

## **VERITAS Volume Management Technology for Windows**

### **COMPARISON: MICROSOFT LOGICAL DISK MANAGER (LDM) AND VERITAS STORAGE FOUNDATION™ *FOR WINDOWS***

Windows 2000 and Windows Server 2003

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## **ONLINE STORAGE MANAGEMENT CHALLENGE**

Traditional disk storage management is a labor-intensive process, often requiring that systems be taken offline for hours at a time, disabling user access to data and forcing system administrators to manually intervene. Increasingly, Windows system administrators are experiencing the same storage management needs as their open systems enterprise counterparts. Until recently, Windows systems have lacked tools that meet sophisticated storage management needs, such as:

- Online storage configuration
- Online volume management
- Flexible I/O performance monitoring and optimization
- Quick recovery for data

These capabilities are critical to maintaining highly available, highly performing storage. VERITAS has worked closely with Microsoft to provide Windows administrators with various levels of sophisticated tools for storage management.

## **LOGICAL DISK MANAGER IN WINDOWS 2000 AND WINDOWS SERVER 2003**

Logical Disk Manager (LDM) is the result of collaboration between VERITAS and Microsoft. It is included with all Windows 2000 and Windows Server 2003 versions as a disk management snap-in to the Microsoft Management Console (MMC). Logical Disk Manager is designed for Windows environments with moderate uptime requirements or limited system administration resources available for configuring and managing storage.

## **VERITAS VOLUME MANAGEMENT TECHNOLOGY**

VERITAS designed advanced volume management technology for Windows environments requiring the highest availability. In addition to offering the basic features in LDM for Windows 2000 and Windows Server 2003, VERITAS Storage Foundation™ *for Windows* adds advanced storage management capabilities to the Windows 2000 and Windows Server 2003 environments. VERITAS Storage Foundation *for Windows* provides high availability, flexible storage configuration and performance optimization.

## PRODUCT COMPARISON: VERITAS STORAGE FOUNDATION FOR WINDOWS AND LDM FOR WINDOWS 2000 AND WINDOWS SERVER 2003

### VOLUME TYPES SUPPORTED

Feature	Primary Benefit	Windows 2000 LDM	Windows Server 2003 LDM	Storage Foundation for Windows (W2K3 & W2K)
Simple Volumes	Volume limited to a single physical disk	X	X	X
Spanned Volumes	Large volume spans multiple physical disks	X	X	X
Striped Volumes (RAID 0)	Improved I/O Performance	X	X	X
Mirrored Volumes (RAID 1)	Data protection via extra copy	2 sets	2 sets	32 sets
RAID Volumes (RAID 5)	Cost-effective data protection	X	X	X
Mirrored Striped Volumes	Performance; failure tolerance – up to half the disks can fail without data loss			X
Number Disks per Volume	More subdisks permits finer granularity in volume management	32	32	256

## VOLUME MANAGEMENT

Feature	Primary Benefit	Windows 2000 LDM	Windows Server 2003 LDM	Storage Foundation for Windows (W2K3 & W2K)
Dynamic Online Volume Creation	User access to data not interrupted while a logical volume is created	X	X	X
Dynamic Online Volume Growth	User access to data not interrupted while a volume is grown	X	X	X
Dynamic Online Growth Simple and Spanned Volumes	User access to data not interrupted while a simple or spanned volume is grown	X	X	X
Dynamic Online Growth of Striped, Mirrored, RAID 5 and Mirrored Striped Volumes	User access to data not interrupted while a striped, mirrored, RAID 5 or mirrored striped volumes are grown			X
Mirror Breakaway for Backup	Off-load production environment			X
Dirty Region Logging	Provides fast recovery after system failure			X
RAID 5 Logging	Ensures prompt recovery of RAID 5 volumes in the event of a power failure			X

