

Calm the Enterprise Data Storm—the Easy Way

Storage administrators face a “perfect storm” of increased storage demands combined with less money and fewer staff to meet those demands. To weather this storm, they’re looking to vendors to simplify as many storage administration tasks as possible.

The recession of the last few years along with cost pressures from global competition have compelled every corporate function to cut expenses. For storage administrators, this means cutting the costs of storage hardware and, just as importantly, reducing the cost to manage each megabyte of storage over its lifetime.

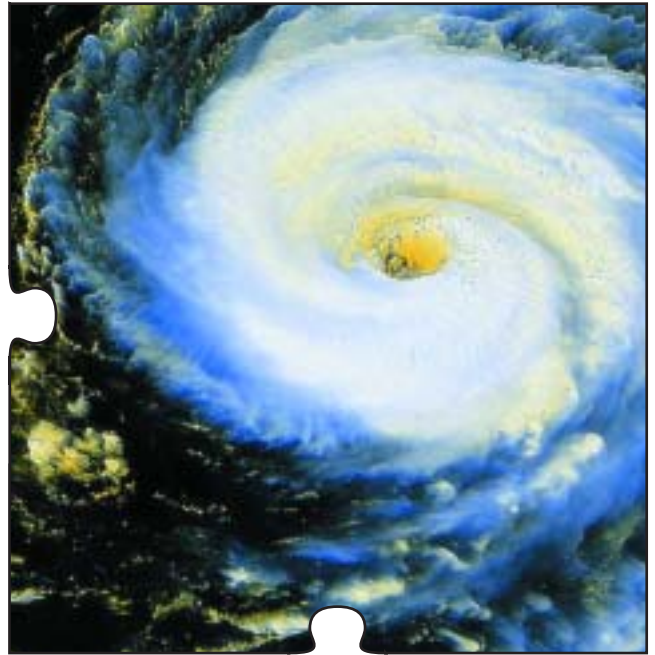
Even while IT budgets are flat or declining, companies are conducting more transactions than ever over the Web

System Center Data Protection Manager: Shelter From the Data Storms

- Provides more rapid and reliable recovery of files accidentally deleted
- Allows users to recover their own files in minutes
- Eliminates the backup window for production servers
- Reduces the amount of potential data loss to one hour
- Eliminates the need for tape backup in remote offices
- Provides rich out-of-the-box reporting and monitoring

Source: Microsoft Corp.

or via e-mail and requiring more from their storage investments. They must not only keep this data for current operational needs but, increasingly, store and protect it for years to meet the needs of regulations such as Sarbanes-Oxley. The data must also be easily retrievable if needed to restore a system after an outage, comply with a regula-



tory audit or defend a company in a lawsuit.

Rather than blindly adding storage capacity to handle greater amounts of data, administrators must find new tools to help them squeeze the most out of the storage they already have. And rather than adding more staff to provision new storage for new applications and to back up and restore data, storage administrators have to find cost-effective tools that automate such routine storage tasks.

With Microsoft’s distributed storage strategy as well as partner integration with new Windows technologies, there are now solutions to drive down the cost—and the complexity—of storage. By capitalizing on the current trends with disk-based storage, one of these solutions provides secure and reliable, yet simple, disk-based backup of file servers both within the data center and in remote offices. The new technologies also automate or simplify common storage management functions so storage administrators can do more with less: Managing far more information, to meet far more requirements, without swamping the IT budget.

System Center Data Protection Manager: Faster Recovery & Easier Backup

Microsoft’s most recent addition to its lineup of tools for storage managers is Microsoft System Center Data Protection Manager (DPM). Running as an application on a dedicated server, DPM provides disk-to-disk backup for data stored on file servers, including file servers within the data center and those in a remote office, ending the need for remote offices (which usually lack trained storage staff) to back up data to tape in-house.

“Eliminating backup/restore from remote (offices) is a killer application that is gaining huge traction in the market,” says Steve Duplessie, Founder and Senior Analyst at Enterprise

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Microsoft Storage Ecosystem

Partner: **AMD**

Product name: AMD Opteron™ processor

Key features: AMD Opteron™ processor based on AMD64 technology with Direct Connect Architecture and HyperTransport™ technology provides the leading-edge performance needed for I/O intensive applications.

Key benefits: AMD Opteron™ processor-based servers are price/performance/watt leaders and are ideal platforms for building cost effective storage area networks. AMD's revolutionary Direct Connect Architecture helps eliminate the I/O bottlenecks inherent in traditional system architectures.

