

# Virtual Tape Library Solutions by Hitachi Data Systems

IT administrators face the growing challenge of protecting rapidly proliferating data. Not surprisingly, the increased demand for uninterrupted data availability is pushing the limits of their capacity. Now, Virtual Tape Library Solutions by Hitachi Data Systems make it easier to push back.

## The Performance and Reliability of Disk. The Cost of Tape.

Organizations of all sizes want to improve their backup and recovery operations. Rapidly growing data volumes, shrinking backup windows and increasing demands for data availability are driving the call for enhanced solutions. Using disk storage technology instead of tape for backup and recovery operations is an increasingly attractive option. It improves reliability, reduces backup windows and ensures rapid recovery. But introducing the use of disk into backup and recovery

operations can cause problems. IT managers need a solution to capture the performance and reliability benefits of disk without disrupting the operations status quo.

Virtual Tape Library Solutions by Hitachi Data Systems deliver the speed, reliability and availability of disk-based backup with minimal disruption to the existing environment. This new solutions portfolio comprises scalable enterprise-class offerings that emulate tape libraries. It enables existing backup applications to use disk, rather than tape, as their backup medium. By using disk, IT organizations achieve greater data throughput performance, reduce mechanical and human errors, and ensure rapid recovery. There's no need to change existing backup policies, practices or procedures.

## Virtual Tape Library Solutions Achieve Better Results at a Lower Cost

A Virtual Tape Library Solution by Hitachi Data Systems includes a high-performance, high-availability Hitachi storage system and industry-leading software from Diligent™ Technologies, plus planning and implementation services from Hitachi Data Systems Global Solution Services. The Virtual Tape Library Solution appears to the backup



application as a real tape library or libraries so the backup application accesses drives, robotics and cartridges as it would a physical tape library. Because the data actually resides on disk, users experience dramatic improvements to backup and recovery operations.

With Services Oriented Storage Solutions, Hitachi Data Systems enables organizations to align their storage infrastructures with their business requirements. Virtual Tape Library Solutions by Hitachi Data Systems enhance operational efficiency and resilience by optimizing backup and recovery processes, and minimizing the impact on the data storage infrastructure. Virtual Tape Library Solutions allow users to recover data and resume operations in the shortest time possible through the use of faster and more reliable disk technology.

## Multiple Benefits on the IT Floor and across the Enterprise – Including Support for Business Continuity

### A Better Decision for Your Data Center

- Dramatically shortens batch processing time
- Provides the advantages of disk-based data protection
- Enables near 100 percent data integrity and availability
- Enhances disaster recovery options for tape processing

- Improves overall system performance
- Increases operational efficiencies at a lower cost
- Accelerates backup and recovery
- Deploys without disruption

### A Better Decision for Your Business

- Radically reduces infrastructure costs
- Enables fast recovery of mission critical data
- Supports automatic business continuity/disaster recovery
- Aids operational manageability
- Minimizes overall cost of ownership
- Boosts data center and end user productivity

## Virtual Tape Library Solutions: Powered by Diligent Technologies Software

Virtual Tape Library Solutions by Hitachi Data Systems work seamlessly with major computer platforms and operating systems, including UNIX, Microsoft® Windows and mainframe systems. Each solution features one of these advanced software applications from Diligent Technologies:

- VTF™ Mainframe — Virtual Tape Facility for Mainframe Systems
- VTF Open — Virtual Tape Facility for Open Systems
- ProtecTIER™ — Virtual tape Library solution for open systems featuring HyperFactor™ advanced data de-duplication technology for capacity optimization

VTF Mainframe emulates IBM®-compatible tape processing for IBM z/OS® environments and seamlessly integrates within a physical tape environment. The automated VTF Mainframe software emulates the widest range of IBM-compatible cartridge devices (3480, 3490, 3590) and tape volumes on z/OS platforms. It transparently directs tape data onto disk. There is no need to change code or applications.

VTF Mainframe software is completely transparent to the host, applications, tape management systems and users. It offers intelligent enhanced features, such as shared tape access using Parallel Access Tape and advanced space management tools using Virtual Tape Analyzer.

VTF Mainframe software and robust storage systems from Hitachi Data Systems ensure unmatched recoverability, availability, scalability

and performance. In addition, VTF Mainframe provides electronic vaulting of individual tape cartridges when coupled with advanced Hitachi TrueCopy® Remote Replication software and Hitachi Universal Replicator software.

VTF Open is a proven virtual tape library software product that is easy to implement and provides native 2-to-1 data compression. This compression reduces storage needs by half and instantly improves the total cost savings of the overall solution. VTF Open runs on a dedicated server connected to any Fibre Channel attached disk storage system (see Figure 1). The combination of the software, server and disk storage system creates a virtual tape solution that appears to the backup application as a real tape library or libraries.

