

STORAGETEK VIRTUAL STORAGE MANAGER SYSTEM

KEY BENEFITS

- **Simple** – Efficiently manage data and storage resources according to your rules, while streamlining your tape operations. Automated, policy-driven management simplifies both deployment and ongoing tape operations. With non-disruptive, on-demand scaling, growing your environment is simple, too.
- **Flexible** – Engineered with flexibility in mind, the StorageTek Virtual Storage Manager System can be deployed to meet each enterprise's unique business requirements. From high-performance "disk only" or massively scalable "disk + tape" configurations to single site or multisite support, the StorageTek Virtual Storage Manager System deployments meet each application's specific requirements. Balance speed, capacity, and availability so that the right data is on the right device at the right cost.
- **Reliable** – Reduce exposure to your business with superior data protection, end-to-end high availability architecture and closed-loop data integrity checking. The StorageTek Virtual Storage Manager System leaves no stone unturned in providing a reliable solution to guarantee your mainframe applications run error free all day, every day.
- **Low TCO and Investment Protection** – Low asset acquisition cost combined with high-density data center footprint and energy efficient design keep your storage spending within budget. Compatibility with existing systems and management policies protects your legacy investments.



The way you manage your mainframe data affects your top-line growth and bottom-line efficiency. Your ability to manage and store data simply and reliably—taking into account its value, the cost of storage, and retrieval speed—helps you efficiently manage operations, get data growth under control, enhance disaster recovery, and lower your total cost of ownership (TCO).

Figure 1. The StorageTek Virtual Storage Manager System helps you optimize mainframe tape storage operations.

Simple Data Management for Mainframe Data Centers

StorageTek Virtual Storage Manager System 6 makes data management simple for the mainframe data center. Simple to deploy, simple to manage, and simple to scale. The StorageTek Virtual Storage Manager System deploys as a single, pre-integrated and pre-optimized system minimizing implementation schedules and bringing applications online faster.

Automated and policy-based management simplifies day-to-day operations. Automate tasks that were previously handled manually and move IT resources to higher value, strategic assignments. Policy-driven data and system management from a single point of control simplifies operations while efficiently and effectively meeting application requirements. With optional, second-tier disk storage using Oracle's StorageTek Virtual Library Extension, the StorageTek Virtual Storage Manager System is the only architecture supporting multiple tiers of storage under a single pane of glass.

With StorageTek Virtual Storage Manager System 6, keeping up with your enterprise's growing data is simple. The system keeps things simple with non-disruptive, on-demand scaling. Start small and grow to 1,600 TBs of effective disk storage in a single rack. Then add more StorageTek Virtual Storage Manager System 6 solutions to manage up to 409 petabytes of disk effective storage in a single StorageTek Virtual Storage Manager System 6 tapeplex. Simple, seamless migration to physical tape extends system capabilities to provide nearly unlimited capacity to meet your enterprise's long-term data retention and compliance needs.

Flexibility to Meet the Unique Needs of Your Data Center

Flexibility is a key ingredient in the StorageTek Virtual Storage Manager System architecture. At Oracle, we know not all data centers are the same. StorageTek Virtual Storage Manager System flexibility meets the needs of multiple and diverse operating environments. From high-performance "disk only" or massively scalable "disk + tape" workloads to single site or

multisite support, StorageTek Virtual Storage Manager Systems can be deployed to meet the needs of your enterprise's unique mainframe environment. Use the StorageTek Virtual Storage Manager System in a disk-only configuration for small-to-medium mainframe environments or test sites, or deploy with physical tape for large-scale operations. The system's support for tiered storage provides the flexibility to balance speed, capacity, and availability so that the right data is on the right device at the right cost. And no matter how you choose to deploy the StorageTek Virtual Storage Manager System to meet your unique enterprise needs, its inherent flexibility allows all system resources to be managed from a single pane of glass.

Flexible also means the StorageTek Virtual Storage Manager System provides multiple options for disaster recovery including Ethernet-based, StorageTek Virtual Library Extension-to-StorageTek Virtual Library Extension disk replication, synchronous or asynchronous node clustering across FICON or GbE, cross tapeplex replication (CTR), and real tape drive channel extension for remote site physical tape support.