URL: www.amd.com



Partner: **CommVault**

Product name: CommVault® QiNetix™

Key features: CommVault enables instant bridging of Microsoft System Center Data Protection Manager data with alternate media devices. Protects DPM server in its entirety while allowing seamless bridging to CommVault's application protection suite.

Key benefits: Allows DPM to leverage alternate media, enabling long-term protection. CommVault allows data to be restored anywhere from DPM captured data. CommVault's Windows Centric solution enables seamless/granular protection for Exchange, SQL, SharePoint and AD while leveraging strengths of VSS infrastructure.

URL: www.commvault.com



Partner: **Computer Associates**

Product name: BrightStor ARCserve Backup

Key features: Backup and recovery for DPM server and data store. Supports various applications, backup to tape, bare metal recovery, built-in antivirus protection and rapid restore.

Key benefits: Integrated backup solution and protection for DPM Server extending to Exchange and SQL Server, including archival capabilities for disaster recovery through reduced recovery time. BrightStor ARCserve Backup can restore data directly to client systems.

URL: www3.ca.com/Solutions/SubSolution.asp?ID=312



Computer Associates®

Partner: **Dell Inc.**

Product name: Dell/EMC AX100i

Key features: Customer installable, 3 TB, iSCSI networked storage array that includes all the necessary management software and connects up to eight servers in four easy steps.

Key benefits: An ideal SAN for small and medium organizations looking to protect their data, the wizard-driven management interface simplifies setup and monitoring and when paired with Microsoft Data Protection Manager can significantly reduce backup and restore windows while reducing tape costs.

URL: www.dell.com/storage



Microsoft Storage Ecosystem

Partner: Hewlett Packard

Product name: HP ProLiant Data Protection Storage Server Family

Key features: Pre-configured and optimized for easy deployment of Microsoft System Center Data Protection Manager, these simple but powerful solutions deliver high performance and low TCO. Includes full Data Protection Manager support from HP.

Key benefits: Enables low-cost storage area networks as well as high-end enterprise systems. Customers benefit from extensive Microsoft + HP NAS performance testing. The result is an optimized Data Protection Manager solution that is cost effective, easily deployed, fully supported and enhanced by the comprehensive HP data protection product portfolio.

URL: www.hp.com/go/dpm



Partner: Intel®

Product name: Intel® in Storage: Providing the Foundation for Connected Storage

Key features: Intel's standards-based storage building blocks provide the foundation for cost-effective, standards-based storage solutions that meet the needs of today's explosive data requirements while ensuring adequate capacity and bandwidth for future growth.

Key benefits: Intel-based storage solutions help to accelerate business growth, manage costs and mitigate risk, culminating in a competitive advantage for your business.

URL: www.intel.com/go/storage



Partner: Quantum Corporation

Product name: Quantum DPM-Series

Key features: An integrated appliance combining the Microsoft System Center Data Protection Manager with disks and servers matched for performance and reliability. Option compression and tape migration make this an ideal data protection solution.

Key benefits: Easiest implementation of disk for windows based backup. High performance appliance eliminates guesswork from component acquisition. User-definable policies allow maximum flexibility; a key requirement for data protection. Single support point-of-contact for all hardware and software elements.

URL: www.quantum.com/dpm



Partner: EMC Corporation

Product name: EMC CLARiiON Disaster Recovery for Exchange

Key features: An integrated solution offering local and remote data replication for Microsoft environments. The Solution offers simple management with support for Microsoft Exchange and SQL applications integrated with VSS, VDI and server cluster technology.

Key benefits: An ideal solution for midsize organizations looking for new ways to improve service levels for MS Exchange with fast local recovery from service-impacting operational events as well as powerful remote site disaster recovery options.

URL: www.emc.com/microsoftsolutions



Microsoft Storage Ecosystem

Partner: EqualLogic Inc.

Product name: PS Series

Key features: The PS Series supports key Microsoft applications including Exchange, SQL and DPM, as well as key Microsoft technology features including MPIO, VSS and Server Clusters.

Key benefits: EqualLogic's PS Series, coupled with Microsoft technology, demonstrates a series of integrated solutions that address the needs of storage consolidation, backup and recovery, disaster recovery and data protection for Windows environments.

