

Storage Manager, Powered by Profiler

GET BETTER INSIGHT INTO YOUR EMC® SYMMETRIX® ENVIRONMENT:

- Overview of disk drives on the Symmetrix disk array:
 - Size & type
 - Model & manufacturer
 - Operational status
- Basic storage pools or RAID group assets:
 - Models each storage pool or RAID group
 - Depicts pool size, remaining space, & RAID type
 - Supports thin and thick pools
- Advanced storage pool assets:
 - Each storage pool
 - Number of LUNs
 - Space consumed
 - Pool remaining managed & total managed space
- Basic LUN assets:
 - Overview of size of LUNs
 - RAID type
 - Associated storage pool ID
- Basic LUN path mapping:
 - Map from a bound LUN to its FC HBA port
- Advanced LUN path mapping:
 - Map LUN from storage processor to host initiator port
 - Depicts end-to-end path from LUN to host
- Array & LUN statistics:
 - Read, write, & total I/Os
 - Kbytes read, written, & transferred
- Automated report generation & delivery:
 - 50+ off-the-shelf reports
 - Quick & easy control of custom report generation
 - Detailed & configurable report delivery mechanism
- Additional Features:
 - Fibre Channel switch monitoring & reporting
 - HBA reporting & monitoring
 - Host-based and Virtualization storage usage
 - File analysis & data classification
 - Threshold alerting based on usage for performance and capacity
 - Custom Grouping

Storage Management for Your Virtualized Infrastructure

You probably don't need anyone to tell you that virtualization has added a whole new set of storage performance and capacity management challenges to what was already a tough job! But, our storage management software can make your job a lot easier—and at a very affordable price point that won't attract unwanted attention from your CFO.

SolarWinds Storage Manager helps you keep a sharp eye on the performance and capacity of your physical and virtual storage infrastructure—end to end, from VM to spindle! With Storage Manager at your side, you can quickly and easily monitor storage performance, isolate hotspots, automate storage



capacity planning, map VMs to physical storage, analyze storage usage to reclaim storage space, manage fibre channel switches, gain visibility into your multi-vendor SAN fabric and more—all through a single pane of glass!

Storage Manager Highlights:

Storage Performance Monitoring & Hot Spot Isolation

- Simplifies troubleshooting of shared storage and server performance bottlenecks
- Isolates storage I/O hot spots and the source of contention

Automated Storage Capacity Planning

- Automates the collection of forecasting data
- Makes it easy to view storage growth rates and project when storage capacity will be reached and forecast costs

VM to Physical Storage Mapping

- Automatically maps VMs, applications and logical connections to the physical storage environment, enabling root-cause analysis

Storage Data Classification

- Provides insight into the types of files being stored, their age and access history, so you can reclaim wasted space and stay compliant

Multi-Vendor SAN & Fibre Channel Switch Management

- Single pane of glass across your multi-vendor SAN with new EMC VNX and IBM V7000 array support
- Delivers visibility into fibre channel switches and your SAN fabric

In-Depth Analytics & Storage Reporting

- Aggregates data from multiple arrays and vendors into consolidated dashboards and reports
- Shows capacity, allocation, usage and forecasting at all levels of the storage environment (raw, RAID, LUN, data store and file system)

SolarWinds Storage Manager Features

Storage I/O Hotspot Detection

Storage Manager looks across your multi-vendor SAN, identifies potential issues, and enables you to quickly drill down to detailed information about the physical or virtual resource causing the problem. By mapping your virtual and physical infrastructure to physical storage, Storage Manager makes it easy to isolate storage I/O hotspots before they impact performance. Even better, Storage Manager shows you how a potential bottleneck can impact the physical and virtualized elements in your infrastructure and identifies available capacity you can leverage for a quick fix.

Storage Manager can even help you manage the “VM I/O Blender” effect that can occur as VMs multiply. As traditional, predictable I/O patterns get tossed and new streams blend together to create new I/O dynamics and transient hotspots, the storage I/O hotspot detection capabilities in Storage Manager can help you pinpoint bandwidth issues, quickly resolve them, and prevent them from happening again.

