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Windows Storage Server 2003: What's in Store for '04

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OEMs have a new weapon to attack the fast-growing storage market with [Windows® Storage Server™ 2003](#) .

Released in September and available only through OEMs, **Storage Server 2003 is a dedicated file and print server based on Windows® Server™ 2003** . New features include the Volume Shadow Copy Service for faster data restoration; enhanced file serving performance; improved integration with Storage Area Networks (SANs); and support for the increasingly popular iSCSI protocol.

"By including value-added features in the Windows Storage Server 2003 platform, and increasing performance of the OS, Microsoft is enabling its OEMs to **compete more effectively in both the mid-range and the high end**," notes Senior Analyst Nancy Marrone-Hurley at the Enterprise Storage Group, an analyst firm in Milford, Mass.

The storage market continues to grow as companies seek to drive down storage costs while managing more data every year, as well as meet new laws and regulations around data protection and retrieval, says Zane Adam, director of product management and marketing for Microsoft's Enterprise Storage Division. Overall, he expects the storage server market **"to grow an average of 10 to 20 points a year."**

Adam points out that since entering the market three years ago, **Microsoft has captured 41% of the unit market share for NAS** (network attached storage) appliances. That's more than any other operating system used in these dedicated storage servers, according to the June, 2003 "Worldwide Quarterly Appliance Server Tracker" from market research firm International Data Corp.

Two editions of Windows Storage Server 2003 are available. The Standard Edition targets the small-to medium-sized business (SMB) market as well as branch offices of larger organizations, says Adam. It provides "a highly reliable and scalable solution that can **scale from 80 gigabytes (GB) to 60 terabytes (TB) of storage**." The Enterprise Edition offers all these features plus fail-over clustering (the ability to harness as many as eight physical servers) which allows any server in the cluster to instantly assume the workload for a failed server.

At a Glance: Windows Storage Server 2003

- ▶ Based on Windows Server 2003
- ▶ Dedicated to file and print services
- ▶ Standard Edition for small to medium businesses
- ▶ Enterprise Edition for customers requiring greater scalability and features such as fail-over clustering

Source: Microsoft Corp.

Key Customer Benefits

At a high level, the most obvious customer benefit that Windows Storage Server 2003 provides is storage consolidation. By combining file and print services from multiple servers, each with their own direct-attached storage, onto a single storage platform, Windows Storage Server 2003 can **reduce storage management and disk purchase costs by allowing multiple servers to access a single pool of storage**. "If a customer had 20 Windows NT 4.0 servers, they can consolidate those into two or three Windows Storage Server 2003 servers," says Adam. This reduces ongoing administrative costs while increasing application availability.

The savings can be significant. By combining Microsoft's volume pricing with the use of industry-standard hardware, OEMs can deliver **storage solutions at a cost of between one to three cents per megabyte**, meaning a multi-terabyte system could cost a customer as little as \$3,000 to \$4,000

USD.

What's more, Windows Storage Server 2003 makes it **easier to replicate data on a wide-area network** than previous storage servers. Third-party vendors are now leveraging Microsoft APIs to allow real-time replication of data between, say, branch offices and a central office. This allows applications at the central office to instantly see any changes in orders, inventory or other data at the branch locations. It also helps customers centralize their data and storage management in one data center.

What's New Inside

Previously known as Windows Powered Network Attached Storage (WPNAS), Windows Storage Server 2003 has many new features, including:

1. Volume Shadow Copy Service (VSS) for faster data restoration;
2. Enhanced file server performance;
3. Multi-path I/O technology;
4. The ability to serve as the gateway to SANs (storage area networks) from multiple vendors; and
5. Enhanced iSCSI support.

Shadow copies are created by backing up files and folders when they are modified, or at predetermined intervals. VSS cuts the time to restore deleted or corrupted data to minutes, compared to hours for tape-based systems. **OEMs can implement VSS by writing to an API** rather than having to implement it in firmware or through third-party software, says Marrone-Hurley. What's more, VSS for point-in-time shadow copies (snapshots) can also be used with clustering.

Depending on the configuration, Microsoft **has boosted the performance of the SMB (server messenger block) file sharing protocol 35% to 135%** compared to earlier versions of the operating system. Furthermore, hardware vendors can configure the OS to optimize file serving in specific environments, and can tune their hardware to improve file serving performance.