URL: www.equallogic.com



Partner: LeftHand Networks

Product name: LeftHand SAN, SAN Filer 100

Key features: Full-featured iSCSI SAN with integrated file services provided by SAN Filer 100, based on Microsoft Storage Server 2003.

Key benefits: Enables highly available and scalable SANs that are easy to manage. Supports Windows applications such as Exchange and SQL Server, plus provides an excellent data store for file services through Windows Storage Server 2003 and DPM.

URL: www.lefthandnetworks.com



Partner: QLogic Corporation

Product name: SAN Express Starter Kit 1000

Key features: QLogic SAN Express Starter Kit includes QLogic SANbox 1400 switch, QLA200 SANblade HBAs and all the necessary cables and accessories in an all-inclusive, easy-to-implement package.

Key benefits: QLogic simplifies building your SAN with installation wizards, easy task automation and the ability to provision multi-vendor storage from a single application.

URL: www.qlogic.com/simplify/sanstarterkit.asp



Partner: Xitech Corporation

Product name: Magnitude 3D™

Key features: Masks the complexity associated with storage area networks. Eliminates planned downtime. Provides tremendous resilience and scalability. Substantially lowers total cost of ownership.

Key benefits: Magnitude 3D enables midsize enterprises to easily store and manage information, helping them make the most of limited resources and budgets.

URL: www.xitech.com



Microsoft Storage Ecosystem

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Strategy Group, an analyst firm in Milford, Mass.

Disk-to-disk backup is gaining in popularity because of the falling prices of storage arrays based on new interfaces such as Serial ATA (SATA). With hardware prices dropping, "it's no longer a very, very expensive product that can only be used by big companies," says Michelle Zou, a Research

One-stop Shopping for Storage Insights

Microsoft, its storage partners and TechTarget have developed a special Web site devoted to providing information about solutions to the "perfect storm" of storage challenges. Highly focused white papers, Webinars, vendor announcements and other valuable resources are available at the Microsoft Storage Partner Resource Center. Visit: www.SearchStorage.com/MicrosoftStorage

Analyst at market researcher International Data Corp. (IDC) in Framingham, Mass.

The fact that DPM relies on disk rather than tape improves "the reliability and the speed characteristics of both the backup and the restore," says Arun Taneja, President of Taneja Group, a Hopkinton, Mass.-based storage consulting firm. "For a very large number of companies, particularly in the small to midsize market, these solutions are going to be heaven-sent compared to what they've had to deal with."

DPM replicates only changes to individual bytes rather than entire files. This greatly speeds backup, thus eliminating the backup window—the time generally set aside to back up a set of files. DPM also allows customers to recover their own files without involving IT, says Ben Matheson, a Group Product Manager at Microsoft.

Because it is possible to back up data to disk far more often than the daily backups typically done with tape, DPM reduces the amount of potential data loss to less than one hour—what Microsoft calls "near-continuous data protection." Once data has been backed up to the DPM server, it can be transferred to tape for long-term or off-site storage if needed. DPM also provides rich, out-of-the-box reporting and monitoring capabilities. (The current version only supports the backup and recovery of files; future versions are expected to support backup and recovery of Microsoft SQL Server and Microsoft Exchange Server as well.)

First-tier hardware and software vendors are introducing products that leverage the new functionality in DPM. Software vendors CommVault and Computer Associates, for example, are enhancing DPM with capabilities to back up a customer's data to tape through tape archive support. Hardware vendors Dell, HP and Quantum are providing optimized hardware for DPM that uses microprocessors from both AMD and Intel. For more information about

Microsoft storage ecosystem partners' DPM offerings, see the product directory beginning on page S2.

Seamless Distributed Storage

The distributed environments of today's customers, like remote locations of branch offices linked to corporate headquarters via a WAN, impose new demands on storage. End users expect seamless integration of file services across the different branches and seamless integration of applications running on either block-based devices such as a storage area network (SAN) or file-based devices such as network-attached storage (NAS).

To meet these new demands, Microsoft has developed technologies that its partners have leveraged to deploy rich, yet simple and seamless storage functionality. These technologies are distributed as part of the Windows platform, including Windows Storage Server, Microsoft's core OEM platform for easy-to-use NAS appliances. This platform is used by LeftHand Networks on the iSCSI side and by Xiotech on the Fibre Channel side to provide great products to seamlessly integrate file- and block-based storage.

"Later this year, Microsoft will further simplify storage management and the administration of remote locations with new administration and management features in the next version of Windows Server 2003 R2," says Claude Lorenson, Group Product Manager for Storage in the company's Windows Server Division.

