it left off. You can configure machines to start up when the host machine starts, ensuring that production-level virtual machines are always running.

Virtual Server 2005 is very well-suited to automation. It is completely exposed through COM interfaces, meaning you can write VBScripts (or whatever else) to create virtual machines, clone them, manage them, and so on. Building that kind of automation capability into a product isn't unusual for Microsoft. What's unusual is that they've actually documented it—Virtual Server 2005 ships with a programmer's guide that's accessible even to beginning scripters.

GSX Server: A Sensible Interface

I also installed GSX Server on a Windows 2003 test machine. GSX Server provides an administrative interface that will be remarkably familiar if you've used VMware's Workstation. As shown in Figure 4, a "Home" tab provides icons to create and manage virtual machines, while the list of configured machines appears on the left-hand side of the window. Each virtual machine has an additional tab that lets you quickly interact with any machine from the same window, as shown in Figure 5 on p. 38. This seems to be a much more integrated and sensible approach than Microsoft's Web-

based administrative interface and separate (or ActiveX) remote-control clients.

GSX Server lacks the differencing drive capability of Virtual Server, meaning two virtual machines can't share an underlying virtual disk file. That's a shame, because older versions of VMware products *did* provide this capability. In GSX Server 3.0 (and VMware Workstation 4.5), there's a new snapshot capability instead. This essentially "bookmarks" your virtual machine's status, and you can revert to this status at any time. You only have one bookmark at a time, and once you revert, you can't undo the operation.

GSX Server also doesn't provide the same resource-control methods as Virtual Server. You can set a virtual machine's processor priority to low, normal or high for one of two conditions: When you're interacting with it (normal or high priority) and when you're not (normal or low priority). You can't reserve processor priority for a virtual machine or set a processor maximum. Like Virtual Server, you can designate specific virtual machines

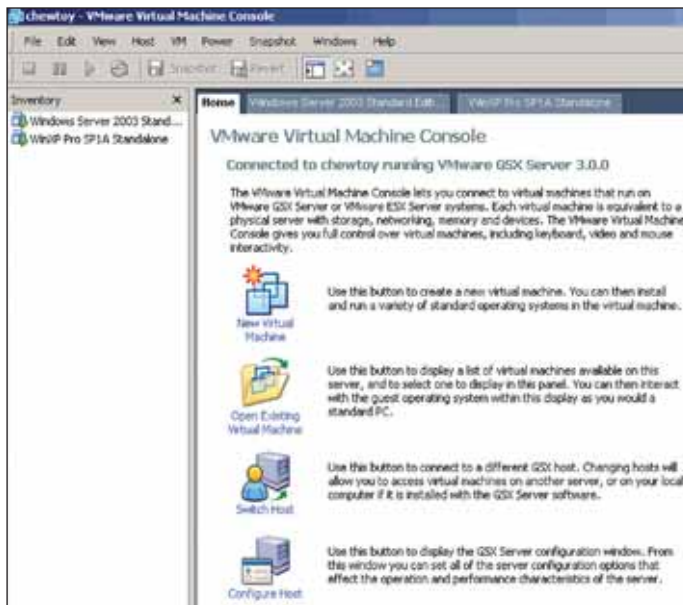


Figure 4. Folder-style tabs let you toggle between virtual machines quickly and easily.

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To learn more about the care and feeding of virtual servers:

- "Virtual Servers: The Licensing Factor" gives you a quick heads-up on Microsoft's attitude toward licensing servers—virtual or not.
- "The Computer That Never Was" offers a snapshot of the virtual server landscape.

FindIT code: **Virt**

to start when the host starts, ensuring that production-level virtual machines are always available.

More Alike Than Not

Besides some minor interface and operating details, Microsoft Virtual Server 2005 and VMware GSX Server 3.0 have much in common. Both performed similarly on my test machine; running the same number of similarly-configured virtual machines at the same time with the same response levels.

Both provide industry-standard security features for administrative connections, including SSL encryption. Virtual Server 2005 has an administrative scripting interface that is disabled by default—a welcome change from Microsoft's previous policy of building in scripting and leaving it enabled, giving script-based viruses an easy point of entry. Virtual Server also leaves remote control access to virtual machines disabled, putting any potential security risks for enabling it squarely on your shoulders.

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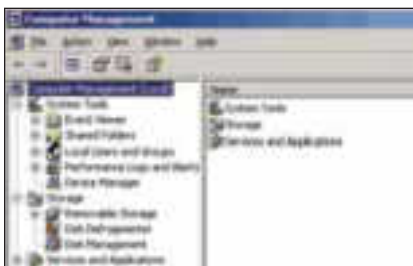


Figure 5. Selecting a tab for a virtual machine lets you access and control that machine within the same window.

There was one notable difference between the two: Virtual Server 2005 took roughly three times longer to install on Windows 2003 than GSX Server. This is the same installation performance difference I've noted between Virtual PC 2004 and VMware Workstation 4.5.

Tools of the Trade

Microsoft has announced a migration toolkit that will help migrate physical servers to virtual servers, thereby easing the consolidation process. Microsoft has also announced a late-2004 "management pack" for Virtual Server 2005, which will include additional management tools.

With a head start on the virtual server scene, VMware already has a family of tools available. VirtualCenter is a centralized management and provisioning tool that gives you control of multiple GSX Server hosts. This includes VMotion, a tool for quickly moving virtual machines from host to host on the same Storage Area Network with no downtime. The VMware P2V Assistance is designed to migrate between physical and virtual servers.

You can't go wrong with either VMware GSX Server or Microsoft Virtual Server 2005 for server consolidation. Both give you what you need. GSX Server stands out primarily in its mature administrative interface and official support for non-Microsoft operating systems.

And Now for Something Completely Different: Virtuozzo Virtual Server Software

Virtual Server and GSX Server both emulate a computer's hardware, including memory, processor, and so on, so each virtual machine appears to be a complete, standalone computer to anything running *inside* the virtual machine.

Virtuozzo, on the other hand, doesn't emulate the hardware. Instead, it emulates the operating system kernel. It does separate virtual disks for each virtual machine, and lets you allocate resources like memory and processors to the virtual machines. The benefit of this technique is that Virtuozzo has significantly lower overhead than Virtual Server and GSX Server, which can spend up to half of the host computer's time emulating hardware. This way, you can run many more virtual machines per physical server. SWsoft once started 5,000 Linux-based virtual machines on a giant IBM server with 16GB of RAM and a handful of processors.

There's one significant downside to Virtuozzo's technique, though. Your virtual machines must run the same operating system as the host server. You can't run Linux virtual machines on a Windows box, and you can't run Windows virtual machines on a Linux box. You can't even run Windows 2000 virtual machines if your host server is running Windows 2003.

SWsoft originally offered Virtuozzo only in a Linux version, leaving Windows virtual servers out in the cold. The company is working to release a Windows version (expected to go into beta in late 2004), but right now you can't use Virtuozzo to consolidate those old NT 4.0 servers.

Virtuozzo does have a place in the enterprise, though. If you have a large Web farm (or need to build one), it may be more efficient to build a single giant server that hosts a few dozen virtual Web servers, than to purchase, configure, and manage a few dozen boxes in your data center. Virtuozzo also has some tools for deploying software updates to an entire batch of virtual servers, helping make server management *en masse* easier and more efficient.

SWsoft's Virtuozzo is unlikely to be your first choice for server consolidation, due to its inability to run different operating systems within its virtual machines. However, if you've moved beyond the need for server consolidation and instead need to manage large numbers of virtual servers for things like Web hosting, Virtuozzo is worth a look.

—DON JONES

Virtual Server 2005 offers a slight advantage in resource allocation and naturally integrates more tightly with related Microsoft products, like Microsoft Operations Manager. **R**

Don Jones is a contributing editor and columnist for Redmond magazine and the manager of ScriptingAnswers.com. You can reach Don at donj@braincore.net.

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OPTIMIZING EXCHANGE:

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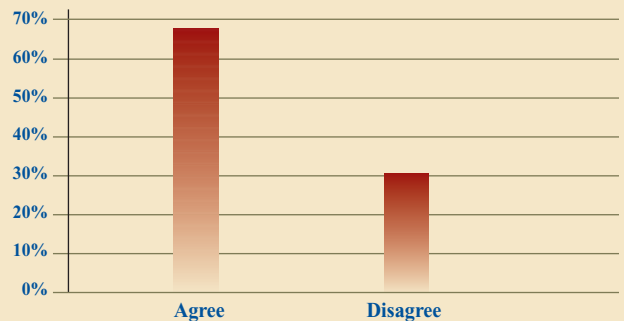
STRATEGIES FOR MANAGING THE LIFECYCLE OF E-MAIL DATA

By Sherree DeCovny
Larstan Business Reports

A set of market and technological trends are creating a need for midsize organizations that currently use Microsoft Exchange as their enterprise e-mail infrastructure to re-evaluate the way they manage mission-critical e-mail data. This is the central conclusion of a white paper from Larstan Business Reports that featured a survey of over 200 professionals in midsize organizations that have implemented Microsoft Exchange as their primary e-mail platform. The survey found that:

- **There has been a huge increase in the volume of e-mail traffic and the size of attachments.** While 16 percent of respondents indicated that e-mail traffic per-person (or seat) is rising by around 10 percent per year, a whopping 62 percent said that the pace of growth was as much as 20 percent. The remaining 14 percent of respondents said e-mail is growing at a rate faster than 20 percent per year per seat. The increased volume is putting stress on the existing e-mail infrastructure — including storage. It is also challenging the ability to provide operational support and emergency backup capabilities to the e-mail store.
- **Over half of respondents (52 percent) said that the amount of storage needed to accommodate growth in e-mail traffic is growing at a pace of up to 20 percent per year.** Only 22 percent of respondents indicated that the growth is 10 percent or less. For many organizations this translates into a need to consolidate e-mail server and storage systems to simplify the management of growing e-mail traffic and volume.
- **Almost two-thirds of respondents (63 percent) said that the number of IT support/helpdesk calls related to e-mail**

The Personal E-mail Boxes of Employees Run Out of Space Frequently



Source: Larstan Business Reports

storage and management issues is rising. Many of these calls revolve around requests to recover ad hoc messages that have been stored as personal e-mail files (or PST files). This scenario is creating a burden for both users and IT professionals, as workers struggle to keep track of current and archived e-mail.

- **There is a fairly fragmented and un-integrated e-mail management environment, which many respondents see as an issue that needs to be addressed.** This manifested itself in a number of ways: only 42 percent of respondents reported they have in place an enterprise-wide strategy for managing email archives; 69 percent said employees personal e-mail boxes run out of space frequently. About the same number of respondents (67 percent) said they are planning to enhance their e-mail archiving strategy over the next 12-18 months.

These statistics indicate a need for organizations to develop a better way to extend the message store (to avoid time spent man-

aging PST files) and establish new more strategic information lifecycle management (ILM) policies to store, access and recover actively used e-mail. The Larstan Business Report also found growing recognition in the legal community that the enhanced standing of e-mail data in legal procedures is causing organizations to develop more stringent management, audit and control procedures for e-mail data.

The findings of the Larstan Business Reports survey support the conclusions of other market research and consulting organizations that have explored the emergence of e-mail data and systems as a critical element in business operations.

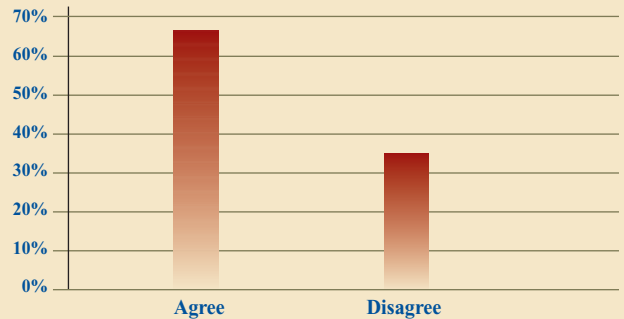
■ **E-mail storage requirements are climbing rapidly.** According to IDC, each user is now consuming between 5MB and 10MB in e-mail per day. Moreover, this volume expected to double by 2006.

■ **Consulting firm Creative Networks determined that organizations currently spend an average of nearly \$200 per user each year to locate and retrieve lost e-mail from storage.**

When lost user productivity, revenue loss, and administration and management costs are taken into account, the firm concluded that companies spend more on e-mail archive management than for all technical support and help desk combined.

■ **Just over 40 percent of companies surveyed by the non-profit Partnership for Public Warning admitted that the lack of systems redundancy and inadequate procedures for backing up data puts their organization at risk.** (The researchers surveyed 1,000 executives from ten of the country's major metro areas, including New York, Washington, Los Angeles, Chicago, and Miami.) "Many large companies have both the budget and the resources to develop intricate business continuity strategies. Mid-tier players also need to have redundancy, back up and rapid recovery. But with fewer resources to draw from, they are looking for solutions with these features to be built into their operational systems. This is a challenge that companies like Microsoft and EMC are working together to solve," says Howard Jones, Principal Consultant with Microsoft Consulting Services. In response to these challenges, EMC and Microsoft have teamed up to develop a set of technologies and methodologies that help organizations effectively manage the complexity of their enterprise e-mail systems.

