

Virtual Tape Library Solutions by Hitachi Data Systems



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Enterprise data centers face a growing problem in data protection: while demands for data availability are rising, an increase of data volume is pushing infrastructures beyond their capabilities. Now, the portfolio of Virtual Tape Library Solutions by Hitachi Data Systems makes it easier and cheaper to push back.

The Benefits of Tape. The Performance and Reliability of Disk.

Organizations of all sizes now 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 can improve reliability, reduce backup windows, and ensure rapid recovery. But introducing the use of disk into backup and recovery operations can cause problems. IT managers need a solution that allows them 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, organizations achieve greater data throughput performance, reduce mechanical and human errors, and ensure rapid recovery. In addition, 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 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 just as it would a physical tape library. Because the data actually resides on disk, users experience dramatic improvements to backup and recovery operations.

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 disk-based data protection and archiving
- 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 all 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™ VT—Virtual Tape solution for open systems featuring HyperFactor™ advanced data de-duplication technology for capacity optimization

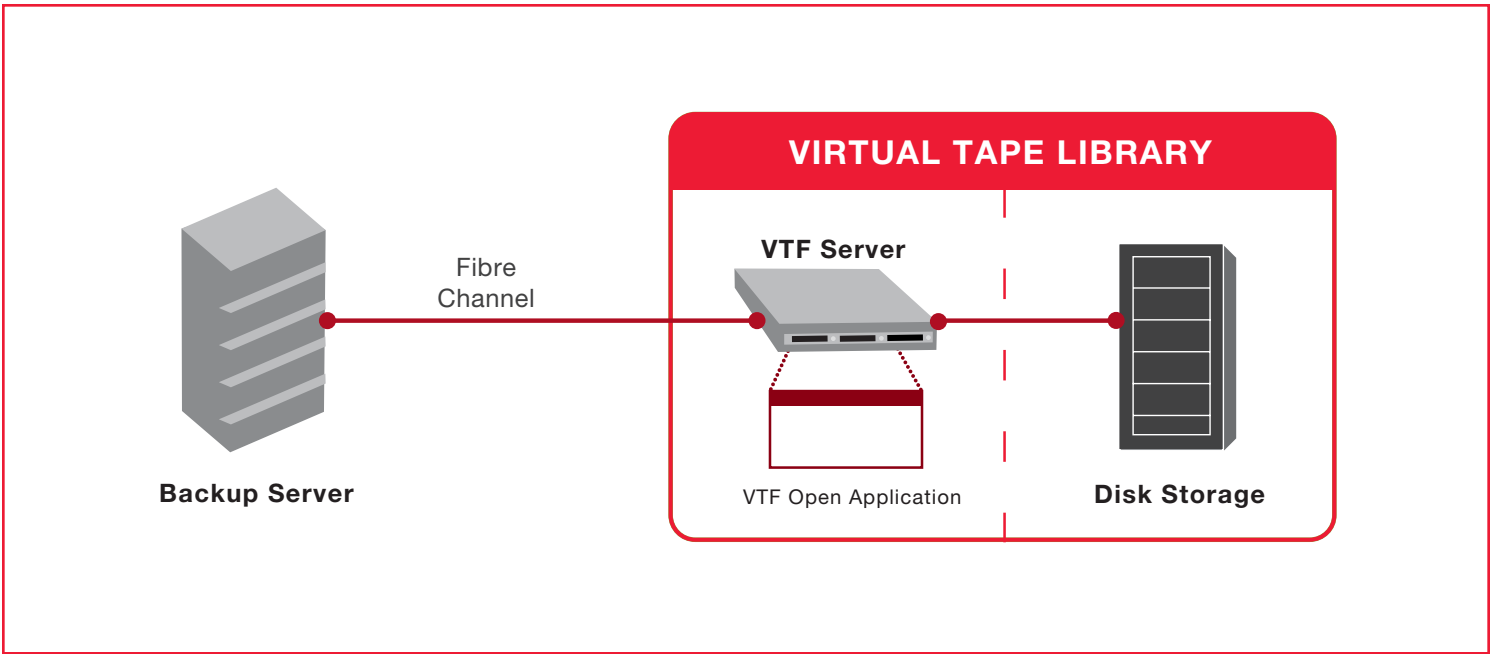


Figure 1. VTF Open basic configuration.