ProtecTIER, Diligent's virtual tape offering for open systems, is a scalable and robust software product that emulates tape libraries. It enables existing backup applications to send data to Hitachi storage systems, rather than to tape. ProtecTIER, Diligent's revolutionary technology, with unique HyperFactor data de-duplication technology, makes possible a 25-to-1 data reduction. It effectively changes the economics and usage profile of disk-based data protection. HyperFactor helps eliminate redundant data and radically reduces the amount and cost of required physical storage while improving the total cost of the overall solution.

For the first time, the acquisition cost of a disk-based data protection solution is lower than an equivalent tape-based solution, and it does not compromise performance, capacity or data integrity (see Figure 2).

## ProtecTIER Changes the Economics of Disk-based Data Protection

By enabling companies to acquire up to 25 times or more capacity from a given amount of physical disk capacity, ProtecTIER helps balance the need for higher levels of data protection with the significant expense of large capacity disk storage systems. A Virtual Tape Library Solution by Hitachi Data Systems with ProtecTIER software is significantly less expensive than tape and disk alternatives when considering acquisition costs and total cost of ownership as well as this solution's higher levels of data protection.

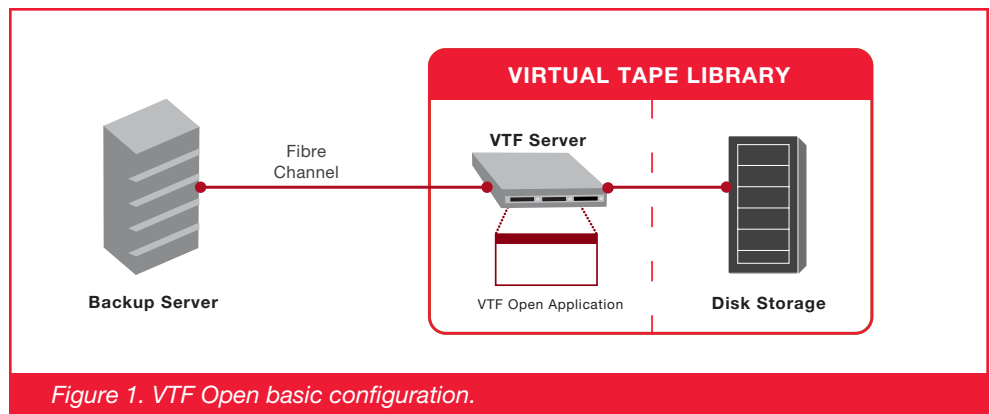


Figure 1. VTF Open basic configuration.

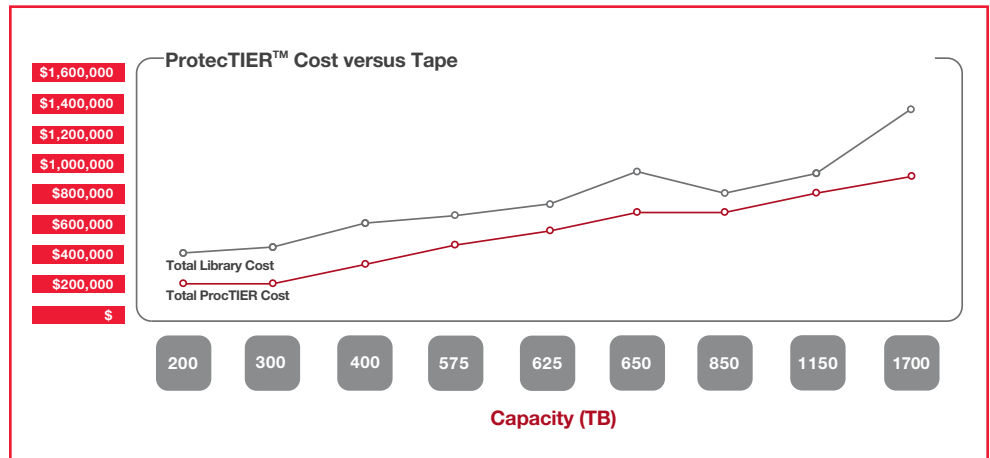


Figure 2. The cost of traditional tape versus a Virtual Tape Library Solution by Hitachi Data Systems.

## HyperFactor Technology

HyperFactor is based on a series of algorithms that identify and filter out data elements that have been previously stored by ProtecTIER. This means that only new data elements are stored on disk. Over time, the impact is up to a 25 times or more increase of the physical storage capacity.

By leveraging the power of HyperFactor, ProtecTIER is the first virtual tape offering to use capacity-optimization technology. Virtual tape has recently emerged as the easiest, most effective method of deploying disk in the open systems data protection environment.

## Grow with a Flexible Architecture

ProtecTIER's flexible architecture allows for unmatched scalability, with enterprise-class performance and redundancy. A ProtecTIER solution can scale in several ways to increase performance and capacity in a smooth, non-disruptive manner. Unlike closed appliances, this scaling is achieved through simple hardware configuration changes on the ProtecTIER server or the attached storage

system. It does not require additional appliances or management points. Multiple ProtecTIER servers can be used to provide superior throughput performance and greater levels of capacity.