My Organization Has Plans To Improve Its E-Mail Archiving Strategy Over The Next 12-18 Months



Source: Larstan Business Reports

...CONSOLIDATION

Exchange has been re-engineered over the last two versions to enable more advanced consolidation features. With the introduction of Exchange 2000, for example, the ability to consolidate servers was increased. When Exchange 2003 was introduced, functionality was added to enable site consolidation, paving the way for Storage Area Network (SAN) integration.

The first step is to consolidate servers using the multiple storage groups and information stores in Exchange and to connect servers to consolidated storage via a SAN. Ultimately, this enables the firm to enhance service levels and reduce operational costs.

New features in Exchange 2003, such as Outlook Web Access and Outlook Caching, make it easier to manage data and add high availability functions such as channel failover, storage and server clustering. Remote user performance is significantly improved and the need to locate Exchange servers in remote sites is eliminated. "This storage architecture with its centralized management tools is easier to manage than conventional, distributed, Exchange storage," says Todd Donaldson, Director of EMC Global Solutions for Microsoft Exchange. "Companies can lower their storage requirements by combining a shared storage resource with the single-instance store feature in the Exchange database."

...RAPID RECOVERY

Since e-mail is an extremely visible application, everyone in the organization from the CEO down notices when it isn't available.

Yet it can take days to recover databases that fail, get lost or become corrupted.

With EMC Replication Manager/SE, clone copies of Exchange can be put on fiber or ATA drives using CLARiiON ATA. Failed databases can be restored from the clones through EMC software utilities instead of from tape. That means the recovery time is accelerated from hours or days to minutes. In addition, the clone backups are more reliable than tape.

All of EMC's storage platforms conduct continuous diagnostic testing to identify potential problems before they affect application availability. Potential problems are escalated proactively to EMC through its phone home capabilities, service and support. Since many customers still have requirements for tape-based backups for offline data, the firm's existing backup solution may be used to pull backup data off the replicas and onto tape. In addition, this solution provides the foundation for a disaster recovery option for those customers requiring additional protection.

...EXTENDED MAIL STORE

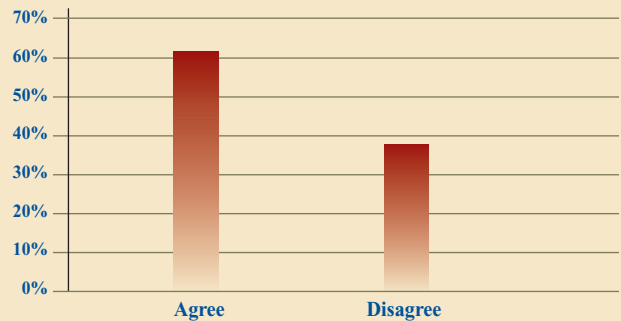
The rapid evolution of storage requirements for Exchange has created new challenges. Administrators have to enforce mailbox limits so the system is manageable and performs well. Users get around the mailbox limits by saving their e-mail on their desktop. Many employees put it on the file share so it can be backed up at night, but that consumes IT resources.

People often save these PST files on memory sticks and CDROMs and take them home. That means data is dispersed in uncontrolled environments, which introduces security risk and complicates legal discovery in the event of litigation.

Microsoft utilities can be turned on to make it impossible for employees to create a PST file. However, with new archiving technology and inexpensive ATA storage, it is possible to create virtual unlimited mailboxes. These can be used to store active business records before they are eventually deleted or backed up to a long-term archive.

The EMC E-mail Express Proven Solution places the mail store in a central, secure and consolidated location. It creates clones/replicas for fast restores, testing, patches and upgrades. It

The Number of Help Desk or IT Support Calls Related to E-Mail Storage & Management Issues Is Rising



Source: Larstan Business Reports

also enables Extended Mail Stores with EMC Legato EmailXtender software and ATA disk to automatically manage stored e-mails.

Finally, this solution provides the foundation for a more compliant-based e-mail archiving option with the EMC Centera product for those firms that require more stringent archiving needs to meet governance and compliance requirements. The EMC Centera archiving solution also manages the lifecycle of e-mail data with EMC Legato EmailXtender software.

With operational needs, this solution lowers storage requirements and management costs, and reduces security/legal risk by centralizing and automating e-mail retention and deletion policies. It offers the option to create a virtual or "managed" mailbox size to increase user productivity and eliminate the practice of self-archiving to personal folders. By using the entry-level archiving software and CLARiiON with ATA disks, this is the lowest cost archiving solution.

...EMC E-MAIL EXPRESS PROVEN SOLUTION REDUCES TCO

The EMC E-mail Express Proven Solution has been designed to integrate, automate, and consolidate decentralized systems and processes related to e-mail management. Organizations that implement the solution have a better way to divert human and technical resources to core mission-critical operational activities. For access to the full white paper, *Optimizing Exchange: Strategies for Managing the Lifecycle of E-mail Data*, visit www.emc.com/microsoftsolutions. ■

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Download complete Larstan white paper on "Optimizing Exchange" at www.EMC.com/microsoftsolutions



An Ounce of Prevention

Author Laura E. Hunter put Ben Franklin's famous advice to the test, and found he was right again.

Disaster recovery planning can be worth a lot more than a pound of cure when your network goes down.

BY LAURA E. HUNTER

Disaster Recovery plan: I've got one, you've got one, we've all got one. (You do have one, right? If you don't, go write one; we can wait 'til you get back.) But how often do you test the theory of how well your plan actually works?

As part of our contract with our co-location vendor, we take part in two-day drills twice a year. These are real-time drills, where we have 48 hours to recreate a fully functional network using nothing but replacement hardware and backup media. For this particular drill, we were concerned with rebuilding four mission-critical Windows 2000 servers:

- **DC1:** Our main domain controller (DC) that held three of the five Flexible Single Master Operations (FSMO) roles on the network
- **APP1:** An application server that also functioned as a DC to provide redundancy. APP1 held the other two FSMO roles on the network

- **WWW1:** Our corporate Web server
 - **MX1:** Our corporate mail server, running Exchange 5.5
- What follows is a diary of our 48-hour experience.

Day One, 8 a.m.: Assessment

We arrive and assess the replacement hardware provided by our co-location vendor. As a part of our contract, we were told that we would have identical replacements—we were asked to provide model numbers, serial numbers, the whole nine yards. The reality turns out to be slightly different. While our production environment is standardized on Compaq ProLiant servers, our replacement hardware is all in the Dell PowerEdge family.

This is disconcerting from a technical standpoint, but we are handed a copy of Microsoft Knowledge Base article 249694, "How to Move a Windows 2000 Installation to Different Hardware," and told it will work like a charm. On the other

hand, it's a good reflection of reality. Let's face it, what's the likelihood you'll have exact duplicates of your production hardware waiting for you at a moment's notice?

So we set to work restoring our AD database onto the replacement hardware for DC1. The short version of KB 249694 goes something like this:

1. Install your production-level service pack.
2. Perform an authoritative restore of System State data.
3. Perform an in-place upgrade of Win2K.
4. Re-apply any service packs and hotfixes.

The first step is pretty intuitive: The service pack on the replacement hardware needs to match the service pack level on the production machine, so that versions of DLLs and other system files won't conflict after the restore is finished. To make the restore as smooth as possible, we also create volumes and partitions on the new hardware that exactly duplicates the production configuration. Once that's done, we reboot into AD Restore Mode and perform a full restore of DC1's System State.

Day One, 12 p.m.: Still "Hanging" Around

In staring at the hardware differences on the restore machines, I can't shake a sinking feeling that this isn't going to go quite as easily as our co-location support rep makes it sound. Sure enough, the first attempt leaves us hanging at the final "Preparing network connections..." screen on the final reboot. Because I'm occasionally impatient during processes like this, I choose that point to go to lunch, to see if the newly restored server just needs a little more time to finalize its settings. Forty-five minutes later? Still sitting on the same screen.

We spend the remainder of the afternoon retrying the AD restore with limited success. We attempt the

in-place upgrade a few more times, various permutations of authoritative vs. non-authoritative restores, then a Repair Installation once or twice for good measure. But the System State information seems patently unwilling to restore onto such completely different hardware, leaving us with Blue Screens of Death or interminable hanging at various stages in the startup process before we wipe the hard drive with Fdisk and start over.

Day One, 11 p.m.: Partial Success

Because we have only a 48-hour window to test our restore procedures, we put the AD restore aside and spend the rest of the afternoon and evening restoring our application data, working around the lack of AD information wherever possible. Most notably, we aren't able to do anything with Exchange without a working domain to join the server to. By about 11 p.m., having restored most of our application data, we declare the day at least a partial success. We decide to tackle the AD restore with fresh eyes after a night's sleep.

Day Two, 7 a.m.: Disappearing DNS

Ramped up on about a thousand volts of Starbucks's espresso, we take another look at the AD restore. After some brainstorming, we realize that one potential complication might be our production DNS configuration. As part of a large, heterogeneous internetwork, our production AD infrastructure relies on a centralized Unix BIND server for DNS; individual offices don't run Windows DNS servers within the individual LANs. But because the drill is taking place in connectivity isolation, so that we can bring up restored systems without bringing down their production counterparts, our restored DCs are pointing to DNS servers that essentially don't exist.

We try installing and configuring the DNS Server service. After configuring

the replacement server to point to itself for DNS queries, we perform the System State restore again. While we finally made it to a desktop (Huzzah!), the event logs are littered with DNS errors—we overwrote a System State that contained DNS information with one that did not. "No problem," I say, "we'll just uninstall and re-install the service and then everything will be fine." No such luck. Fdisk, try it again—'round and 'round we go.

Day Two, 12 p.m.: A Smaller Hammer

By this point we're fairly convinced that our attempts at a full System State restore are roughly equivalent to swinging a sledgehammer at a finish nail, so we begin to look for a more finessed approach. After another few hours of trial and error, we finally devise a solution. We need DNS to be running on our restored network, but DC1 can't be the machine to run it. We install DNS on the APP1 server instead, pointing DC1 to APP1 and enabling dynamic updates. We then return to DC1 and install AD on it by running Dcpromo, creating a domain with the same name as our production domain. (Again, we are in connectivity isolation, so we know this won't interfere with name resolution on our production network.)

Once we verify that AD is installed on DC1, and that the necessary DNS records have been created in the DNS zone on APP1, we reboot into AD Restore Mode and attempt the restore one final time. But instead of restoring the full System State, we restore the AD database only, without any of the associated system files to avoid landing in the "conflicting DLL" quagmire yet

GetMoreOnline

For more details about performing a metadata cleanup of a restored Active Directory database, read: "Active Directory From the Command Line."

FindIT code: DDrill

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Laura DiDio
Senior Analyst, Yankee Group

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AD Restore Options

If you're not conversant with performing AD restores, you may be unfamiliar with some of the terms used here. The System State data on a DC consists of the following information:

- AD (the NTDS files)
- Boot files
- COM+ class registration database
- Registry
- The System Volume (SYSVOL)

When restoring the System State, there are a few options for how to handle the restore. In Win2K, you can mark a System State restore as either *authoritative* or *non-authoritative*. A non-authoritative restore, the default type, refers to a restore where an AD object (such as a user or group account) is restored to the AD database, but any changes made are applied after the restore. An authoritative restore will perform the restore, but will mark the restored version of the object as definitive; no subsequent changes will be applied.

For example, say you have a user object called *jharrison*. On Thursday, the user account is accidentally deleted and needs to be restored from a Sunday backup. On Wednesday (after the Sunday backup), *jharrison's* "Department" attribute is changed from "Marketing" to "Communications" when the user received a promotion. In a non-authoritative restore, *jharrison's* user object will be restored with the "Marketing" department attribute, but the attribute will be updated to "Communications" by changes replicated from another DC. In an authoritative restore, the user object's department attribute will remain "Marketing," even after regular AD replication.

Windows Server 2003 provides a third option: A *primary* AD restore. Use a primary restore when restoring the first replica of your domain data to the network, as in the case of a disaster recovery scenario where you've lost all DCs. If the network in this article had been running Windows 2003 instead of Win2K, a primary restore would have been appropriate.

— LAURA E. HUNTER

again. We then use *ntdsutil* to mark the restore as authoritative, and restore the boot.ini file to ensure that the ARC paths—which provide the location of the system and boot partitions—haven't been altered. By restoring the boot.ini file, we're ensuring that the OS will have the correct location of the system and boot partitions if System Restore overwrites the ARC paths.

Day Two, 4 p.m.: Try, Try Again

We still aren't quite out of the woods, though, since the next reboot leaves

us stuck on the now all-too-familiar "Preparing network connections ..." screen. Our next step is to run a repair installation.