VM to Physical Storage Mapping

The VM to physical storage mapping feature in SolarWinds Storage Manager automatically maps VMs and logical connections to the physical storage environment in order to provide you with a complete view across all resources in your virtualized infrastructure. Storage Manager is the only intuitive, web-based storage management solution that combines VM to physical storage mapping with storage monitoring, reporting, alerting and forecasting across the entire multi-vendor storage stack for DAS, NAS and SAN systems.

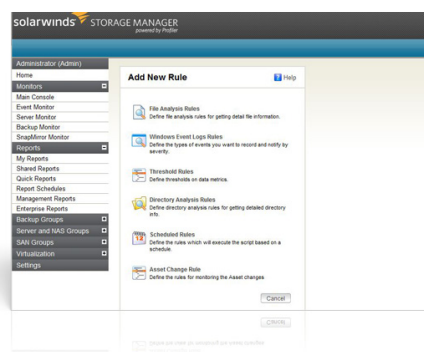
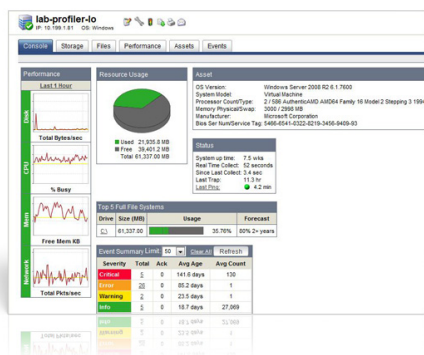
Automated Storage Capacity Planning

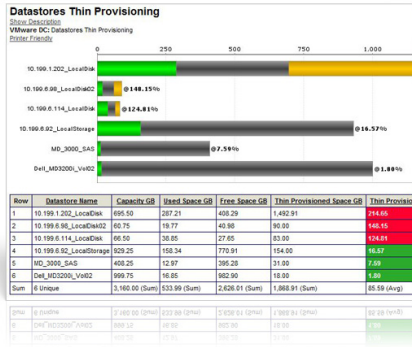
Storage Manager collects storage forecasting data and tracks performance over time to identify hot spots, peak hours and potential outages. By automating the collection of forecasting data, Storage Manager makes it easy to view growth rates, project when capacity will be reached, and forecast costs and budgetary requirements. In addition, this same data provides the information you need to avoid outages due to full disk errors. Storage Manager even supports your tiered storage strategy by classifying data according to frequency of access, making it easy to determine which data should be stored on a top-tier storage device and which data can be moved to tape.

Multi-Vendor SAN, DAS, and NAS Performance Monitoring

Storage Manager ensures that your storage network is always running at peak performance by providing comprehensive SAN, DAS, and NAS performance monitoring and alerting across a wide range of vendor arrays. Using agentless performance monitoring technology, Storage Manager enables you to identify how storage resources are currently being used and how they will be used in the future—without impacting network and device performance.

SolarWinds Storage Manager delivers monitoring data on volumes, RAID groups/storage pools, disks, initiators, target ports, operational status for the array, processors and all the associations between each entity. With its powerful SAN, DAS and NAS performance monitoring capabilities, Storage Manager helps you manage space consumption on RAID groups, map storage volumes back to the host and understand how these volumes are load balanced across each storage processor on the array. This gives you valuable insight into storage utilization across the enterprise, so you can identify the impact of a failure and trend and forecast for capacity planning and business continuity decisions. You can also quickly and easily configure a full range of custom and pre-defined alerts. From a single interface, you can easily set thresholds, alerts, filters and notifications. These alerts help you recognize and correct issues before your users experience performance degradation or availability issues.





Managing Virtualized Storage

Storage Manager allows you to more effectively manage VMware Thin Provisioning. Thin provisioning enables administrators to allocate storage to multiple VMs very easily on a just-enough and just-in-time basis and relies on efficient use of over-provisioning. Storage Manager helps you view, analyze and plan thin provisioning deployments by collecting and reporting on detailed information on virtual disks for managing the level of over-commitment on your datastores.

Automated Storage Discovery

Using SMI-S Provider information and APIs, Storage Manager's discovery engine will quickly scan for EMC®, LSI™, NetApp® filers, VMware vCenter™ and standalone ESX arrays. When new arrays or hosts are discovered, Storage Manager displays the hostnames and IP addresses, so you can easily assign them to the management server to be configured. The storage discovery feature saves you valuable time and makes deploying Storage Manager faster and easier than ever before.