## CENTRALIZED STORAGE MANAGEMENT

Feature	Primary Benefit	Windows 2000 LDM	Windows Server 2003 LDM	Storage Foundation for Windows (W2K3 & W2K)
Heterogeneous Management Console	Simplifies operations for centralized management			X
Disk View	Displays graphical layout of disks	X	X	X
Events Log View	Displays Event Log messages associated with storage objects			X
Statistics View	Displays current I/O statistics for dynamic disks and subdisks			X
Command Line Interface	Executable commands can be initiated and provides scripting capability to automate repetitive tasks		X (CLI for diskpart & diskraid)	X
Drag and Drop GUI	Easily move volumes from array to array			X
Proactive Storage Resource Monitoring	Proactive storage event notification improves performance and reduces downtime			X
Capacity Monitoring	Provides a warning when any dynamic volume has reached nearly full capacity allowing proactive action			X
Paging/E-mail	Sends storage administrator an e-mail and page in the event of a storage-related problem			X
SNMP Framework Support	Allows SNMP alerts to be sent to a centralized management console			X
Automated Volume Growth	Proactively solve storage-related problems based on predefined rules			X
S.M.A.R.T. Disk Monitoring	Monitors disk resources for potential hardware failures to take proactive measures to prevent storage failures			X
Custom Monitoring Settings	Thresholds can be set to give more flexibility for alert notification			X
E-Enabled	Enables online registration, access to technical support and technical-support links			X

Feature	Primary Benefit	Windows 2000 LDM	Windows Server 2003 LDM	Storage Foundation for Windows (W2K3 & W2K)
Reporting	Allows customized reporting of storage environment			X
Wizards	Wizards guide the system administrator through all major tasks, making them both easier and faster to accomplish			X

## SAN AND CLUSTERING SUPPORT

Feature	Primary Benefit	Windows 2000 LDM	Windows Server 2003 LDM	Storage Foundation for Windows (W2K3 & W2K)
VERITAS Cluster Services	Creation and online management of advanced dynamic volumes in VEITAS Cluster Server environment			X
Microsoft Cluster Services (MSCS)	Creation and online management of advanced dynamic volumes in MSCS environments			X
Mirrored MSCS Quorum Resources	Improved failure recoverability via high level of redundancy of key cluster resources			X
Dynamic Multipathing (DMP)	Continuous data access eliminates single points of failure: Increased availability if one path becomes unavailable and increases performance by spreading I/O between multiple paths			X
Private Disk Group Protection	Flexible assignment of ownership between servers and storage (especially useful with SANs)			X
Support for Multiple Disk Groups	Improved portability of diskgroups between servers for both clustered and non-clustered environments			X



## PERFORMANCE MONITORING AND TUNING

Feature	Primary Benefit	Windows 2000 LDM	Windows Server 2003 LDM	Storage Foundation for Windows (W2K3 & W2K)
Online Volume and Disk Statistics	View I/O statistics to monitor storage system performance			X
Capacity Monitoring	Provides a warning when any dynamic volume has reached nearly full capacity allowing proactive action			X
Online Performance Tuning	Remove I/O bottleneck to improve data access speeds, without interrupting users' access to data			X
Historical Graph of Disk Activity	Provides historical graph of I/O activity for use in identifying problems and predicting trends			X
Hot Spot Detection	Detects areas of high I/O in order to remove the bottleneck			X
Preferred Mirror	Designate a mirror volume as a preferred access device for faster local data access			X
Exchange Performance	By using cache memory for read operations, significantly improves Exchange performance by as much as 40%			X

## SNAPSHOTS

Feature	Primary Benefit	Windows 2000 LDM	Windows Server 2003 LDM	Storage Foundation for Windows (W2K3 & W2K)
Volume Snapshots	Protects production data from data-intensive activities such as testing, decision support and reporting			X
VERITAS FastResync	Only changes that happened during the time the volume was split have to be merged, which speeds the time to rejoin a split mirror and reduces the server CPU cycles needed to complete the resync			X
Fast File Resync	Quickly recover for specific files			X
Dynamic Group Split and Join	Enables importing of volume snapshots to another host for processing and then rejoins the volumes			X
Quick Recovery	Automatically recover data in minutes			X
Copy on Write Snapshots			X	

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