Figure 2. Store even more on your StorageTek Virtual Storage Manager System with the optional StorageTek Virtual Library Extension, an economical second tier of disk.

Reliable System Design Reduces Business Risk

Your mainframe powers your business. System outages and unplanned downtime can lead to lost revenue and profits. Consequently, overall system availability is a mainframe imperative. The StorageTek Virtual Storage Manager System architecture provides the highest levels of system availability through:

- Active/active, redundant processing nodes with high-speed interconnect
- Fully redundant disk communication paths
- Automatic failover of all critical system components
- Hot swappable componentry
- Triple parity RAID
- “On-the-fly” dynamic job recovery upon hardware failure

But having access to data doesn't guarantee the accuracy of the data. Oracle recognizes that

“always on” access to data is of little value without concurrently ensuring that the stored data is error free. StorageTek Virtual Storage Manager Systems employs multiple levels of data integrity checking including read/write CRC on every tape block and after each compress/decompress cycle. With the StorageTek Virtual Storage Manager System, virtual tape blocks are protected by at least one CRC at all times.

StorageTek Virtual Storage Manager System delivers the highest levels of overall system reliability through its high availability design and extreme data integrity features.

Low Total Cost of Ownership and Investment Protection

IT operating budgets aren't getting any bigger these days. With the StorageTek Virtual Storage Manager System, you get low total cost of ownership and investment protection. In the era of Big Data, maximizing the value of storage investments is top of mind for CIOs and data center managers. StorageTek Virtual Storage Manager Systems' support for tiered storage combined with policy-driven data management allow you to better align storage capabilities to application requirements, thereby eliminating over provisioning and under utilization of storage resources and delivering the most value from your IT budget. It's about having the right data available on the right resource at the right cost and being able to adapt that equation based on the changing value of your business critical information. With Oracle's StorageTek Virtual Storage Manager System 6 you work smarter, not harder.

The StorageTek Virtual Storage Manager System 6 protects your storage investment by providing a unique balance between a powerful new architecture and compatibility with legacy systems:

- Coexists and provides full data interchange with legacy StorageTek Virtual Storage Manager Systems
- Seamlessly supports all existing Storage Virtual Storage Manager System data management policies
- Compatible with legacy StorageTek Virtual Library Extension second tier disk and StorageTek Virtual Library Extension-to-StorageTek Virtual Library Extension replication capabilities
- Can be deployed to take advantage of existing StorageTek enterprise-class physical tape drives and tape libraries

Simple, Flexible, Reliable, and Fiscally Responsible

Oracle's StorageTek Virtual Storage Manager System is a highly flexible and scalable storage solution for the most demanding mainframe environments. Extreme system flexibility supports multiple deployment scenarios from single site to dual site to multisite, with or without tiered storage, with or without physical tape integration. StorageTek Virtual Storage Manager System has the flexibility to support the unique needs of every business.

Engineered with 40 years of tape solutions expertise, StorageTek Virtual Storage Manager Systems ensure the highest degrees of system and data reliability. The high-availability design and extreme end-to-end data integrity proofing provide you with the confidence that your mainframe data will always be available and error free.

StorageTek Virtual Storage Manager System is an investment in your business' success. An investment that will be protected for many years to come while delivering the highest value from your mainframe budget dollars.

Oracle Advanced Customer Support Services for Oracle Storage

Oracle Advanced Customer Support Services for Oracle storage provide deep product knowledge during the installation, configuration, monitoring, and continual improvement phases of your IT infrastructure. With intimate knowledge of Oracle best practices, tools and technology, Oracle Advanced Support Engineers provide the right knowledge at the right time to help mitigate risk and to maximize the value of your Oracle storage technology investment.