Unlike an in-place upgrade, a repair installation re-scans the computer's Plug & Play hardware and updates the %Systemroot%\ Repair directory. Before rebooting from the restore, we remove the display adapters and NICs from the Win2K Device Manager so the install will re-detect them. During a few run-throughs, we find the NIC configuration is still incorrect after the repair, requiring us to remove the NICs

a second time and re-scan for new hardware in Device Manager. Once the network adapters are properly recognized, we reset the IP configuration to communicate on the appropriate subnet.

Day Two, 6 p.m.: Victory!

Finally, we have success. The server boots with minimal fuss, and a visit to Active Directory Users & Computers shows all of our Organizational Units (OUs), computer, group and user objects sitting exactly where we want them. All that's left is some cleanup. (Okay, that and letting out a few victory screams in the middle of the co-lo room. Don't ask about the strange looks that garners.)

Our final cleanup involves a quick trip back to DS Restore mode and *ntdsutil* to perform a metadata cleanup of the restored AD database. It includes references to some DCs we decommissioned a year ago that we'd simply forgotten about. (This also serves to point out some needed maintenance on the production network, since these "ghost" entries in the AD database could lead to replication issues, and troubles during software installations or upgrades.) We also disable some extraneous services added during the restore, the software for which hadn't been installed at the disaster recovery site. We finish up with a final service pack re-install, and are finally left with a functioning DC and AD database.

Day Two, 7 p.m.: Burgers and Beers

Being fortuitously close to 7 p.m. anyway, we call the drill a success and adjourn for a few beverages and greasy bar appetizers, followed by a well-deserved night's rest before returning to the "real world" of the daily office grind. **R**

Laura E. Hunter, MCSE, MCDBA, MCT, Security+, CISSP, is a network manager and technical trainer based near Philadelphia. She's an author, editor and reviewer for Syngress Press' series of Windows Server 2003 MCSE exam guides. Contact her at laurabcomputing@gmail.com.

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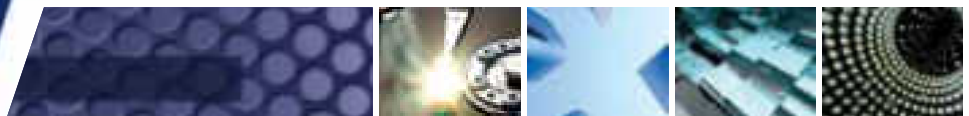
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Following Microsoft's Money

Changes to campaign finance laws mean a larger percentage of Microsoft political contributions now go to Democrats, but the company remains a force in both parties.

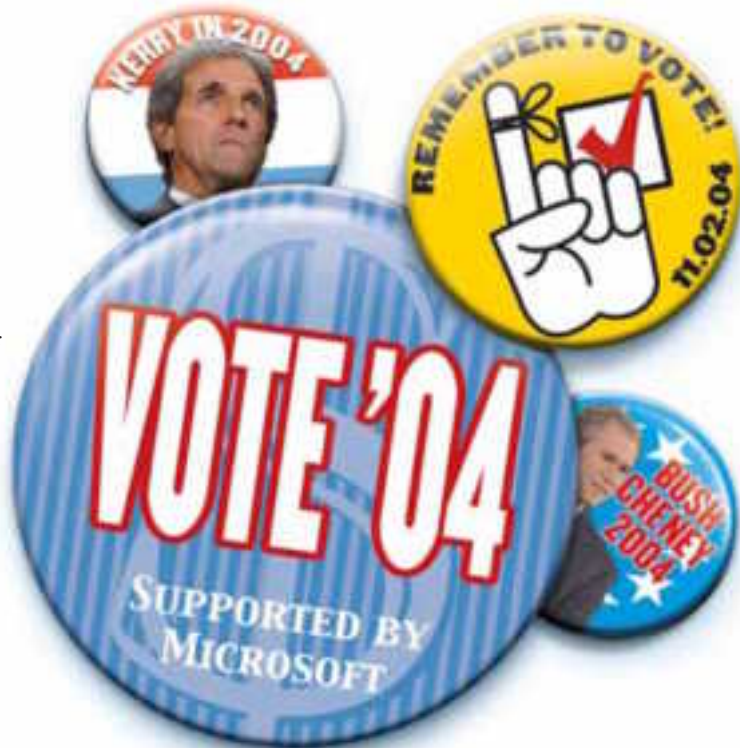
■ BY SCOTT BEKKER

Steven Weiss was clearly surprised as he looked over a summary of Microsoft's political contributions to Republicans and Democrats for this election cycle.

Weiss is a spokesman for the Center for Responsive Politics (CRP), which maintains a searchable database of Federal Election Commission (FEC) records of political donors and recipients at its Web site, www.opensecrets.org. He was reviewing a report on his group's site that rolled up contributions from individual Microsoft employees, the Microsoft Political Action Committee and soft money over the last eight election cycles.

"Look at that! That's interesting," he mused. In the 2004 election cycle the formerly Republican-leaning company's political contributions have undergone a massive shift to favor Democrats.

When the Department of Justice antitrust case during the Clinton administration became a major threat to Microsoft's future, Microsoft's political giving ballooned and became reliably Republican. The 1998 election cycle saw Microsoft's federal contributions to Republicans outpacing Democrats 64 percent to 36 percent. The Republican share dipped to 53 percent in 2000 but ballooned back up to 60 percent in 2002.



For the 2004 election cycle, at least through late August, the figures are reversed. Democrats got 61 percent of all forms of Microsoft political contributions and Republicans got 39 percent. Has Microsoft had a change of political heart?

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Gates and Ballmer Short Lists

Microsoft Chairman Bill Gates and CEO Steve Ballmer contributed similar amounts so far during this election cycle, but their party affinities vary considerably.



*Total of reported contributions from Microsoft employees and the Microsoft Political Action Committee in the 2004 election cycle.

Source: Center for Responsive Politics

Bill Gates

Sen. Patty Murray, D-WA	\$2,000
Sen. Harry Reid, D-NV	\$4,000
Sen. John McCain, R-AZ	\$2,000
President George W. Bush	\$2,000
Rep. Jennifer Dunn, R-WA	\$2,000
Sen. Byron Dorgan, D-ND	\$2,500
Sen. Patrick Leahy, D-VT	\$1,000
Rep. Jay Inslee, D-WA	\$1,000
Bluegrass Committee (Republican PAC)	\$1,000
Sen. Tom Daschle, D-SD	\$1,000
Sen. Jeff Sessions, R-AL	\$1,000
Rep. Ellen Tauscher, D-CA	\$1,000
Rep. Roy Blunt, R-MO	\$1,000
Wisconsin Leadership PAC (Republican PAC)	\$1,000
To Democrats 56% \$12,500	
To Republicans 44% \$10,000	
TOTAL	\$22,500

Steve Ballmer

Microsoft PAC (bi-partisan)	\$5,000
Sen. Jeff Sessions, R-AL	\$2,000
Rep. Pete Sessions, R-TX	\$2,000
Sen. Patty Murray, D-WA	\$2,000
Sen. Byron Dorgan, D-ND	\$2,000
Sen. Patrick Leahy, D-VT	\$2,000
Keep Our Majority PAC (Republican PAC)	\$2,000
Sen. John McCain, R-AZ	\$2,000
Americans for a Republican Majority (Republican PAC)	\$2,000
President George W. Bush	\$2,000
Rep. Adam Smith, D-WA	\$1,000
Impact America (Republican PAC)	\$1,000
To Democrats 28% \$7,000	
To Republicans 52% \$13,000	
Bi-Partisan 20% \$5,000	
TOTAL	\$25,000

Source: Center for Responsive Politics. Figures current as of Aug. 4.

Big Three

It appears so, especially at the individual employee level. Every contribution comes down to the company's interest and a candidate's positions, but three issues are coming into play in 2004: soft money, political action committees and employee contributions.

The McCain-Feingold campaign finance legislation ended the soft money loophole, which allowed unlimited contributions to political parties. Critics charged soft money let companies get around the law that prohibits them from giving directly to candidates. Microsoft used soft money

to pour more than \$2.7 million into the political process in the 2002 election cycle. That money went to the Republican column at better than a two-to-one ratio. Microsoft does not appear to have diverted that spending into the issue-oriented 527 groups such as MoveOn.org and Swift Boat Veterans for Truth that are partly taking the place of soft money.

The company is, however, picking up some of the soft money slack through the Microsoft Political Action Committee (PAC), a semi-official arm of Microsoft public policy. By mid-August, the Microsoft PAC had given

a total of \$1.58 million to federal candidates, parties and other PACs, up from its own high of \$1.23 million for the entire 2002 election cycle. Despite adding a former Bush White House aide, Edward Ingle, as treasurer in 2003, the PAC has swung more money toward Democratic candidates although it still leans Republican overall. As of Aug. 4, contributions to federal candidates favored Republicans by 53 percent to 47 percent. In 2002 the PAC favored Republicans 58 percent to 42 percent and in 1998 it favored Republicans by a whopping 67 percent to 33 percent.

With company contributions down, that leaves Microsoft employees—many of them millionaires—accounting for a larger percentage of the overall Microsoft contribution tab. According to a custom run of FEC data conducted for *Redmond* magazine by the CRP, individual Microsoft employees gave a total of \$1.13 million dollars in this election cycle, an amount rivaling Microsoft's PAC. (The figure only includes contributions of \$200 or more, an amount that triggers a requirement that a PAC, party or political campaign request the donor's name and occupation and report it to the FEC.)

As a group, Microsoft employees overwhelmingly favor Democrats—73 percent of their contributions have gone to Democrats, up from about 55 percent in the 2000 election cycle, when employees gave a collective \$1.45 million. Through July 5 of this

year, employees contributed \$442,635 to Democratic nominee John Kerry, the Democratic National Committee and other Democratic presidential candidates versus \$187,135 to President George W. Bush and the Republican National Committee.

Rationales for the employee change of heart could range from the fact the protracted DOJ battle waged by the Clinton administration is a thing of the past to widespread disagreement with the war in Iraq—and everything else that separates Democrats and Republicans.

Who Is Microsoft Backing?

Bill Gates, at least, seems to have no fear of Democrats. Of the \$22,500 in political contributions he made, more than half went to Democrats. Steve Ballmer, on the other hand, favored Republicans by nearly a 2-to-1 ratio. They agreed on one thing: each gave a personal contribution of \$2,000 to Bush and nothing to Kerry (see “Gates and Ballmer Short Lists” on preceding page).

The Microsoft PAC followed a similar tack, giving \$5,000 to Bush but nothing directly to Kerry’s campaign. But the PAC was even-handed with respect to the two major political parties, giving \$30,000 to the Republican National Committee and \$30,000 to the DNC Services Corp. Other recipients of Microsoft PAC money aren’t so well known. They range from Every Republican is Crucial PAC, Keep Our Majority PAC, Pete’s PAC (affiliated with Sen. Pete V. Domenici, R-NM), Rely on Your Beliefs and, of course, the Washington Fund. (For a full list, go to Redmondmag.com and enter FindIT code Elect.)



It’s worth noting that the Microsoft PAC built itself from almost nothing to among the most formidable in Washington in just eight years. In 1996, Microsoft gave \$43,500 to federal candidates. In the 2004 cycle, as of late August Microsoft had given \$857,000. That amount ranks it 42nd among all of the several thousand PACs in contributions to federal can-



**Total of reported contributions in 2004 election cycle from Microsoft employees. Source: Center for Responsive Politics

Microsoft PAC Shares the Wealth

Microsoft’s Political Action Committee was once a lopsided affair, giving heavily to Republicans. So far in 2004, the PAC is distributing money nearly evenly to candidates from both parties.

Cycle	Democrats 	Republicans 	Total given to federal candidates
1998	33 percent	67 percent	\$212,000
2000	41 percent	59 percent	\$820,999
2002	42 percent	58 percent	\$743,201
2004	47 percent	53 percent	\$857,000*

*Through Aug. 4. Source: Center for Responsive Politics

Microsoft PAC: A Formidable Fund in D.C.

The Microsoft PAC began distributing serious money in the 1998 cycle as the antitrust case heated up. Since then the political action fund has become among the most formidable in Washington. Total spending shows payouts from Microsoft PAC to federal candidates, other PACs and non-federal candidates.

Cycle	Total spending
1994	\$32,441
1996	\$49,518
1998	\$267,500
2000	\$1,221,730
2002	\$1,235,926
2004	\$1,583,328*

*Through Aug. 4. Source: Center for Responsive Politics, FEC records

Who Is Microsoft Funding for President?

