

# Microsoft Windows Server 2008

## The Big Picture

- Microsoft Windows Server 2008 is the most SAN-friendly Windows Server platform to date.
- More customers will deploy mission-critical applications on Windows in the next two years than on any other platform. (IDC Survey 2008)
- EMC helps amplify the benefits of the Windows Server enhancements by providing the foundational information infrastructure for the platform.

## New Storage Capabilities Amplified by EMC

Microsoft Windows Server 2008 is the next generation of the Windows Server operating system. New features and functionality make it increasingly secure, reliable, and robust. This is particularly evident in the area of storage with advanced capabilities from clustering and connectivity to security and management. When combined with EMC's leadership storage platform and service offerings, Microsoft Windows Server 2008 becomes a truly mission-critical IT infrastructure.

## Making the Most of Windows Server 2008 Deployments

EMC can help you make the most of the new storage-related features of Windows Server 2008 within an IT infrastructure where information is appropriately managed, stored, protected, optimized, and leveraged. Our expertise is in lowering costs and increasing value throughout the information lifecycle. From enhancing and easing upgrades and migrations to helping manage complex environments, EMC is a key contributor to successful Microsoft deployments.

Essential to our success in helping you is our alliance with Microsoft. Building on a history of more than a decade of integrating enterprise-class systems, software, services, and shared best practices, EMC and Microsoft leverage the best of what each company has to offer. While EMC has many years of experience on a variety of technologies, Microsoft applications are a core expertise and Microsoft is a strategic partner.

## New Storage Features of Microsoft Windows 2008

**Failover clustering:** Windows Server 2008 Failover Cluster (renamed from Microsoft Cluster Server) is designed for SANs and provides integrated configuration validation tools enabling you to run a focused set of tests on a collection of servers. You can inventory software, measure network performance, and validate system configurations as well as do diagnostics on a configured cluster.

**Streamlined cluster setup** enables you to create a cluster in one seamless step. It is fully scriptable for automated deployments and the Cluster Migration Tool enables the migration of cluster configurations from one cluster to another. Once the cluster is up and running, management is easy with the new cluster MMC snap-in.

The Enhanced Quorum Model eliminates failure points with majority-based cluster membership. The original design assumed that storage would be always available and was a hybrid of legacy MNS logic and Shared Disk Quorum Model. The Enhanced Quorum Model will replace both existing models.

## Disk management

A key to optimum server performance is disk management. Microsoft Windows Server 2008 enables extend and shrink for Volume and Logical Unit (LUN). It simplifies and reduces user workloads for storage provisioning.

Volumes are aligned on creation at 1 MB boundaries with Basic, GPT, and Dynamic disks supported. There is no need for Diskpart, Diskpart, or a consultant to provide offset. Performance will be predictable by default for newly created volumes.

Diskshadow functionality enables the in-box VSS requestor to create and manage hardware and software shadow copies. It offers an interactive command-line interface with a script mode and enables support for hardware transportable scenarios including off-host backups and data mining.

Windows Server 2008 also offers a robust SAN Policy that enables the control of default volume mount behavior.

### **Connectivity**

Windows Server 2008 is the first version of Server to include inbox multipath support for iSCSI, SAS, and FC.

DSM works with storage arrays that support Asymmetric Logical Unit Access (ALUA) as defined in SPC-3 and Active/Active controllers. It also supports failover, failback, and load balancing.

Hardened for SANs, Storport will be the default connectivity model with iSCSI, SAS, and FC support. It offers IO Timeout modified for BUSY targets, full support of MSI-X Enabled HBAS, stabilization of power management handling, and robust dynamic device add/remove.

SMB 2.0 greatly increases scalability through increases in the number of open files on the server and the number of shares on a server. It improves data streaming with parallel read/write requests capitalizing on autoscaling. In fact, one customer's data indicates a download time for a 300 MB file going from 24 minutes to 41 seconds when using a 150 ms delay on a 100 Mb/s link.

### **Server backup**

The Windows Server 2008 server backup design leverages VSS functionality for the creation of backup images. It increases the granularity of backup and recovery operations (user data, system state, and disaster recovery) and includes the ability to schedule regular backup operations. Please note that it is an included component of the operating system, but its installation is optional.

Server backup storage media includes support for disks (internal, external), network shares, and optical media (DVD), but removes support for tape-based backup operations.

### **Storage Explorer**

Storage management is further enhanced with Storage Explorer. Its design uses existing WMI classes and methods embedded in FC miniport drivers and iSCSI initiators—hardware or software. It directly communicates with iSNS servers. Removable and requiring no providers, it is implemented as an MMC snap-in.