The new Multi-path I/O technology improves system availability by providing as many as 32 data paths to the NAS server. In this way, **the failure of one path will no longer block user access**. Previous Windows-based storage servers forced OEMs to write their own multi-path code.

The improved SAN interoperability likely will be a **major advantage for customers in large shops that have likely acquired SANs from two or more vendors** over the years -- or who must now support SANs brought into the business through mergers or acquisitions.

In the future, the **built-in support for the iSCSI protocol (Internet Small Computer System Interface)** will likely play a major role at customer sites running a mixture of SAN and NAS equipment. The reason: iSCSI uses the ubiquitous IP (Internet Protocol) and is thus less expensive and easier to understand than the Fibre Channel protocol used in SANs. "I would be very surprised not to see iSCSI be the predominant method to connect to back-end storage within five years," predicts Peter Pawlak, lead analyst for server applications at Directions on Microsoft, a Kirkland, Wash.-based research firm.

Four Key Features

1. Provides high-capacity, reliable file serving
2. Reduces costs and improves availability by consolidating existing file servers
3. Allows multiple production servers to be backed up without taking them offline
4. Acts as a file-serving gateway to SANs

Source: Microsoft Corp.

Microsoft already has announced broad industry adoption for its iSCSI Architecture. The Microsoft iSCSI Software Initiator, a component of the iSCSI Architecture along with an iSNS (Internet Storage Name Service), is available for download at no cost to any OEM (see "[For More Information](#)" box below). To date, **15 hardware vendors have qualified their products to work with the Initiator** under the Designed for Windows Logo program. As a result, customers now have a wide choice of tested iSCSI hardware components designed to interoperate with Windows and the Microsoft iSCSI Architecture.

Opening Doors for OEMs


Drawn by the growing size of the storage market, more than 30 Microsoft Server OEMs have licensed and are selling products based on Windows Storage Server 2003, says Adam. **Selling and supporting the product is relatively easy** for existing Microsoft OEMs. That's because it is

basically a customized version of Windows Server 2003 optimized for delivery of file and print services only, says Pawlak.

"The difference is a storage server is a very dedicated device," says Pawlak. "It doesn't have the flexibility that a general-purpose server has, but in exchange you get lower cost, higher reliability and higher performance."

OEMs targeting either the SMB or enterprise market **can often use the same off-the-shelf hardware they use to run Windows Server 2003**, says Adam. But OEMs who aim to sell into very large data centers will likely want to customize their products with different storage devices, clustering hardware or third-party software. By utilizing, for example, very reliable disk subsystems or third-party software allowing real-time replication, OEMs can offer customers high-end features that a few years ago were available only on much higher-priced SANs, says Pawlak.

One advantage for traditional server OEMs is that **the customers are often the same network administrators** who previously have purchased Windows application servers. The exception is very large organizations looking for a NAS gateway to a SAN, says Adam, where the purchase decision typically "goes through the storage administrator. Those are the guys who are looking for highly scalable solutions for their SAN."

Pawlak agrees that **OEMs (or their resellers) will often find themselves selling to network administrators** or business managers who are building the infrastructure to support a specific application, just as is often the case with general-purpose application servers. But when the interest in storage servers is driven by enterprise-wide needs to lower costs or improve disaster recovery, he says the decision-maker will more likely be at the corporate IT management level. 

OEM Opportunities Abound

Using Windows Storage Server 2003, OEMs can:

1. Use off-the-shelf hardware to build high-capacity, reliable file servers at lower price points than before
2. Bundle standard hardware with specialized hardware and/or software to develop more scalable, high-capacity storage systems for specialized needs
3. Integrate Windows Storage Server 2003 with their own high-end storage hardware and software to boost performance and ease manageability
4. Tune Windows Storage Server 2003 code, or their own hardware, to improve performance for specific customer needs

Source: Microsoft Corp.

For More Information


[Windows Storage Server 2003 Homepage](#)

[Enterprise Storage Group report on Windows Storage Server 2003](#)

[iSCSI Driver for Windows Storage Server 2003](#)

[More Information on Microsoft Corp.'s Windows Logo Program for Hardware](#)

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