Put Bush and Kerry in a straight match-up, and Bush has the clear edge. The Microsoft PAC and company employees contributing individually combined to give:



On the other hand, while Bush had no serious Republican contenders for the nomination, Kerry didn't lock up the nomination until the election contribution cycle was half over, and there is a strong "anybody but Bush" sentiment among Democrats nationally. Combine Microsoft PAC and employee giving to Bush and the Republican National Committee on one side to all Democratic presidential candi-

dates and the Democratic National Committee on the other side and a different picture emerges:



Source: Center for Responsive Politics data, analysis by Redmond magazine

didates, according to CRP. No other company in the computer/Internet sector is even close to matching Microsoft's largesse, according to the group. Siebel Systems is second at \$277,500 and Intel third at \$188,364.

Other Avenues of Influence

Microsoft does have avenues of influence other than political contributions. Any savings Microsoft could have gotten from its reduced soft money expenditures have been offset by Microsoft's lobbying budget. After spending about \$6.5 million each year on lobbying in 2001 and 2002, according to records filed with the U.S. Senate, Microsoft cranked up its spending to \$8.7 million in 2003—a 34 percent jump.

"There was some difficult work being done in 2003 around specific technology issues like spam," says Ginny Terzano, a spokeswoman in

Microsoft's Washington office and a former Clinton White House staffer. "We put a lot of resources in terms of making sure that we were most helpful to key legislators on legislation like the spam bill."

Microsoft's lobbying filings with the Senate show some of the other issues about which the company approached the White House, Congress and numerous federal agencies. Many of the contacts involved influencing government procurement in the software industry, sort of a government sales call. Company lobbyists also approached the government repeatedly about visa regulations for foreign workers, tax issues and rules governing the WiFi spectrum.

Government records on a company's public affairs spending are like getting a glimpse of a few of an octopus' tentacles sticking out of a cave. Outside observers say Microsoft is sophisticated at other types of influence that do not require reporting, such as sponsoring policy forums, contributing to key political figures' pet charities, supporting like-minded think tanks and attempting to ignite grassroots support through efforts like the Microsoft Freedom to Innovate Network Web site. Terzano notes that Microsoft donated nearly \$1 million in software and technical support services to both the Democratic and Republican conventions this year.

What Does Microsoft Want?

Terzano says Microsoft's aim is to support candidates whose interests align with those of Microsoft and the IT industry. "We're contributing to the overall political process, which is a good thing," Terzano says. "What the Microsoft PAC has traditionally done is given to incumbent candidates who have been helpful to the company or the sector overall," citing trade and spyware as examples. The company supports candidates, "who have taken a genuine interest in these hard, complex technology issues that are often emerging."

Critics of Microsoft say the company's spending in Washington supports one main purpose—maintaining the Windows monopoly that the Bush Administration's DOJ declined to break up. "A PAC of just \$1 million or \$2 million is considered huge in Washington," says Ed Black, president and CEO of the Computer and Communications Industry Association. "That's a pittance for Microsoft to protect its monopoly."

Microsoft certainly got a big assist from some of its friends on the Hill in March when the European Commission (EC) ordered a record \$613 million fine against Microsoft for European antitrust violations. As soon as Microsoft CEO Steve Ballmer reacted by bashing the Europeans' decision, a chorus of U.S. representatives and U.S. senators took up Microsoft's standard.

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- At Redmond magazine's request, the Center for Responsive Politics compiled listings that show how much money the Microsoft PAC doled out to dozens of organizations, as well as how much various candidates and groups received from Microsoft employees.

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Donor Dossier: Jeff Raikes



If any one executive is Microsoft's public face to the Democratic Party, it's Jeff Raikes, group vice president for the Information Worker business.

Among the 28 top executives on Microsoft's high-profile Business Leadership Team, Raikes is not only the most generous political contributor, he also swims against the Republican tide among that group by contributing almost exclusively to Democrats.

According to Federal Election Commission records, Raikes contributed \$57,500 in the 2004 election cycle through early August. The overwhelming

majority of that—\$44,000—went straight to Democrats. In the non-Democrat column, Raikes gave \$10,000 to the Microsoft Political Action Committee, which has been splitting its contributions almost 50-50 between the parties for this election. Another Raikes' contribution to an even-handed PAC was \$1,500 to the Major League Baseball Commissioner's Office—Raikes has a minority stake in the Seattle Mariners. The only overtly Republican contribution is \$2,000 to Curt Bromm, a Republican seeking to represent Raikes' native state of Nebraska in Congress.

How legitimately Democratic is the one-time Apple Computer employee and Stanford graduate? He is the only Microsoft employee to make a reportable contribution of more than \$200 to partisan lightning rod Hillary Rodham Clinton. Other notable contributions in the 2004 election cycle: \$23,000 to the Democratic National Committee Services Corp. and \$5,000 to the Democratic Congressional Campaign Committee. He's listed on Democratic presidential nominee John Kerry's Web site among major business executives officially endorsing the Kerry-Edwards ticket.

Raikes is known to journalists for tirelessly putting the best face on company problems, from embarrassing Easter eggs in software to various flare-ups in antitrust cases. Combine those PR skills with his Democratic credentials and Microsoft has a real asset if Kerry wins in November. Should Microsoft need the attention of a Democratic White House, Raikes would be perfectly positioned to place the call.

— SCOTT BEKKER

Lobbying Totals

Microsoft Lobbying Expenditures,
1997-2003

Calendar Year	Lobby Total
1997	\$2,120,000
1998	\$3,740,000
1999	\$4,860,000
2000	\$6,360,000
2001	\$6,560,000
2002	\$6,500,000
2003	\$8,740,000

Source: Center for Responsive Politics,
U.S. Senate filings

On a Web page, Microsoft's Freedom to Innovate Network collected quotes from 33 members of the U.S. House and Senate, all supporting Microsoft's position against the EC fine. A comparison of those quotes against Microsoft PAC contributions for the last three election cycles shows that 31 of those elected representatives got money—between \$1,000 and \$30,000—from the Microsoft PAC.

Quin Monson, an assistant professor of political science at Brigham Young University, says the Freedom to Innovate example leaves open the question of cause. "You can show the correlation. Is it the fact that they made the donation and then made the statements? Or have they cultivated a friendship because the senator was already predisposed toward Microsoft's positions?"

Donors are motivated either by ideology or the desire to gain access to politicians, Monson says. "You can pretty clearly classify Microsoft as an access-type donor. What they're really getting for their money is access to politicians. All they really want is to be able to make their case. You get listened to when you're part of the donor list." **R**

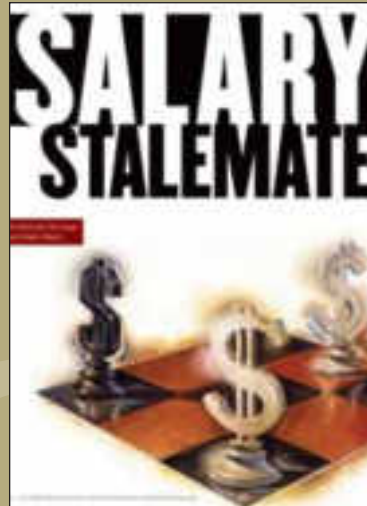
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TIME TO Dump IE?

■ BY DON JONES

Internet Explorer is a hacker's dream. Can you (and should you) drop it right now?

INTERNET EXPLORER IS THE SWISS CHEESE of software—it's full of holes. Holes in software are never good, but when the browser is so integrated with the OS as to be as one—you've got problems. Add to that the sheer ubiquity of the Microsoft browser, and it's no wonder IE has become the hackers' No. 1 playground.

Now we're beset by increasingly common—and dangerous—security vulnerabilities. We knew IE was integrated with Windows, but we didn't have any idea *how* integrated it was. Even Microsoft doesn't seem to have a firm grasp on IE's internals, judging from

the weeks it took to deliver an actual fix for the recent Download.Ject Trojan.

Not to say an integrated browser is all bad. To a developer, an integrated browser is cool because it gives you a built-in HTML rendering engine. You can then write apps that use HTML, knowing that the OS can render that HTML for you. IE can begin to take over the regular Windows Explorer shell and, in fact, has become so tightly integrated with Windows Explorer that it's a bit difficult to see where the shell ends and the browser begins.

The downside is a real downer. With a regular Web browser, a security vulnerability might let someone crash the browser. With an integrated Web browser they can crash the whole operating system. The tight ties to Windows means that the slightest IE security issue becomes an OS-wide panic. It's not just IE, either: Windows Media Player, Outlook Express, and even DirectX, are all, in my opinion, overly integrated and give hackers too much access to core PC functions.

But corporate users don't spend a lot of time playing with DirectX-based games, listening to Windows Media



ILLUSTRATION BY PETER LACALAMITA

Security Event Management for the Rest of Us

Monitoring your servers isn't supposed to be a challenge. That's why ServerVision is different. It makes server and event log monitoring fast and easy, so you can manage your Windows servers without frustration. ServerVision gives you powerful monitoring with automated actions and alerts based on criteria you set, and you can use it as a low-cost intrusion detection tool.

You can view services running, event logs, disk space, memory and performance, without having to sift through a mountain of details. The GUI is simple and wizards help to get things done fast. ServerVision allows you to centrally monitor the health, security, performance, and availability of all your Windows machines (servers or workstations). Like MOM (Microsoft Operations Manager), you get access to all aspects via an MMC snap-in, or remotely via a web-based interface. The MMC snap-in can be used when working locally on the machine and can monitor a remote system over the network.

To monitor remote systems, use the deployment wizard within the MMC snap-in to deploy ServerVision onto another system. You can create automated actions such as running a program, restarting a service, or rebooting a system—as well as sending you alerts—based on events or thresholds you define. You can also set up custom responses that can be active permanently, or only for set times on set days, and a response can be built from multiple response actions.

ServerVision monitors all logs, including the additional logs supported by Windows 2003/.NET. If a response includes sending e-mail, complete event details are included in the e-mail. To minimize security threats to a server, the server should be current with any patches that are released. Once an update is available, it should be installed


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as soon as is practical, in order to minimize the “attack surface” on a computer. Integrating with the free version of HFNetChk (it must be installed on any monitored system for this functionality



to work), ServerVision monitors the security profile of your Windows computers. It automatically checks for relevant updates at set intervals, so you don't have to remember to manually scan computers.

ServerVision's performance monitoring can capture performance data at any interval, and can cover days, weeks or even months. Sophisticated smoothing lets you see the underlying trends, and you can change the time values on particular areas of interest for more granularity. For example, you might collect CPU utilization, network traffic and web server usage data for a week, at 10 second intervals, and then display a chart of the information for the whole week.

The security event log is the thing you want to pay specific attention to. It allows you to collect, analyze, correlate, and respond to security threats in a fast friendly way. Many admins do not even crack open the manual for ServerVision, and as a matter of fact, it was built with that in mind. Who reads manuals these days anyway?

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Player, or checking e-mail with Outlook Express. They do spend *a lot* of time in IE, and the more they surf the more they're vulnerable to its eccentricities. That's why more than a few corporations, not to mention individual users, are looking at alternatives—*any* alternative—to the built-in browser.

Browsing the Alternatives

Despite dire predictions from Netscape (now a unit of America Online, which, weirdly, continues to bundle IE with its software), the market for non-Microsoft browsers didn't go away. It sure as heck got small, though, with Microsoft now commanding around 95 percent of the market, according to some sources. But the times, they are a-changin'. San Diego Web metrics company WebSideStory recently reported IE losing 1 percent of that market, the first time IE has stumbled. IE is now down to 94 percent. Who's gaining? Mozilla.

The open-source code base of the Netscape browser, Mozilla offers a couple of browsers. Mozilla 1.7 is its base product (1.8 is in beta as of this writing); Firefox (currently at 0.9) is the next-generation browser. Both are available from www.mozilla.org. Netscape also offers 7.1 of its venerable browser based on Mozilla code. It's available from www.netscape.com, but you'd better hurry: It'll be the last Netscape-branded browser AOL produces.

There's also the well-known Opera Web browser, currently at version 7.53, available from www.opera.com. All of the Mozilla products, including Netscape's browser, are completely free. Opera offers a free, advertising-supported browser as well as a \$40 version sans ads. And those are just the Windows browsers (see online extras for more on browsers for other OSes). While these are the major contenders, others exist: Search Download.com for "Web browser" and you'll get 356 results, many of which are small-footprint, self-contained Web browsers.



Figure 1. Firefox's tabbed browser beats the heck out of Alt+Tabbing between a clutter of browser windows.

Be aware that some of these simply throw a new cosmetic face on Windows' built-in IE objects, meaning you're still using IE. Others are completely self-contained and count as true alternatives.

Pros and Cons of Straying From the Pack

Forgetting security for a moment, there are functional reasons to consider another browser. One of the best is tabbed browsing, something you'll love once you try. Firefox's tabbed browsing shows each Web page in a separate tab (see Figure 1), allowing you to quickly flip among pages all within one window. Ctrl+clicking a hyperlink opens a new tab, keeping your desktop nice and manageable. You can close tabs individually and add a group of tabs to a single bookmark for later reference. Any group of bookmarks can be opened all at once, with one page per tab. It's intoxicating.