The Storage Explorer GUI provides a tree-structured view of all the components within the SAN (fabrics, platforms, storage devices, LUNs) and provides access to the TCP/IP management interfaces of individual devices. The combination of Storage Explorer and Storage Manager for SANs (SMfs) provides full-featured SAN configuration management functionality including detailed SAN configuration information and access to the management interfaces for individual devices.

## EMC Platforms

EMC flexible, tiered-storage solutions supporting Microsoft Windows 2008 allow you to align your data availability, protection, and performance requirements based on application needs.

**EMC® CLARiiON® AX series** brings easy-to-use networked storage to small-to-medium businesses and branch offices at an affordable price. CLARiiON AX4 combines proven reliability and availability with simple installation and management capabilities.

**EMC CLARiiON CX3 series** brings flexible networked storage to mail/messaging, databases, and distributed applications with a powerful networked storage system based on the CLARiiON CX3 UltraScale™ architecture.

**EMC Symmetrix® DMX series** provides the most advanced storage capabilities in order to support mission-critical, enterprise consolidation. With Symmetrix, you can consolidate tier-one applications as well as support tier-two applications and disk-based backup operations. Tools like the new Symmetrix Management Console are simple to learn and use.

**NS Series IP Storage Systems and Gateways** provide a powerful and cost-effective storage consolidation solution. They leverage the power of specialized, purpose-built iSCSI and file sharing technology to provide highly available, flexible, and easy-to-manage networked storage systems.

## LAN-free backup technology

EMC is a leader in enterprise backup technology. To protect Microsoft Windows Server 2008 applications and growing amounts of critical data, EMC offers a number of next-generation backup options. Whether you are ready for the move from LAN to LAN-free backups, or tape to disk backups, or some combination of the two, EMC's breadth of offerings makes it possible.

EMC Replication Manager manages disk-based replicas to improve access to information, enhance protection, orchestrate key business applications, and improve operational efficiency. It does this by integrating with key applications in your environment as well as disk-based functionality like the EMC TimeFinder® family, EMC SnapView™, EMC SAN Copy™, EMC Celerra® SnapSure™ iSCSI, and EMC Invista® Clones.

Replication Manager offers the broadest support of heterogeneous platforms, operating systems, and applications. This can integrate with your current backup solution and is tightly integrated with EMC NetWorker®, an enterprise-class backup platform. NetWorker speeds and simplifies backup and recovery across your environment. And you can customize this modular solution, as needed, to protect the applications you use and add the functionality you need.

## Long-distance data replication technologies

EMC is also the leader in long-distance data replication technologies used to provide site disaster recovery. The EMC portfolio of replication technology spans host-based, network-based and SAN-based options to match any customer requirement. Only a leading SAN solution vendor like EMC can offer a no-data-loss synchronous replication ensuring the highest level of protection available.

Remote Office Data Protection with EMC RepliStor® is an out-of-the-box software technology that provides data recovery and protection for Microsoft Windows. RepliStor increases data availability by delivering realtime replicas to one or many locations, regardless of location. You can use data for offline backup protection, disaster recovery, and data distribution.

## EMC Microsoft Infrastructure Services

EMC also offers a range of services to complement our industry-leading hardware and software solutions. EMC Microsoft Infrastructure Services help you optimize your IT infrastructure—making it simpler, more reliable, more affordable, and more manageable. With EMC Microsoft Infrastructure Services, you'll be supported in transforming IT from a cost center to a business enabler. EMC will provide knowledgeable guidance to help you assess, design, implement, integrate, and manage Microsoft, EMC, and related technologies.

## Leveraging Windows Server 2008 through Service Management

Leveraging the new features of Windows Server 2008 requires you to optimize information assets while sustaining service levels, enhancing productivity, and reducing operating expense levels year after year. It can be a struggle to manage complex IT environments and deliver on those service-level commitments. That's because these tasks require complete visibility into the entire service chain—servers, applications, web services, clients, and networks.

EMC Smarts®, in close partnership with Microsoft System Center, offers comprehensive end-to-end service management solutions for automating data center operations. By adding the network awareness and root-cause strength of EMC Smarts to Microsoft System Center Operations Manager 2007, EMC and Microsoft can now deliver a complete, network-aware service management solution.

## EMC Microsoft Practice

The EMC Microsoft Practice is at the center of EMC's ability to accelerate the business value of Microsoft Windows Server 2008. With capabilities across the U.S., and growing in Europe and Asia, it offers a broad portfolio of strategic consultation, planning, delivery, and support across the entire IT lifecycle—from envisioning through day-to-day operations. The EMC Microsoft Practice is part of EMC's Global Services Group with more than 10,000 technology experts worldwide providing technical, architectural, and overall project leadership expertise.



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### Take the next step

For more information about EMC solutions for Microsoft Windows Server 2008, contact your EMC sales representative or go to: <http://www.emc.com/solutions/application-environment/microsoft/index.htm>.