## Virtual Tape Library Appliances by Hitachi Data Systems

### Proven Solutions Are Easy to Deploy Yet Deliver Powerful Results

Virtual Tape Library Appliances by Hitachi Data Systems are easy-to-deploy, integrated solutions comprising high-performance, high-availability Hitachi storage systems, powerful servers and industry-leading ProtecTIER data de-duplication software from Diligent Technologies. Each Virtual Tape Library appliance delivers the speed, reliability and availability advantages of disk to backup operations. With this cost-effective alternative to tape, IT organizations can use disk as their backup media with existing backup applications at a lower total cost of ownership than their existing tape infrastructure.

## Need to Meet Backup and Recovery Objectives? We're at Your Service.

The Hitachi Data Systems Global Solution Services team can help you design and implement a robust data protection environment using advanced Virtual Tape Library Solutions by Hitachi Data Systems. Applying assessment, planning, design and implementation services, Global Solution Services consultants can create, deliver and integrate a custom solution that lets you meet recovery point and recovery time objectives for your mission critical data. It provides the perfect balance between an increasing amount of data and a shrinking IT budget.

## Complementary Software for Virtual Tape Library Solutions

Hitachi Universal Replicator software is an asynchronous replication solution. It leverages performance-optimized disk-based journaling to provide enhanced disaster recovery capabilities for mission critical data. This "single pane of glass" heterogeneous replication solution lowers costs by reducing the effect of network problems. It also requires less bandwidth than other replication technologies. When used in combination with a ProtecTIER-powered Virtual Tape Library Solution by Hitachi Data Systems, it allows large amounts of data to be economically replicated over long distances, providing superior data availability and disaster protection (see Figure 3).

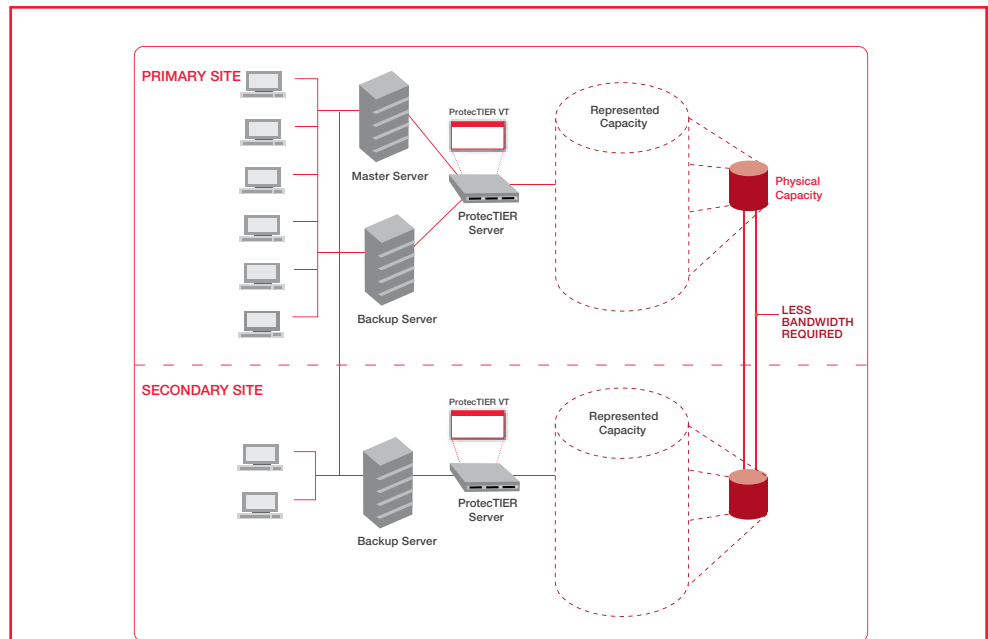


Figure 3. ProtecTIER, using HyperFactor technology, reduces bandwidth needs for replication.

### Hitachi Data Systems Corporation

**Corporate Headquarters** 750 Central Expressway, Santa Clara, California 95050-2627 USA  
Contact Information: + 1 408 970 1000 [www.hds.com](http://www.hds.com) / [info@hds.com](mailto:info@hds.com)

**Asia Pacific and Americas** 750 Central Expressway, Santa Clara, California 95050-2627 USA  
Contact Information: + 1 408 970 1000 [www.hds.com](http://www.hds.com) / [info@hds.com](mailto:info@hds.com)

**Europe Headquarters** Sefton Park, Stoke Poges, Buckinghamshire SL2 4HD United Kingdom  
Contact Information: + 44 (0) 1753 618000 [www.hds.com](http://www.hds.com) / [info.uk@hds.com](mailto:info.uk@hds.com)

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