Most of the third-party browsers build in searching. You can select from an array of other search options that plug into Firefox, such as Amazon, eBay, Yahoo and more, providing robust searching right from the toolbar. Opera supports similar functionality: Typing "g browser" in the address bar will search Google for "browser."

Pop-up blocking is also built into most alternative browsers. Many IE users are already installing tools like the Google Toolbar to handle annoying pop-up ads, and Microsoft has

promised integrated pop-up blocking in a forthcoming version (which must irritate the folks who run the MSN Web site, a notorious pop-up villain).

For most other functions, it's all the same. While alternative browsers don't support ActiveX controls, they do support a plug-in model based on the original Netscape Navigator's model, and there are compatible plug-ins for technologies like Flash. Many legitimate, commercial Web sites have eschewed ActiveX in recent years because of that technology's worsening reputation as a virus and Trojan vector.

You're obviously going to miss out on some functionality if you switch browsers. Anything ActiveX-based won't work, nor will sites that use client-side VBScript for dynamic HTML. Someone sitting in an ivory tower might suggest that not having VBScript and ActiveX is a good thing and that visiting sites that use them is a bad idea anyway. True, but if that Web site happens to be your internal procurement Web site, not visiting isn't really an option.

Does "Non-Microsoft" Really Mean "Secure"?

No software is secure in the absolute sense of the word. Mozilla has issued more than a few patches for its browser, as has Opera. For example, Mozilla issued a patch that stops the browser from allowing an attacker to execute applications on a Windows system—something we're used to dealing with in IE.

With this in mind, part of the reason that browsers like Mozilla are more

“Internet Explorer is the Swiss cheese of software—it's full of holes.”

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secure is that there are fewer deployments. Attackers prefer to have a good opportunity, so in many cases they simply ignore marginal products. You can be sure that if Mozilla had a 95 percent market share, we'd see more than a few patches cropping up.

But that's not what led the U.S. Computer Emergency Readiness Team (CERT) to announce, in June, a recommendation that users stop using IE. While the advisory, posted on the CERT Web site (www.kb.cert.org), relates to a specific IE vulnerability, the advisory states that there are a "number of significant vulnerabilities in technologies relating to the IE domain/zone security model, the DHTML object model, MIME type determination and ActiveX. It is possible to reduce exposure to these vulnerabilities by using a different Web browser, especially when browsing untrusted sites." In the eyes of CERT, IE's architecture is at the heart of its security problem, not just that millions of copies are in use. The most compelling thing an alternative browser offers, therefore, is an alternative architecture, one less tightly integrated with Windows.

The patch issued by Mozilla is the first and only entry for that browser in the CERT database. Opera doesn't show up at all in CERT's records, nor does Netscape 7.1. A search of CERT's vulnerability advisories for Internet Explorer returned more than 80 results. Clearly, an alternative architecture offers some promise.

So does simplicity. The Mozilla browsers (including Firefox and Netscape) use a simple checkbox to turn off JavaScript and Java. That's it, on or off. IE has a similar capability, but it's tied to a complex system of zones. While JavaScript might be disabled for the Internet zone, an attacker who sends you an HTML file and gets you to execute it locally can attack from the more highly trusted Local zone, which by default has everything enabled. Alternative browsers, while

supporting plug-ins, provide absolutely no support for ActiveX, which from a security standpoint is one of Microsoft's bigger mistakes.

There is one area in which the alternative browsers (at least, the Mozilla family) commit the same sin as Microsoft: Trusted Certification Authorities (CAs). I have a longstanding gripe with the number of CAs that Microsoft has arbitrarily decided that I trust, without providing any information on how trustworthy these CAs are or what procedures they use to verify the identities of the organizations and people they issue certificates to. I've always recommended paring that list down to the CAs you've personally investigated and decided to trust. Sadly, alternate browsers ship with a similar, extensive list of trusted CAs built in, although it's still somewhat shorter than the all-encompassing list included with the current IE.

Super-Sized Browser Manageability and Deployment

Sure, non-IE browsers may offer increased security, but when it comes to implementation, there are downsides. For example, if you're not using System

Policies or Group Policy to centrally manage IE and you're not using an auto-discoverable proxy server like Microsoft ISA

Server, then enterprise manageability isn't a concern for you. Unfortunately, if you *are* using those features, you're probably going to lose them. Nothing but IE supports the Microsoft-centric "proxy discovery" mechanism that so many companies rely on to auto-configure Web browsers. With other browsers, you have to manually configure the proxy settings the first time out, and users may have to reconfigure laptop settings when they're away from the office.

And because most alternative browsers run on more than one operating system, none make extensive use of the Windows registry. Instead, they tend to store information in a propri-

etary configuration file. Personally, I've always been a little skittish about the registry. Having my configuration information in one place just seems to be tempting fate. But the registry is the enabling technology behind System Policies and Group Policy. That IE goes to a certain portion of the registry for its configuration information makes it possible to centrally manage IE through registry-manipulating technologies like Group Policy. In short, you're not going to be configuring Firefox via Group Policy anytime soon. The decision to deploy an alternate browser is a decision to relinquish centralized control. That said, you may not find yourself yearning for centralized control. Without complex Security Zones and a dozen other settings, allowing users to configure their own browser preferences might not be so scary. The Firefox options dialog is pretty straightforward (this is a version back from the current release, but the newest version looks similar). Even the Advanced section's 14 settings can't hold a candle to IE's overly option-laden Advanced tab.

Deployment is another issue. Unfortunately, most of these alternative browsers are distributed as executable files, rather than the easier-to-deploy MSI packages that work so well with Group Policy's IntelliMirror features. In fact, of the most popular third-party browsers—Opera, Firefox, Mozilla and Netscape—none were available as an MSI. Of course, you could use MSI repackaging tools for easier deployment through SMS, Group Policy or some other tool, but it's a shame that these vendors haven't realized the market potential and made their products more accessible to corporate IT departments.

“The most compelling thing an alternative browser offers is an alternative architecture.”



GetMoreOnline

- IE issues relating to Windows
- Alternative browsers

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How Do You Ditch an "Integrated" Browser?

Ever remove IE with the Add/Remove Programs function? You can't. In fact, you can never rid your hard drive of IE because it is completely integrated into Windows. Microsoft made that point while defending lawsuits over IE.

Today, the best you can do is to stop using IE. You can start by using the "Program Access Defaults" application that comes with the latest versions of Windows to block access to IE. This will, however, only stop IE's user interface from running; the underlying functionality, which is used in a number of Microsoft management console (MMC) snap-ins and other applications, will continue to execute. However, if your users aren't using IE to browse Web sites, they'll be much less likely to get nailed by the next vulnerability.

Which brings me to the real question: Can you *live* without IE? I try to use Firefox as my main browser, but I find myself firing up IE from time to time out of sheer necessity. My Web site uses Google AdSense to display context-sensitive ads to my users. The AdSense administration site works only with IE, which, if you think about it, is ironic given the competition Google is starting to face from Gates and Co. A number of companies have built intranets around IE, meaning they'll have to continue using it until those sites can be redeveloped. Given today's IT budgets, that might never happen. A number of commercial Web sites rely utterly on IE, which is something those companies may want to seriously reconsider in light of signs of waning popularity for IE (not to mention its increasing age).

Unfortunately, there are a number of ways that IE can "get ya," even if you're not using it as your Web browser. IE is basically a gigantic COM object; it can be instantiated and controlled by ActiveX controls, applications and scripts written in VBScript or JScript. Not using IE will not make you invulnerable to IE-based attacks,

but not using IE *will* make you less likely to get those attacks into your system in the first place.

Alternative Medicine

Alternative browsers may not offer perfection, but they offer plenty of features, though with less manageability. Their security is stronger at this point, but haven't really been tested. At the very least, though, these browsers offer far less integra-

tion with the Windows operating system, making them far less likely to be an entry point for a severe, system-damaging attack. **R**

Contributing Editor Don Jones is the owner of ScriptingAnswers.com, a site for Windows administrators learning to automate administrative tasks through scripting. His latest book is Managing Windows with VBScript and WMI (Addison-Wesley).

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SharePoint Gets (Mostly) Top Marks

Once clear of the administrative learning curve, users give SPS 2003 high marks for ease of use and integration features.

BY STEPHEN SWOYER

By Microsoft standards, SharePoint Portal Server (SPS) 1.0 wasn't exactly a barn-burner, so the company had high hopes for SPS 2003, a revamped version of the portal and team collaboration environment released last year. Based on the experiences of early adopters, the new iteration just might catch fire.

SPS 2003 boasts tight integration with Office 2003, a revamped user interface (UI), new features that help users more easily navigate SharePoint sites and SQL Server integration. The product does present a somewhat steep administrative learning curve, and upgrading from SPS 1.0 is no chip shot due to a lack of migration tools and new .NET underpinnings. But the experiences of several adopters suggest that, after adding up the

pluses and minuses, SPS 2003 comes out solidly in the black.

The consensus among users we surveyed is that SPS 1.0 lacks many common usability features and frequently requires the intervention of IT personnel to perform mundane tasks, such as the delegation of users or content owners.

That's a significant problem given that SharePoint is intended to make it easy for users to share and collaborate on documents by publishing them to internal Web sites that they create on the fly. The product also includes knowledge management and document management features.

Staffing and Training

Maintenance—particularly with respect to staffing requirements—is one area in which adopters can wring significant cost savings out of SPS 2003 vis-à-vis its predecessor. “Typically IT gets it up and running and hands over the keys,” says Mauro Cardarelli, a consultant with systems integrator Knowledge Management Inc. “SPS does not require dedicated [IT human] resources.” Because data can be split among many different owners in the SPS 2003 model, he says, “the time spent updating content is only a small fraction of job responsibilities.”

David Lowe, a consultant with systems integrator and Microsoft Gold Certified Partner Intellinet, agrees. SPS 2003 allows IT organizations to “delegate adding users and content down to the department, division or even the user level,” he says, whereas

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its predecessor required IT intervention to accomplish these tasks.

David Goebel, a SharePoint administrator with the California Unemployment Insurance Appeals Board (CUIAB), paints a somewhat less rosy administration picture. He recently completed an upgrade from SharePoint Portal Server 1.0 to SPS 2003 on a four-way Dell Xeon box supporting 900 users. While he is indeed the only administrator overseeing CUIAB's SPS 2003 migration effort, he has his hands full.

“There are a ton of admin screens for settings, security, etc. I've been working with them for the past six months and I still don't know exactly how many admin screens there are and where they're all located,” says Goebel. “Administration [in SPS 2003] is a fairly difficult task.”

While SPS 2003 may present a significant learning curve for administrators, the opposite is the case for end users, says Jeff Centimano, a principal consultant with system integrator Levi, Ray & Shoup Inc. “Training—or lack thereof—is my favorite thing about SharePoint. With absolutely no training at all a user can navigate the basic functions of SharePoint and find



As the only admin minding a 900-person SharePoint 2003 implementation, David Goebel has his hands full.

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what they need,” he says. “With a quick 30-minute lunch and learn session we have empowered customer staff with enough knowledge to post content, contribute to discussions, and even modify basic Web Parts.” Web Parts let users build and customize Web pages in SharePoint sites.

It does take a high degree of coordination to realize the full benefit of SPS 2003, however. “Proper planning at installation time with your infrastructure team, DBA, Web design team, content owners and a professional consultant will ensure your IT department is not spending time updating the portal,” Lowe says.

Kenton Gardinier, a senior consultant with IT staffing specialist Convergent Computing, says IT must also solicit input from business users during the SPS planning phases, to ensure that business needs map to technical requirements. “Business units and IT must work closely together on most issues, including sizing the solution, developing the user interface, setting user expectations, integrating outside sources of information and much more,” he says.

Integration Galore

Users and consultants alike laud the tight ties between the revamped SharePoint product and Office 2003, including tighter coupling with Outlook 2003 and Word 2003. One upshot of this is that many SharePoint features—such as meeting workspaces

and share attachments—are seamlessly integrated into Outlook, such that some users aren’t even aware they’re using a separate application, Lowe says. In the same way, he notes, SPS 2003 installs a “Shared Workspace” task pane in Excel 2003, Word 2003 and other Office applications, which enables users to collaborate and share documents “with little or no interaction with the IT staff.”

Lowe is smitten with SPS 2003’s revamped Web Parts infrastructure. Web Parts is built on top of ASP.NET and provides a .NET object model that contains classes that derive from and extend ASP.NET classes, Lowe says. Users can add Web Parts at runtime, assuming that they have permission to do so, and enable a variety of scenarios, such as:

- The creation of sites and pages
- Management of the site user roster
- Storage of Web Part customizations, including shared and personal property settings
- Administration of site backups and storage limits
- Assignment of users to customizable site groups

Lowe is also keen on SPS 2003’s new “My Site” feature. My Site provides a repository—clearly accessible from the SharePoint UI—in which users can store content and control who can access it. “This makes it quite simple for non-technical users to contribute to the portal without even knowing the complex posting action taking place in the background,” he says. “This personal site has a private storage area for personal content and work in progress, as well as a public storage area for easily sharing the projects and documents they are working on.” The personal site includes some AD profile information, providing information to others about each user’s role.

