



# VIRTUAL STORAGE MANAGER®

## SYSTEM

### Key benefits

#### Manage massive data growth

Optimize your tape environment so it supports your legacy and new business applications. Cut tape processing times drastically and free system resources to perform other work. Dramatically increase the amount of data typically stored on each cartridge. Enhance staff productivity with single-point control.

#### Enhance data protection

Enable transparent copying and migration offsite of critical business information and automatically make additional copies. The VSM system provides disaster recovery options that help reduce business risk, through either physical migration or electronic vaulting, or both.

#### Maintain service levels

Improve customer service with improved access time to information. Retrieve data stored on VSM system virtual tape cartridges at the speed of disk. Respond to peak demands with up to 256 virtual tape drives. Reduce or eliminate drive allocation problems. Accelerate disaster recovery through tape cartridge optimization.

#### Manage your tape storage strategy transparently

Move your data simply and predictably according to your rules, which helps you streamline your tape operations.

#### Protect your investment

Meet changing tape workloads over time without adding more libraries, drives or media, using your current tape resources.



### Optimize tape operations, protect information

The way you manage your data affects your top line growth and bottom line efficiency. Your ability to move and store data fast and reliably — taking into account its value, the cost of storage and retrieval speed — helps you manage business risk, optimize operations, enhance disaster recovery and lower total cost of ownership (TCO).

When you want to maximize the use of storage resources in support of data protection and archive applications, consider the market-leading virtual tape solution. The fourth generation of Virtual Storage Manager® (VSM®) system offers significantly enhanced disk-to-disk-to-tape functionality to help enable revenue-generating activities and reduce costs.

#### Capture the benefits of virtual

The Virtual Storage Manager system consists of a server, disk storage and software that together provide a buffer or cache between the mainframe servers and the tape storage systems. Instead of writing directly to a physical drive, mainframe workloads read and write to virtual drives created and maintained by the virtual tape solution.

When you're ready, you can have data moved predictably to real tape drives, where co-located data sets enable full cartridge utilization. Without virtual tape, you may be hampered by poor cartridge utilization, significant capital investment and complex, inconsistent backup/restore activities.

With the VSM system, you can accomplish a lot more while maximizing storage resources. You can:

- Set user-determined policies to create a storage hierarchy based on data value to help you balance storage costs with access requirements.
- Tap into enormous capacity with fewer tape mounts and cartridges, saving time and improving reliability.
- Reduce manual intervention related to data replication, migration and recall.



- Streamline tape operations and handle additional new business requirements with improved performance, accuracy, efficiency and scalability.
- Increase configuration flexibility and ease transitions to new media, drive and library technologies.
- Minimize or eliminate drive allocation recovery and delays with 256 virtual tape drives per VSM system.

### Lower total cost of ownership

When you optimize your tape environment, productivity soars and costs drop. Attain compelling TCO with attention to:

- Automation. The VSM system is a simple single, integrated solution that is 100 percent automated, independent of the processor to help you postpone CPU upgrades.
- Cartridge utilization. In legacy scenarios, a 20-gigabyte cartridge may store only 200 megabytes of data. Under-utilized assets cause wasted floor space and slower data retrieval. The VSM system is designed to use 100 percent of each cartridge so you receive full value for your purchase. As a result, you can reduce cartridge count dramatically — from thousands to hundreds or even tens.
- Scalability. You can connect multiple VSM systems non-disruptively to expand capacity dramatically and boost performance cost effectively and efficiently.
- Throughput. With the VSM system, you can move data fast and efficiently. VSM 4 system with FICON transfers data approximately five times faster than ESCON.

### Bolster backup and disaster recovery

After you optimize your tape environment, you realize significant benefits in resources, cost, space and time. Now consider your backup/restore and disaster recovery objectives. Unlike competitive approaches, the VSM system gives you the flexibility to choose a selection of physical and electronic migration options — local and remote.

With VSM system, you can build a foundation for effective disaster recovery with:

- Simplified disaster recovery process. With reduced data volume, high transfer rates and fewer tapes to manage, the implementation of disaster recovery plans is easier, more predictable and more reliable.
- Automatic data migration. The VSM system's fast data replication capability copies data and migrates it offsite quickly and efficiently, without intervention.
- Data integrity. When you restore data, it must be usable data. High system availability consistently leads to successful job completion. You can set up the VSM system to automatically protect your data by duplexing, triplexing or quadplexing data volumes and reduce your exposure to media errors.
- Value-based data storage and protection. The VSM system's powerful management tools help you work within budget by automatically placing your tape data on the right level of storage device according to the rules you define.

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### Balance speed, capacity, access and cost

With the VSM system, you can work smarter, not harder. Within a storage hierarchy, you store the right data on the right device at the right price — and help protect your business-critical information based on its changing value.

- Improve performance of tape workload by increasing throughput and reducing the impact of real tape drives on front-end activity.
- Increase capacity substantially and efficiently as data storage requirements grow.
- Grow and change as media, drive and library technology evolves without disrupting your environment.
- Mix and match transparently StorageTek's high-capacity T9940 and fast-access T9840 tape drives to meet varied storage and data needs.