Order	Credential	Credential Type
1	NetApp	NETAPP
2	EMC	SMIS
3	IBM	SMIS
4	vmware	VMWARE

Cross-Vendor Storage Reporting

Storage Manager's reporting console houses hundreds of pre-defined and fully-customizable reports that provide in-depth information on every aspect of your multi-vendor storage environment, including domains, servers, volumes, files and owners. A custom grouping feature even allows you to group storage, servers and file systems into unique business-related entities for charge back, division reporting or geographic analysis. All reports can be automated, emailed and published on a schedule and exported as HTML or CSV files for further customization.

Row	Datastore Name	Datastore Used GB	Datastore Size GB	Datastore % Used	Eighty Percent	Ninety Percent
1	10.199.6.100_LocDisk	59.50	60.25	98.7%	Already reached	Already reached
2	10.199.6.98_LocDisk02	86.94	147.25	58.4%	Usage is decreasing	Usage is decreasing
3	10.199.6.114_LocDisk	38.85	66.50	58.4%	Usage is decreasing	Usage is decreasing
4	netapp_fas960_vol01	2.56	4.75	53.6%	Aug 1, 2011	Sep 3, 2011
5	vmware-store	250.30	585.94	42.7%	Usage is decreasing	Usage is decreasing
6	10.199.1.202_LocDisk	287.21	695.50	41.3%	May 23, 2012	Aug 31, 2012
7	netapp_fas960_vol04	1.02	3.00	33.8%	2+ years	2+ years
8	10.199.6.98_LocDisk02	19.77	60.75	32.5%	Jan 2, 2012	Feb 22, 2012
9	10.199.6.94_LocDisk02	41.66	147.25	28.3%	2+ years	2+ years
10	storage1	8.66	32.25	26.8%	2+ years	2+ years
11	MD1000-SATA-Array	291.94	1,625.50	17.9%	2+ years	2+ years

Storage Data Classification

Enjoy complete file and data classification (with drill-down capability), including automated usage trend reporting, storage capacity planning and real-time storage monitoring. These data classification capabilities can help you understand what kinds of files are being stored, their age and access history, so you can reclaim wasted space and stay compliant. Storage Manager makes it easy to build rules to identify specific files across the enterprise, obtain detailed information (host, path, owner, size, age), and take further action by sending this information to other applications via Storage Manager's self-contained reporting engine.

Multi-Vendor SAN & Fibre Channel Switch Management

SolarWinds Storage Manager provides comprehensive storage monitoring, reporting and alerting to ensure that your SAN, NAS and DAS systems are always running at peak performance with support across EMC, NetApp, Dell, HP, IBM, Hitachi, 3Par and more. Storage Manager also supports a broad range of Fibre Channel Switches including Brocade, Cisco MDS, McData and QLogic.

MODEL	MANAGES:
STM25	Up to 25 Disks
STM50	Up to 50 Disks
STM150	Up to 150 Disks
STM300	Up to 300 Disks
STM500	Up to 500 Disks
STM1000	Up to 1,000 Disks
STM1500	Up to 1,500 Disks
STM3000	Up to 3,000 Disks
STM5000	Up to 5,000 Disks
STM7500	Up to 7,500 Disks
STM10000	Up to 10,000 Disks
STM12500	Up to 12,500 Disks
STM15000	Up to 15,000 Disks
STMX	Unlimited

SYSTEM REQUIREMENTS	
HARDWARE	MINIMUM REQUIREMENTS
Processors	2
Memory	4 GB
Hard Drive	50 GB
SOFTWARE	MINIMUM REQUIREMENTS
Operating System	Windows® 2003/2008 (32 & 64 bit); Linux® RedHat®/SUSE (32 & 64 bit)
Console	Internet Explorer®, Mozilla® Firefox®
TECHNOLOGY SUPPORT	
Storage Devices	EMC Symmetrix, DMX, VMAX arrays, as well as those from other leading vendors
Provider	EMC SMI-S Solution Enabler Provider 6.2.1 or greater

NOTE: The requirements listed above are recommendations that vary depending on each network configuration and server load.