Indeed, Gardinier gives SPS 2003

high marks for its integration with AD, noting the two tie together easily and that SPS is flexible in terms of what information it can pull from the directory. “For instance, it has the ability to pull from not only the entire directory but also from select contain-

ers like an Organizational Unit,” he says.

Knowledge Management’s Cardarelli, for his part, insists that SPS 2003’s best new

feature is a no-brainer: “[The] SQL Server backend—it adds scalability and allows IT folks to see and access all the data directly.”

Migration Experiences and Lessons Learned

Based on feedback from users who have done so, organizations mulling SPS 2003 upgrades should expect to encounter a hitch or two.

CUIAB’s Goebel, for example, says his ongoing SPS 2003 migration has been “difficult,” mainly because of the absence of built-in migration tools. “Testing the migration process and then getting the new portal to match the look and feel of our existing portal has taken six months,” he says. “We’re going to simulate the entire upgrade process multiple times until we can execute the upgrade without a problem.”

Some users reported issues with Microsoft’s downloadable migration tools, “Spin” and “Spout”—or, more properly, SPIN.EXE and SPOUT.EXE—which are designed to automate the process of exporting data from SharePoint 1.0 and importing it into SPS 2003. Spout exports the version history of legacy SharePoint sites into XML or flat file formats, while Spin imports SPS Areas or Windows SharePoint Services document libraries. For many users, the tools work as advertised. But others complain of lengthy import/export times and Microsoft’s

“It takes a high degree of coordination to realize the full benefit of SPS 2003.”

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own USENET groups are littered with the carcasses of Spin and Spout migration efforts that somehow went awry.

These tools, while undeniably important, don't address a range of migration issues, such as the requirement that organizations re-code their SharePoint 1.0 Web Parts for SPS 2003 and its new .NET underpinnings (see "SPS Migration Tips"). As a result, says Lowe, the dreaded "P" word—planning, and plenty of it—is critical to the success of any large SharePoint migration. "All tools, including Microsoft's Spin and Spout, have issues," he says, suggesting—ever philosophically, "It's a great time to do a serious purge of your content and documentation."

Security

Users give SPS 2003 high marks for security, with Cardelli pointing specifically to the use of IIS authentication and role-based security as solid features. But he also has a few nits to pick. One is that users can see some links they don't have access to and get a pop-up requesting credentials. "Microsoft says it is for performance, but most find it very annoying," he says.

Similarly, Goebel says that he's both pleased and a little overwhelmed by SPS 2003's security features. "There's a lot of security all over the place and it takes time to figure out where what I'm looking for is."

Lowe points out that, at the portal level, you can only set security on an area, not the document library or file level. "But in fairness, the product's a collaboration tool and [is designed to] lend itself to sharing of information," he says.

In Search of ROI

Most SPS 2003 adopters haven't commissioned return-on-investment studies, but expect there's substantial

SPS Migration Tips

Mauro Cardarelli, a consultant with systems integrator Knowledge Management Inc., offered these best practices for those migrating from SharePoint Portal Server 1.0 to SPS 2003, but the tips can also apply to day-to-day SPS administration.

- Develop and implement maintenance procedures for your SQL Server databases, such as defragmentation, transaction log backups and index management.
- Pre-allocate database sizes to minimize the number of times the databases will have to expand.
- Use separate volumes for data and transaction logs. Allocate approximately 13 percent to 15 percent of the data volume's size to the transaction log volume.
- Consider disabling document versioning.

— STEPHEN SWOYER

ROI to be had. For example, says Cardarelli, once an IT organization implements SPS 2003 and brings its personnel up to speed on its new management features—no mean feat, as we've seen—it's a mostly turn-key environment. In this respect, he says, IT can effectively "hand-off" SPS 2003 to business users.

"We help clients split data ownership responsibilities, based on content. The interface is so easy to use it truly becomes a community-run tool," Cardarelli says. "There is no burden on any one person or group to maintain the portal. The [total cost of ownership] is minimized through the easy administration and the natural dissection of content."

Of course you can't get any ROI from new software if employees won't use it. At CIUAB, the original SPS fared pretty well in that respect. "Users really like it for the most part and use it regularly," Goebel says. Given SPS 2003's surfeit of user-friendly features, such as MySite and Shared Workspace, he expects the follow-up will be a smash. Such features allow users to collaborate more

effectively, with minimal intervention from IT, resulting in productivity gains for both groups.

Cardarelli identifies several common SPS 2003 ROI benefits, starting with more efficient information reuse. Users often waste large chunks of time searching for documents and other resources on local or network file shares. In an SPS 2003 environment, the same searches take just seconds, thanks to SharePoint's integrated search facility. SPS 2003 can also help reduce e-mail traffic by eliminating the round-robin exchanges that occur when a user is looking for a document that addresses a particular issue. Finally, features like the SharePoint "Announcements List" (which provides a channel for broadcasting information to users), along with standardized templates, can bolster corporate branding efforts by ensuring consistency of corporate messaging.

All in all, SPS 2003 adopters say that the revamped SharePoint is a worthy upgrade to the occasionally frustrating SPS 1.0. **R**

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“All in all, SPS 2003 adopters say that the revamped SharePoint is a worthy upgrade.”



Master and Command Line

If GUI and the command-line interface (CLI) were professional wrestlers, GUI would be a hugely muscled, masked warrior who enters the ring accompanied by “GUI the Hero” theme music. CLI stands in the opposite corner, looking grim and puny. GUI is the obvious crowd

favorite, but when the bell rings, there’s little doubt about who will prevail. CLI is clever, nimble and knows how to break all the holds GUI brings to bear. Two minutes into the first round, GUI is pinned for the count.

As it turns out, a Windows server running Windows Server 2003 has nearly all the CLI utilities needed to do everyday administrative chores. You rarely need to use a terminal server client or one of those fancy-schmantzy Adminpak workstation tools. Just keep an open console prompt on your desktop and follow along as I show you some of my favorite administrative utilities.

Configuring a Comfortable CLI Environment

If you spend lots of time at the console window, you might as well make things comfortable for yourself. Open a console window, then right-click the upper left corner (or the title bar) and select Defaults from the flyout menu. Don’t select the Properties option. Any changes you make using this option are only applied to console windows with the same name in the title bar.

You’ll want to cut and paste quickly from the command line to graphical utilities, so enable the QuickEdit mode as shown in Figure 1. (This option is enabled by default in Windows 2000 Server, but not in Windows 2003.) QuickEdit requires a

mouse to do copy-and-paste operations, but you can minimize the number of steps. Click and hold the left mouse button at the start of a block of text, highlight the block, then release the left mouse button and right-click anywhere in the highlighted text to place it in the clipboard. (If you need to use the keyboard, press the Alt key, tap the space bar, press E-M to start marking, hold down the Shift key, move the cursor to the end of the line, then press Enter.)

In the same window, select the Fonts tab and shift from raster fonts to Lucida Console

fonts and choose a size that’s comfortable to read but puts as many characters as possible on a single line. Select the Layout tab and set the Window Size to a width and height that makes maximum use of your screen. For example, on my 1400x1050 laptop display, I use a 12 point font with a 170x70 setting for the console window so it covers the display completely.

Click “OK” in the console Properties window to save your changes. Close the console window and open a new one to see the new default settings. Enter a command or two, then press F7. This lists the last 100 commands you’ve issued in that console session. Select an item from the list to perform the command again. Pressing F3 displays the last command you entered.

“To quickly create an account for testing, you can’t beat the NET USER command.”

You’ll want to enable automatic name completion, so you can type the first few characters of a long directory or file name, then press the Tab key to cycle through all the matching items in the folder. This option is enabled by default in Windows 2003 and XP. Win2K uses the asterisk key, which is not as flexible as the Tab key. Enable automatic name completion with the Tab key by entering a couple of Registry changes using the reg command as follows:

```
reg add
"hklm\software\microsoft\command
processor" /v CompletionChar /t
REG_DWORD /d 0x9 /f
reg add
"hklm\software\microsoft\command
processor" /v PathCompletionChar
/t REG_DWORD /d 0x9 /f
```

Shifting From CLI to GUI and Back

If you want to open a My Computer GUI window from the command line, simply enter:

```
start
```

The focus of the window is set to the current folder. Similarly, if you find an executable in Explorer you want to run

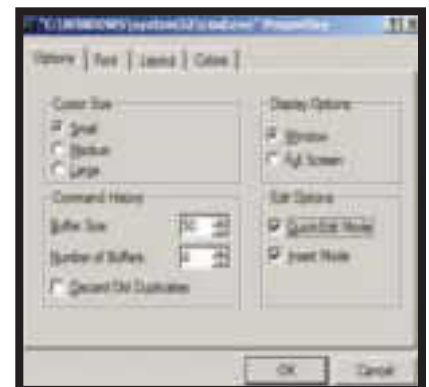


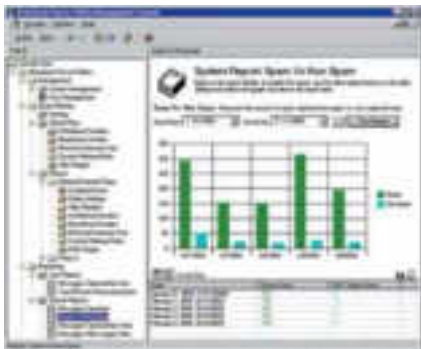
Figure 1. Enabling QuickEdit mode facilitates cut-and-paste operations between the command line and graphical utilities.

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\$#!+!!
SPAM!!!

YOUR 'FILTER'
ATE 16
SALES LEADS!!!

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the Services.msc console. For example, to stop then disable the Browser service, enter:

```
sc stop browser
sc config browser start= disabled
```

(In the second line, the space after the "start=" entry is deliberate. You'll get a syntax error if you don't have a space.)

A more powerful tool for managing services and just about anything else on a Windows server or desktop is the Windows Management Instrumentation Console (WMIC). Here's an example that uses WMIC to get a quick list of the running processes:

```
wmic process list brief
```

The first time you launch WMIC, it spends a while configuring itself. After that, it launches very quickly. You can use WMIC to get information from remote servers. For example, to get a

process list from server named W2K3-S1, enter:

```
wmic /node:w2k3-s1 process list brief
```

To get a quick list of running services (in contrast to the processes that host them), enter:

```
wmic /node:w2k3-s1 service where state="running" list brief
```

To see if the W3SVC (World Wide Web service) is running on a Web server:

```
wmic /node:w2k3-s1 service where name="w3svc" list full
```

If the State entry for the W3SVC service indicates it has stopped, use WMIC to start the service using this syntax:

```
wmic /node:w2k3-s1 service where name="w3svc" call startservice
```

WMIC uses terms like "process" and "service" as aliases for WMI

classes *Win32_Process* and *Win32_Service*. To see a list of available aliases, enter "wmic /?" and use the alias as a parameter for WMIC. For example, to see the status of the drives on a local machine, enter:

```
wmic diskdrive list full
```

One FOR Command for All

It's common to change settings on remote servers using the Computer Management console. The console packs a lot of functionality into a single MMC interface, but it takes a long time to load and needs several mouse clicks to get to the useful information. It's also difficult to get a complete, simple-to-use printout from the Computer Management console. You can get a full listing of all current system statistics printed in comma delimited format using the

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SYSTEMINFO command as follows:

```
systeminfo /fo csv >
systeminfo.csv
```

The “/fo csv” switch tells Systeminfo to format the output in a single, comma-delimited line item. This may seem simplistic, but here’s where your command-line knowledge pays off. The extended batch language in Windows has a command called FOR that lets you quickly create looped commands. For example, the following statement loops through each line in a text file called Serverlist.txt, runs Systeminfo to get the statistics for the designated server, and stores the result as individual lines in a comma-delimited file.

```
for /f %i in (c:\serverlist.txt) do
systeminfo /s %i /fo csv /nh >>
systeminfo.csv
```

The “f” switch tells FOR to loop through the designated file and assign each line to a variable called “%i.”

(The letter choice is arbitrary.) The double angle brackets (>>) tell SYSTEMINFO to append each output line to the target file, rather than overwriting the file

each time. The result is a spreadsheet that contains a comprehensive set of parameters for every server in the list. You can get a quick file of server names in your network by piping the result of the NET VIEW command to a file:

```
net view /domain:company >
c:\serverlist.txt
```

Use a text editor to remove the extraneous entries from the file, then feed it to the FOR command. Unfortunately, NET VIEW simply queries the Browser database, which is not authoritative. If you want a truly comprehensive list of servers within a domain, turn to AD. Assuming you put your server objects in a separate OU, you can dump the contents of the OU to a comma-delimited file using the Csvde utility.