From annual services that deliver faster problem resolution and improved stability to predictive monitoring and support that provide a quality of service demanded by the mission critical needs of your business, Oracle Advanced Customer Support Services delivers a highly personalized, strategic relationship dedicated to your business success.

| StorageTek Virtual Storage Manager System Specifications | | | | |
|--|--|--|--|--|
| Capacity | StorageTek VSM 6 | StorageTek VSM 5e | StorageTek VSM 5 | StorageTek VLE |
| Capacity | 10 TB – 1.6 PB* (at 10 TB increments) | 800 GB, 1.25 TB* | 1.25-90 TB*, scalable in 1TB increments | 200 TB – 1.6PB* (scalable at 200TB increments) |
| Max capacity (256 systems) | 409 PB* | 32 PB* | 23 PB* | 409 PB* |
| Channels | 8 FICON (Host/RTD) 8 Ethernet IP support (between StorageTek Virtual Library Extension, StorageTek Virtual Storage Manager 5, StorageTek Virtual Storage Manager 6) | 8 FICON or 16 ESCON FICON/ESCON only; not both 4 Ethernet IP support (between Oracle's StorageTek Virtual Tape Storage Subsystem and/or StorageTek Virtual Library Extension) | 4 FICON (upgradeable to 16) 16 ESCON (upgradeable to 32) 4 Ethernet IP support (between StorageTek Virtual Tape Storage Subsystem and/or StorageTek Virtual Library Extension) | 16 Ethernet IP (connection to StorageTek Virtual Storage Manager System 5) |
| Virtual tape drives | 256 | 256 | 256 | N/A |
| Management | | | | |
| Minimum software requirements | HSC 7.x/VTCS 7.x, z/OS 1.11+ | HSC 6.2/VTCS 6.2, z/OS 1.11+ | | |
| Mechanical | | | | |
| Height | 78.7 in. (197 cm) | 59.7 in. (154.94 cm) | 59.7 in. (154.94 cm) | 78.7 in. (197 cm) |
| Depth | 47.2 in. (118 cm) | 30.4 in. (77.1 cm) | 30.4 in. (77.1 cm) | 47.2 in. (118 cm) |
| Width | 23.6 in. (60 cm) | 36.3 in. (92.1 cm) | 36.3 in. (92.1 cm) | 23.6 in. (60 cm) |
| Weight | 1299 lb. (585 kg) | 982 lb. (445 kg) | 982 lb. (445 kg) | 1299 lb. (585 kg) |
| Service clearance | 36 in. (76.2 cm) | 21.3 in. (54.1 cm) | 21.3 in. (54.1 cm) | 36 in. (76.2 cm) |
| Environmental | | | | |
| Temperature (operating) | +60°F to +90°F (+16°C to +32°C) | | | |
| Maximum wet bulb temperature | +73°F (+23°C) | | | |
| Relative humidity (operating) | 20% to 80% | | | |

| Power | | | | |
|-------------------------------|---|---|---|---|
| Voltage | 200 V–240 V AC @ 50Hz–60 Hz | 200 V–240 V AC @ 50 Hz–60 Hz | 200 V–240 V AC @ 50 Hz–60 Hz | 200 V–240 V AC @ 50 Hz–60 Hz |
| Power consumption/dissipation | 8.8 minimum kBTU/hr 24.5 maximum kBTU/hr | 8.6 minimum kBTU/hr 12.4 maximum kBTU/hr | 8.6 minimum kBTU/hr 12.4 maximum kBTU/hr | 9.1 minimum kBTU/hr 21.8 maximum kBTU/hr |
| kVA | 2.6 minimum/7.2 maximum | 2.6 minimum/3.8 maximum | 2.6 minimum/3.8 maximum | 2.6 minimum/5.7 maximum |

* Effective Capacity – assumes 4:1 compression

Warranty

Visit oracle.com/sun/warranty for Oracle's global warranty support information on StorageTek products.

Services

Visit oracle.com/sun/services for information on Oracle's service program offerings for StorageTek products.

Contact Us

For more information about Oracle's StorageTek Virtual Storage Manager system, visit oracle.com or call +1.800.ORACLE1 to speak to an Oracle representative.



Oracle is committed to developing practices and products that help protect the environment

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Hardware and Software, Engineered to Work Together