These features include simplified provisioning of SANs, robust quota management functionality and improved namespace virtualization management and replication. As well as being much faster, the improved replication will also save network bandwidth because it will transmit only changes in data and not entire files, which in turn will simplify the management of files in branch offices.

What Is Coming in the Next Version of Windows Server 2003 (R2)

- Faster "change only" replication with DFS-R
- Simplified provisioning of SANs
- Ability to monitor and control disk space usage with various quota management tools
- Detailed reports on storage utilization
- Ability to limit types of files allowed on servers with file screening
- Simplified management of IT functions in branches

Source: Microsoft Corp.

To further simplify storage deployments on IP networks, Microsoft recently released Version 2.0 of its iSCSI software initiator. This initiator allows a device to perform block I/O on a remote server and supports Windows Server 2003 x64 Edition and Microsoft Multipath I/O (MPIO), thereby sim-

Microsoft Storage Ecosystem

DPM Storage Solutions Directory

Storage Challenge	Product	Vendor	See Page
I/O bottlenecks	AMD Opteron™ processor	AMD	S2
Need to leverage alternate media to enable long-term protection	CommVault® QiNetix™	CommVault	S2
Back up and recovery	BrightStor ARCserve Backup	Computer Associates	S2
Reduce tape costs and accommodate smaller backup/restore windows	Dell/EMC AX100i	Dell	S2
Easy-to-deploy solution with high performance and low TCO	HP ProLiant Data Protection Storage Server Family	Hewlett Packard	S3
Need standards-based storage solution that manages costs and mitigates risks	Intel® in Storage	Intel	S3
Data protection	Quantum DPM-Series	Quantum	S3

Windows Server 2003 Storage Solutions Directory

Storage Challenge	Product	Vendor	See Page
Automate e-mail storage allocations	EMC CLARiiON Disaster Recovery for Exchange	EMC	S3
Consolidating storage and backup and recovery	PS Series	EqualLogic	S4
Improved scalability and availability	LeftHand SAN, SAN Filer 100	LeftHand Networks	S4
Reducing SAN deployment complexity	SAN Express Starter Kit 1000	QLogic	S4
Complexity and planned downtime	Magnitude 3D™	Xiotech	S4

Sources: Microsoft Storage Ecosystem Partners

plifying storage deployments. Version 2.0 also includes a generic, iSCSI-compatible Microsoft MPIO device-specific module (DSM). This allows Microsoft iSCSI users to take advantage of load balancing and failover on the Windows platform when using iSCSI storage devices and makes deployment of these multipathing solutions easier.

"Microsoft is probably more responsible than anyone else for the huge adoption uptake of iSCSI," says Enterprise Strategy Group's Duplessie. "If it didn't give away the driver, thus validating the market, there might not be a market."

Microsoft has also released two crucial application programming interfaces (APIs), which allow its partners to build new customer-friendly capabilities into their products that seamlessly integrate with Windows. The first is Virtual Disk Service (VDS), which allows partners such as QLogic to build applications that provide management functions like assigning disks and creating and expanding volumes. This brings simplicity and ease of use to common storage management functions. The second API is Volume Shadow Copy Service (VSS), which allows for the creation of point-in-time shadow copies of data. This enables backup and replication without slowing or stopping production applications and ensures backup fidelity by incorporating the application in the snapshot process.

Many leading storage vendors, including EMC and EqualLogic, have already introduced "Simplified SAN" products

that are likely to receive the "Windows Simple SAN compatible" designation and leverage Microsoft OEM technologies such as iSCSI, VDS and VSS. These solutions make it easier than ever before for customers to install, implement and seamlessly manage block and file storage as well as the applications relying on the storage infrastructure.

Doing More With Less

Business managers will continue to keep a tight lid on storage spending. And as applications become more sophisticated, users in all parts of the enterprise will rely on them more. With this sophistication, however, comes complexity.

In an environment of constantly growing storage needs, says IDC's Zou, "Simplification is important because many customers don't have the expertise to manage storage (and) for doing those backups." Microsoft and its partners continue to work together to help storage managers weather the storm by providing rich storage management capabilities along with the simplicity required for the enterprise to compete cost-effectively. ■

This section was written by Robert L. Scheier, a freelance writer based in Boylston, Mass. He is the former technology editor at *Computerworld*.



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