Here’s an example that dumps the Common Name (CN) of each object in an OU called Server:

```
csvde -d
ou=servers,dc=company,dc=com -l
cn -f serverlist.csv
```

The resulting spreadsheet has two columns, one with the full Distinguished Name (which you can delete) and one with the bare flat name of the servers, which you can then use as an input to the FOR command.

Managing Local Network Configuration

Windows has a phalanx of little CLI tools for listing various network configuration items, but the utility with the most comprehensive set of features is the Network Shell, or Netsh. I use this gem all the time.

For example, consider what it takes to change the static IP of a server using GUI tools. It takes a grand total of eight mouse clicks just to get to the TCP/IP Properties window, then several more clicks and keystrokes to set

the address and the gateway and still more clicks to save the changes. Here’s the same operation done with a single command:

```
netsh interface ip set address local
static 192.168.0.100 255.255.255.0
192.168.0.254 0
```

The sequence of numbers in the expression is “Address, Mask, Gateway and Interface Metric.” The word “local” refers to the first word of the default network interface name, “Local Area Connection.” If you have two or more network interfaces, you’ll need to spell out the entire name. I recommend shortening the names to something like NET1, NET2 and so on. You can also use Netsh to change the DNS and WINS interface configuration. The following lines configure the default “Local Area Connection”

interface with a primary and secondary DNS server and a primary and secondary WINS server:

```
netsh interface ip set dns local
static 192.168.0.1
netsh interface ip add dns local
192.168.0.2
netsh interface ip set wins local
static 192.168.0.5
netsh interface ip add wins local
192.168.0.6
```

You can use Netsh to quickly and easily change the settings for Windows 2003 and XP network bridges, the Windows Firewall, Remote Access Services (RAS) and LAN routing. You can also dump the entire set of network settings for all interfaces to a flat file to import to another server or back to the same server after it has been rebuilt.

The Netsh utility exists on Win2K, but the Windows 2003 and XP versions have a nifty Diag option that lets you do quick-and-dirty troubleshooting, like pinging every server configured to be a DNS, WINS, Proxy or Gateway along with any server configured in Outlook Express as a mail and news server.

Setting Priorities

If you’ve spent most of your career using GUI tools, it takes a while to get accustomed to CLI utilities. Once you master them, though, you’ll spend a lot less time doing grunt work. That will give you the free time you need to use your GUI tools for something valuable, like playing the latest version of Halo. **R**

Contributing Editor Bill Boswell, MCSE, is an independent consultant, trainer and founder of The Windows Consulting Group. He’s the author of Inside Windows 2000 Server and Inside Windows Server 2003, as well as the upcoming Inside Exchange Server (Addison-Wesley). Contact him at bboswell@winconsultants.com.



Gaining Group Control

You know how the story goes—power users don't like domain administrators to control their computers, so they remove any domain administrative groups from their local groups. This is a common ploy of administrative staff too, to kick out other domain administrators

from any local groups on their personal computers.

“So what's the problem?” you may ask. The problem lies with control over a computer that is part of an Active Directory domain. If the Domain Admins group isn't a member of the local Administrators group on a computer, then administrative staff have no immediate control over that computer. Similarly, other groups and users might need to have membership in the local Administrators group on each computer—to update applications remotely, install security updates or obtain documentation information for the system.

Never fear, Group Policy is here! Group Policy Objects (GPOs) provide a solution for controlling groups, especially local groups, on any computer in the AD domain. The solution is to use Restricted Groups. Restricted Groups gives you two options for controlling the membership of groups, enabling you to ensure that the Domain Admins group has membership in the local Administrators group on every computer in the domain. The settings for Restricted Groups is located under the Computer Configuration | Windows-Settings | Security Settings.

Following are the two settings for every group listed under Restricted Groups in a GPO.

• **Members of this group.** This setting provides a text box for you to enter all members of the group, including user and group accounts

from the local computer or from a domain. This setting doesn't append to the existing user and group accounts that have membership in the group. Instead, it first removes any account in the group, then adds the new list. If the policy is implemented and the list is blank, it will leave the group without any members.

• **This group is a member of.** This setting provides a text box for you to enter all groups in which the specified group should have membership. The groups listed must meet the group nesting rules for the domain functional level you're working with, as well as standard group nesting rules. For example, you can't configure a local group to have membership in a global group. In addition, configuring this option won't remove current memberships for the group; it will just create additional memberships. If the policy is implemented and the list is blank, it will leave the current group memberships in place, and not provide any additional memberships.

When configuring the settings in the Restricted Groups, consider these tips:

• Use one or the other of the above two settings across all GPOs, not both. For example, one GPO might say to make Group1 a member of Group2, but a different GPO states that Group2 should only have members including Group2. This causes a conflicting setting, which will most likely result in Group1 not having membership in Group2.

• Link GPOs that use the Restricted Groups policy to OUs that contain only the target computer accounts. If the GPO is designed for clients, but configures servers, the server services might fail.

• Type in the group name if you need to refer to a local group. For example, if you need to input the Power Users group, you will need to type it in, since you might not be able to browse for it.

• If you need to refer to a domain that you don't have access to from the browser option, use the following syntax: <domain name>\<username>. With real names, it might look something like this: braincore\derekm.

• Be mindful that pre-SP4 Windows 2000 domain controllers have a bug associated with leaving the Members section blank. For more information, refer to Knowledge Base article 810076.

Controlling local groups has never been so easy and powerful. **R**

Derek Melber runs and operates www.auditingwindows.com, the first dedicated Web site for Windows auditing and security. He's written an e-book series on Group Policy, available at <http://mcpmag.com/resources>. You can reach Derek at derekm@braincore.net.

Tip Box

Don't create a policy to configure the members of a group in two different GPOs. This won't merge the GPOs together—it will only take the last GPO configured. If a GPO at the domain level states that Group1 should have Group2 as a member and a GPO at the OU level states that Group1 should have Group3 as a member, only Group3 will be a member when the GPOs finish applying to the computer.



Easy Database Creation

Greetings, friends; Mr. Script at your service! Like the magazine, this column has a new name. We tossed around “Dr. Script” and I really, really wanted to be “Captain Script,” but in the

end we settled on “Mr. Script.”

Whatever the name, the mission’s the same: to bring you a variety of scripts to make your administrative life easier and to answer your scripting questions. The way I see it, the latter should trump the former. If I receive a question from a reader—particularly one that’s especially relevant to a recent topic—then I’m honor-bound to put aside any previous ideas and respond to said question. Because, as the saying goes, if one person asks a question, many others are thinking it.

So, rather than discuss Active Directory migration tasks that can benefit from scripting, as planned (I promise we’ll return to this subject later), I instead will respond to Kevin Jones, who asks this question about a topic I addressed some months ago in my column on using ActiveX Data Objects (ADO) in a scripting environment:

I was wondering if there’s a way to script creation of ODBC data sources on Windows XP workstations. We’re installing a new association management package that requires three data sources on each client machine. Even a locally run script that I could run through RDS would save a considerable amount of time.

When I read his question, I experienced one of those forehead slapping “aha!” moments. Of course you want to do that. Moreover, you certainly want to know how to script creation of the databases, too. How could I have left out even a passing reference to such an obvious aspect of ADO scripting? I have no excuse. Please forgive me.

I shall try to redeem myself by demonstrating both, starting at the beginning: Creating a database from scratch. Script 1 creates the database file. In this case, it creates an Access .MDB.

Script 1. Create the database file.

```
Set objConn=CreateObject("ADOX.Catalog")
objConn.Create _
"Provider=Microsoft.Jet.OLEDB.4.0; " & _
"Data Source=C:\MyData.mdb"
```

Not much to it, is there? You now have an empty .MDB file in the root of C: (or wherever you may wish to place it).

Now, you need to create tables to hold your data. Before you can do that, you must map the datatypes used by Access to the datatype values used by the ADO DB engine in our script, shown in Table 1. Now that you know how to set up the various fields, use Script 2 to create the database table.

Script 2: Create the table.

```
Set objConn=CreateObject("ADODB.Connection")
objConn.Open _
"Provider=Microsoft.Jet.OLEDB.4.0; " & _
"Data Source=c:\MyData.MDB"

objConn.Execute "CREATE TABLE MyTable(" & _
"RecID COUNTER, " & _
"Computername TEXT(15), " & _
"IPAddress TEXT(15), " & _
"Created DATETIME ." & _
"Notes MEMO)"
```

Again, pretty straightforward. Just make sure you specify text field lengths that are long enough for any eventuality.

Finally, you can use Script 3 to put data into the new database.

Script 3: Populating tables with your data.

```
Const adOpenStatic=3
Const adLockOptimistic=3
Set objConn=CreateObject("ADODB.Connection")
Set objRS=CreateObject("ADODB.Recordset")
objConn.Open _
"Provider=Microsoft.Jet.OLEDB.4.0; " & _
"Data Source=c:\MyData.MDB"
objRS.Open "SELECT * FROM MyTable" , _
objConn, adOpenStatic, adLockOptimistic

objRS.AddNew
objRS("Computername")="Server1"
objRS("IPAddress")="192.168.1.10"
objRS("Created")=Now

objRS.Update
objRS.Close
objConn.Close
```

And so on, and so on. We can do this all day long, creating multiple records inside multiple tables inside multiple databases. Not bad, eh? In fact, we could stop here and build some really powerful scripts that get data from and/or place data into a variety of databases. This is because we can always connect to the data by directly specifying the Jet provider in the connection string.



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However, as we discussed in the August issue, connecting via a Data Source Name (DSN) is so much more elegant. Plus, to truly answer the question that prompted this little foray, we need to write a script to create the DSNs. This

task is easy, yet fraught with danger. At its simplest level, a DSN is just a registry entry. Exactly where it is stored in the registry depends upon whether it is a System DSN, User DSN and so on. So, for instance, a User DSN pointing to the database

we created above is stored in the registry under HKEY_CURRENT_USER\Software\ODBC\ODBC.INI\MyDSN.

When you use the ODBC applet in the control panel to create a new DSN, all it does is create these registry entries. In the course of normal operations, it's probably better that you use the ODBC applet when creating DSNs—you're less likely to make a mistake.

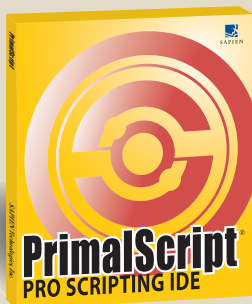
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Table 1: Mapping Access datatypes to datatype-similar ADO values.

Access Datatype	ADODB Value
Autonumber	COUNTER
Date/Time	DATETIME
BOOLEAN	YESNO
Text	TEXT(x)
Numeric Long Integer (decimals not allowed)	INTEGER
Numeric Double (decimals allowed)	FLOAT
Memo	MEMO

However, if, like Kevin, you need to create DSNs via scripting, do so with the same reverence with which you approach any task regarding the registry—with the understanding that you could do irrevocable damage to your computer if you make a mistake. Next month, I'll walk you through a script for safely creating DSNs. **R**

Contributing Editor Chris Brooke, MCSE, is director of enterprise technology for ComponentSource specializing in development, integration services and network/Internet administration. Send questions or your favorite scripts to chrisb@componentsource.com.



5 Steps to Certificate Bliss

Today we're inundated with sermons evangelizing certificates as the universal answer to all things security. Want to get rid of the risk of password-based logon? Use certificates and/or smart cards. Want to protect communications over the Internet? Use SSL certificates or

IPSec-based VPNs. And when using IPSec, you'd better use certificates for authentication, because that's more secure. And the list goes on.

To adopt these solutions you need to either purchase certificates from a public Certification Authority (CA), or build your own Public Key Infrastructure (PKI). Both options are now incredibly easy—so easy, even your boss could do it. But purchasing certificates can be rather expensive, as can hiring a consultant to assist you with an in-house PKI, or purchasing and implementing your own third-party CA products.

Microsoft Makes It Easy

Enter Microsoft certificate services. Microsoft is very good at making the incomprehensible simple by virtue of the wizard. If you're running Windows 2000 Server or Windows Server 2003 it'll take you just a couple of minutes to bring up a CA and start issuing certificates. If you have a Win2K or Windows 2003 domain, make sure that server is a domain member, and you've instantly empowered easy use of certificates throughout the domain. Before you know it you'll have more certificates crawling around in your network than there are ticks on a red-bone coon hound. So what's wrong with that? More certificates equals more security, right?

Wrong. Certificates could eventually become as maligned in the IT community as passwords. When correctly

implemented, they can provide rock-solid security; done wrong, they'll be as weak as a three-character password. Given the deceptive ease of implementation, you may not think a certificate project requires major planning. That would be a mistake. Here are five planning steps to follow before implementing a certificate structure.