### Transform your business

Contribute to the top line revenue growth and bottom line efficiency of your business. The Virtual Storage Manager system helps you optimize tape storage operations, which lowers TCO and improves backup and disaster recovery practices. The VSM system makes it easier for you to operate cost effectively yet accommodate growing demands for data storage.

### Engage the storage experts

StorageTek's Implementation Services help you achieve the full benefits of your storage solution investments — right from the start. The Baseline Implementation Services offering for Virtual Storage Manager® (VSM®) system provides the services necessary to completely deliver and transfer knowledge to your organization. This offering includes the installation and configuration of the VSM system components into an automated tape library environment and initial set-up of your tape environment to utilize VSM system functionality. In addition, the service includes design validation, documentation, project management and knowledge transfer.

In addition to Baseline Implementation Services, StorageTek Global Services provides world-class, worldwide service and support with comprehensive offerings designed to optimize your storage environment and position you to meet the future confidently. More than 22,000 customers engage us to provide implementation, hardware/software support programs and professional services that enhance information lifecycle management and operational performance. Let us help you evaluate your storage operation and identify alternatives that can improve data protection and maximize return on investment.

### To learn more

Talk to your StorageTek® representative about ways in which you can capture the benefits of virtual storage with the VSM system.

# Virtual Storage Manager® (VSM®) system specifications

	VSM 4 (VSM B734)	VSM 4 (VSM C734)	VSM 4 (VSM D734)
<b>Performance data</b>			
Disk performance	15,000-rpm disk drives	15,000-rpm disk drives	15,000-rpm disk drives
Physical cache	8 GB	8 GB	8 GB
Effective cache (4:1 compression)	32 GB	32 GB	32 GB
Non-volatile storage (average 4:1 compression before storage)	256 MB	256 MB	256 MB
Effective non-volatile storage (4:1 compression)	1,024 MB	1,024 MB	1,024 MB
<b>Capacity*</b>			
Capacity	1.25 TB, 2.5 TB, 5.0 TB, 7.4 TB	11 TB	14.9 TB
Channels	16 ESCON (upgradeable to 32)	16 ESCON (upgradeable to 32)	16 ESCON (upgradeable to 32)
	4 FICON (upgradeable to 8)	4 FICON (upgradeable to 8)	4 FICON (upgradeable to 8)
Virtual tape drive	256	256	256
<b>Management</b>			
Minimum software requirements	HSC 6.0/VTCS 6.0, z/OS 1.1+	HSC 6.0/VTCS 6.0, z/OS 1.1+	HSC 6.0/VTCS 6.0, z/OS 1.1+
<b>Mechanical</b>			
Height	59.7 in (154.94 cm)	59.7 in (154.94 cm)	59.7 in (154.94 cm)
Depth	30.4 in (77.1 cm)	30.4 in (77.1 cm)	30.4 in (77.1 cm)
Width	36.3 in (92.1 cm)	36.3 in (92.1 cm)	36.3 in (92.1 cm)
Weight	982 lb (445 kg)	982 lb (445 kg)	982 lb (445 kg)
Service clearance	21.3 in (54.1 cm)	21.3 in (54.1 cm)	21.3 in (54.1 cm)
<b>Environmental</b>			
Temperature (operating)	+60° to +90° F (+16° to +2° C)	+60° to +90° F (+16° to +32° C)	+60° to +90° F (+16° to +32° C)
Maximum wet bulb temperature	+73° F (+23° C)	+73° F (+23° C)	+73° F (+23° C)
Relative humidity (operating)	20% to 80%	20% to 80%	20% to 80%
<b>Power</b>			
Voltage	200–240 VAC @ 50–60 Hz	200–240 VAC @ 50–60 Hz	200–240 VAC @ 50–60 Hz
Power consumption/dissipation	8.6 min kBTU/hr 12.4 max kBTU/hr	8.6 min kBTU/hr 12.4 max kBTU/hr	8.6 min kBTU/hr 12.4 max kBTU/hr
kVA	2.6 min/3.8 max	2.6 min/3.8 max	2.6 min/3.8 max

\*Estimated capabilities depend on the compressibility of customer data.



## ABOUT STORAGETEK®

Storage Technology Corporation (NYSE: STK), a \$2 billion worldwide company with headquarters in Louisville, CO, has been delivering a broad range of storage management solutions designed for IT professionals for over 30 years. StorageTek offers solutions that are easy to manage, integrate well with existing infrastructures and allow universal access to data across servers, media types and storage networks. StorageTek's practical and safe storage solutions for tape automation, disk storage systems and storage integration, coupled with a global services network, provide IT professionals with confidence and know-how to manage their entire storage management ecosystem today and in the future.

StorageTek products are available through a worldwide network. For more information, visit [www.storagetek.com](http://www.storagetek.com), or call 1.800.275.4785 or 01.303.673.2800.

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