1. Determine if Certificates Are the Best Solution

In some cases, certificates may be the only solution to your security problem. If, for example, you want to implement 802.1x authentication using Protected Extensible Authentication Protocol (PEAP) and Microsoft's Internet Authentication Service (IAS) server, you'll need, at minimum, a certificate for IAS. Likewise, you can't outfit your Web server for SSL without a server certificate. You'll also need certificates—lots of them—in order to use the native smart card support built into Windows 2003 and Win2K.

But certificates are most definitely *not* the solution for every security need. Before rushing in, determine what's driving the call for certificates, so you can decide whether they are the best solution. If it's a management initiative, for example, have a talk with the manager who wants changes. I can imagine such a conversation going something like this:

C-Level Decision-Maker John: "I'm tired of hearing about how weak

Windows passwords are. We need to implement smart cards."

IT Manager Sven: "That will improve security, but I have a limited IT budget. Investing in smart cards will pretty much kill other IT initiatives for the year."

John: "Well, what are our options? You know as well as I do that Microsoft products need all the help they can get. I don't want to have to notify our customers that their credit-card numbers may have been exposed."

IT Pro Diane: "The issue of customer data security can be better addressed by implementing my proposal from three months ago. Microsoft passwords and password policies can be strengthened beyond the capabilities of the password cracking schemes available today and into the near future. We just need some policy changes, user training and password auditing capabilities. This will cost far less than implementing smart cards across the board."

Sven: "Diane's right, John. We can do a better job of managing password-based authentication. But we need to start with sound security policies and practices, and we need the teeth to enforce them. Will you help us there?"

John: "Well, I'm not convinced, but I'm willing to consider your proposals. I want a report on my desk tomorrow on how to bolster password security. Send me another copy of your prior proposal on customer information security as well."

Whatever the ultimate decision, at least the reasons for the proposal are being discussed. How else can you determine the best course of action if you don't know what the goals are?

2. Buy or Build?

Several items must be considered when deciding whether to purchase or produce certificates. Make the

right decision based on:

- Budget
- Certificate requirements
- Current network infrastructure
- Number of certificates required
- Current deployments
- Future plans

If you need only one certificate, you may be tempted to buy one. But if you've already invested in PKI, shouldn't you just issue one of your own? Not necessarily. A public Web site, for example, should have a commercial CA as its signer, while an intranet site usually works better with one from your in-house CA.

If you need multiple certificates, you may decide it's time to deploy your own PKI. It's certainly easy and cheap enough to do with Microsoft products, but are you ready to devote the time and energy into learning how to do it

securely? What if you have an immediate need to secure wireless access? Properly implementing a PKI will take time. In this case you may want to purchase the certificate(s) in the near-term, while at the same time developing and hardening your PKI plan for the future.

3. Planning

Whatever you decide, you'll need to do some serious planning.

Purchased Certificates

Should you go the commercial route, there's a host of procedures you'll need to implement, including assigning responsibility for:

- A comprehensive certificate management plan that includes the reasons certificates are purchased, how they're actually used and who has responsibility for their management.

GetMoreOnline

We've assembled links to additional Microsoft resources on this topic:

- A Webcast on planning a PKI infrastructure for Windows 2003
- An overview of PKI design process
- A number of articles addressing PKI
- A list of CA resources

FindIT code: PKI

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- Certificate purchase and hand-off for implementation.
- Certificate distribution and installation, using automated methods where possible and keeping accurate records.
- Tracking certificate expiration dates, renewing certificates, or expiring them and recording changes.
- Certificate revocation.

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In-House Rollout

The development of in-house certificates services using your own PKI should be 80 percent planning and 20 percent implementation. The steps you'll need to take include:

- A detailed analysis of certificate use within your organization. Determine the use that provides the most benefit and implement that first.
- An analysis of available PKI skills among your personnel.
- Create a committee—representing IT, general management and employees—to develop policies and procedures for design, implementation and maintenance.
- Review committee work to make sure it covers areas including protecting root and subordinate CAs, how certificates will be issued, revoked and renewed, and whether a

CA hierarchy will be used.

- Specify an audit methodology and practice before deploying.
- Research best practices for hardening both CA computers, processes and certificate usages—then build them into the architecture of your PKI.

4. Select the CA Vendor

If you decide to buy third-party certificates, return to the analysis and planning stage. Yes, this step is in the correct order. You should thoroughly study your needs and requirements concerning certificates *before* selecting a vendor. Whether you're purchasing a single certificate, third-party CA or implementing Microsoft's CA, you should be looking for the vendor that suits you—not for the solution that a specific vendor supplies. Then determine the

securest path possible for deployment and maintenance.

5. Deploy and Maintain

Once you've planned your work, work your plan. You've got a number of steps to do, all of which must be done in the correct order—and don't forget that security is iterative. Maintenance is the most important phase of the process, after planning. **R**

Roberta Bragg, MCSE: Security, CISSP, Security+ and contributing editor for Redmond magazine, owns Have Computer Will Travel Inc., an independent firm specializing in information security and operating systems. She's series editor for McGraw-Hill/Osborne's Hardening series and author of the first book in the series, Hardening Windows Systems. Contact her at roberta.bragg@mcpmag.com.

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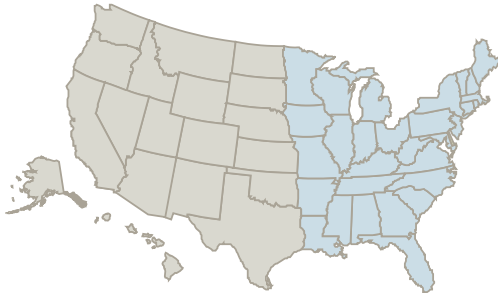


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10 The Microsoft Credit Card

Low, low interest rates help you stomach high, high software prices. Redmond Rewards program lets you earn points toward professional services for help with things like—oh, I don't know—patching? (Kudos for this idea to Wesley Bielski, a network administrator in Evanston, Ill.)

9 Manager Minder

Colorful graphs and complex charts with adjustable vectors, deltas and ROI calculators keep business executives busy for hours—so IT staff can get real work done. Optional Meeting Avoidance Module populates Outlook calendars with talk of data purges, server reboots, IDS tuning and more—convincing evidence that you are far too busy to attend most any meeting. (Props to Alex Ayotte, a system analyst in Tallahassee, Fla.)

8 George Jetson Voice Recognition System

I suppose we could explore some business uses for this, but let's be honest: What we really want is a machine that hears "Steak, medium rare" and bolts for the kitchen to womp up some dinner—without expounding on what a "crazy day" it had.

7 Word for Dummies

Redmond Editor in Chief Doug Bar-

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We found no shortage of opinions from the folks we polled on this topic. Go online to read the best of the rest.

FindIT code: TenProducts

ney longs for the days of word processing programs like Xywrite that, even with their funky keystroke combos, were somehow simple to use. Word, on the other hand, has a mind of its own, constantly changing formatting and fonts on unsuspecting editors who are just trying to get some work done. Make it stop!

6 Better Backup

Redmond Contributing Editor Bill Boswell envisions data mirroring and enterprise-wide data management with speedy, object-based archiving that addresses full-scale as well as file-sized recoveries. Robert Oswalt, an admin at a church in Fort Worth, Texas, wants a simple way to back up his server to a DLT drive. I just want to back up My Documents without having to think about it every ... single ... day.

5 Integrated Anti-Everything

Whaddyagot—viruses? We kill that. Spam? No problem. Adware, malware, spyware, post-nasal drip? Yep, yep, yep. We'll kill it all, dead, dead, dead. It'll all be integrated with Windows and it'll just work, from the get-go, I swear. You won't even notice it.

4 Outlook for Idiots

Ever send an e-mail pointing to insightful ponderings in an attached document—only to forget to attach the document? I've done it 642 times as of noon today. Wouldn't it be nice if Outlook scanned outgoing messages for a predefined keyword—something crazy like "attach"—and slapped you upside the head when the word cropped up in a message with no attachment? Yes, it would.

3 Windows Naked

It's time for Windows to strip down to its skivvies. Roger Clifford, a network admin in Alaska, says Microsoft could create an OS "that boots in 10 seconds and never slows down or freezes" if not for "useless features that slow down the OS, crash the machine and create unnecessary security holes." Contributing Writer and Network Manager Laura E. Hunter (see p. 43) wants a server OS stripped of its GUI, browser and "all the other pretty things" that belong only on clients. Redmond Executive Editor of Reviews Lafe Low says you should be able to start with the basics and build by adding modules "that all work and integrate seamlessly, with zero hassles."

2 "Something, anything, for which I am not a beta tester."

So sayeth Christopher Bell, of Manchester, U.K. After a less-than-pleasant experience with XP SP2, Chris wants Microsoft to develop its own internal testing system covering alpha, beta, gamma, pre-release, release—the gamut—so he doesn't have to. Who said the Brits have no sense of humor?

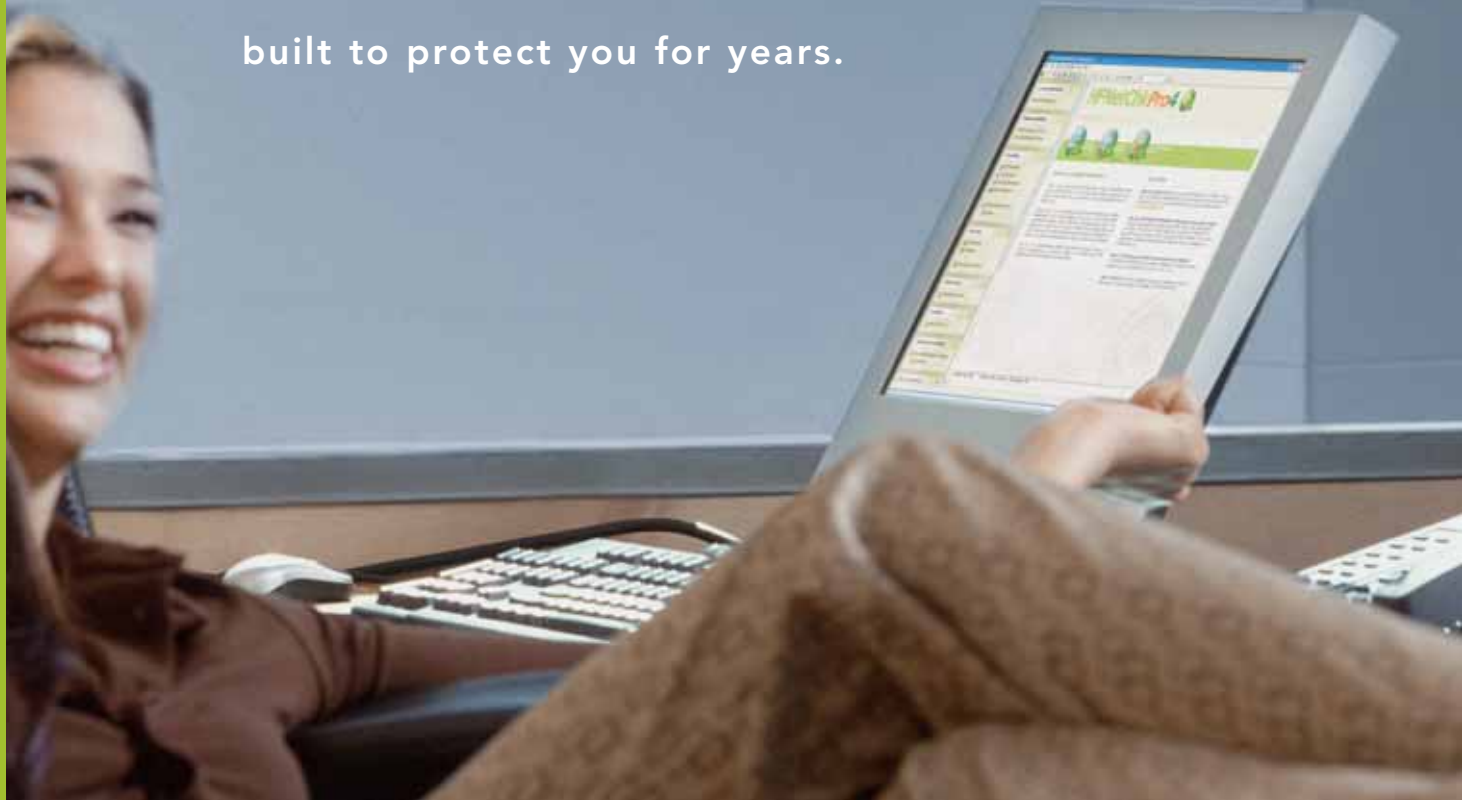
1 The Bill Gates Reimbursement Machine

Here's how it would work:

- Enter all time spent on Windows updates, patches, new ways of doing things that are different but not necessarily better and clearly nothing you need.
- Enter value of your time per hour.
- Machine calculates value of time wasted.
- Bill Gates issues you a check and mails it with an apology. **R**

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