VTF Mainframe and Hitachi Storage Systems—a Powerful Combination

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 Mainframe software emulates the entire tape process, seamlessly handling tape I/Os from the mainframe system. The created tape data sets are stored on disk and managed as disk data. No changes to applications are required.



Tape Benefits—Disk Advantages: 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.

Unique Virtual Tape Library Solutions for Open Systems

Hitachi Data Systems offers two Virtual Tape Library Solutions for open systems. Both VTF Open and ProtecTIER VT run on standard Linux servers with Fibre Channel host bus adapters (HBAs). Up to four servers can be configured to work in a group, sharing virtual devices and disk storage.

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 VT, 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. At the core of the ProtecTIER VT is Diligent's revolutionary new technology, HyperFactor, which 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, without compromising performance, capacity, or data integrity (see Figure 2).

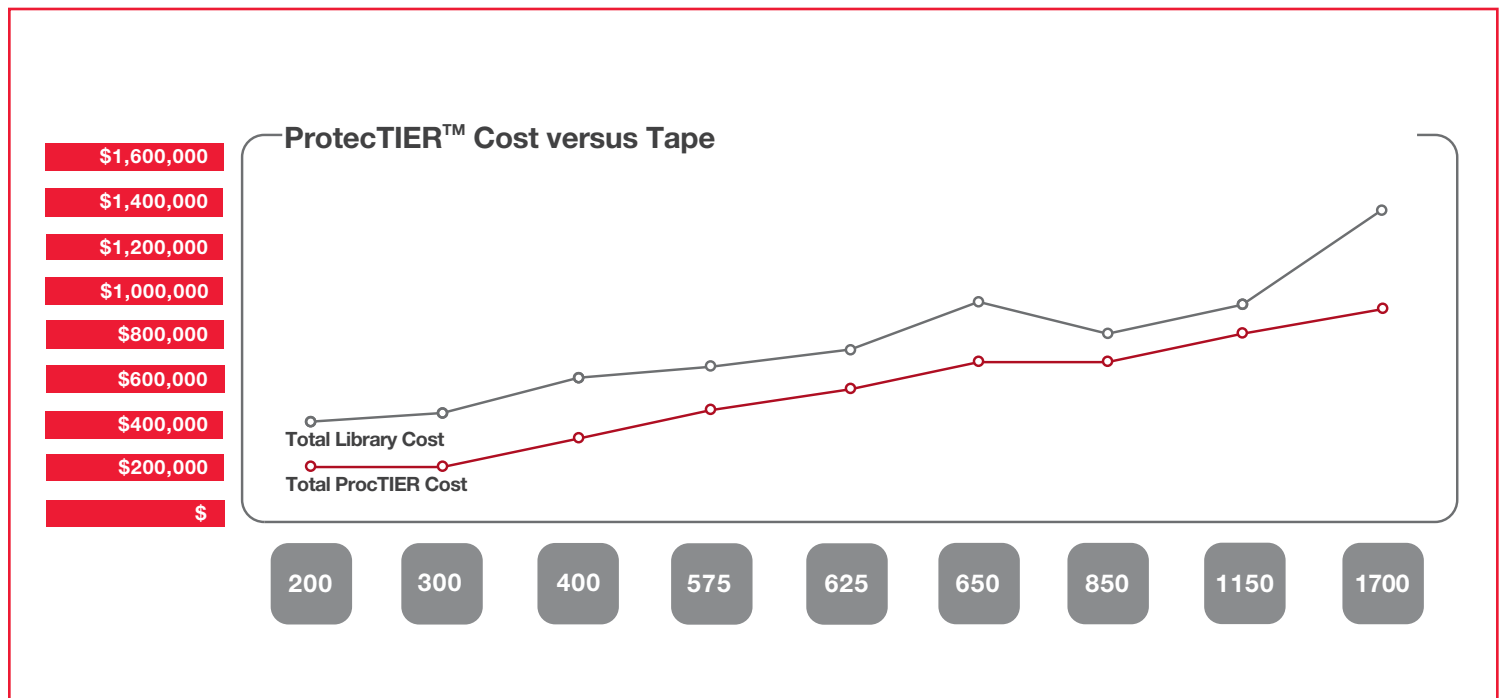
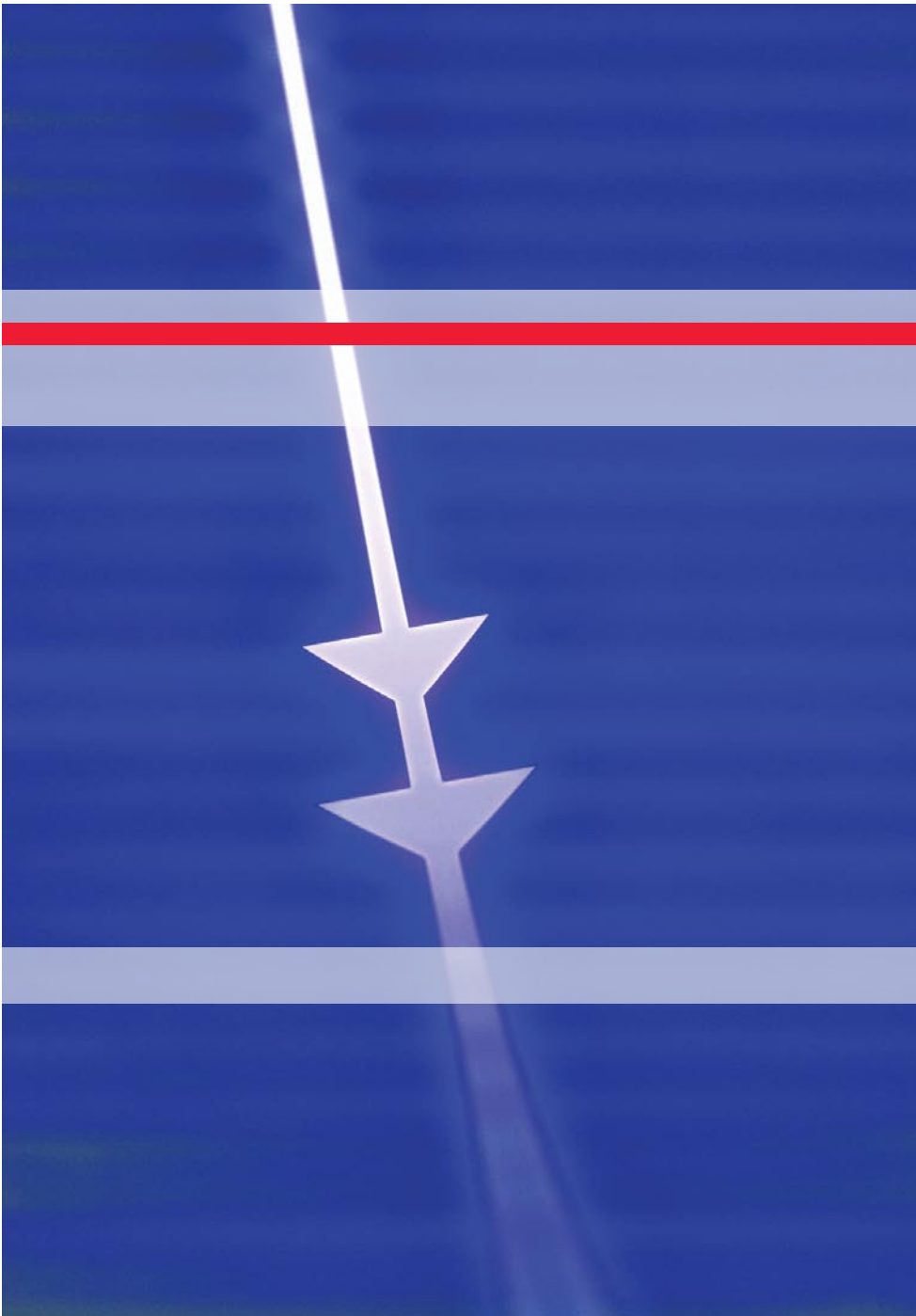


Figure 2. The cost of traditional tape versus a Virtual Tape Library Solution by Hitachi Data Systems.



ProtectTIER VT Changes the Economics of Disk-based Data Protection

By enabling companies to acquire 25 times the capacity from a given amount of physical disk capacity, ProtectTIER VT helps balance the need for higher levels of data protection with the significant expense of large capacity disk storage systems. On the basis of both acquisition cost and total cost of ownership,

a Virtual Tape Library Solution with ProtectTIER VT software is significantly less expensive than tape and disk alternatives. It also offers higher levels of data protection.

HyperFactor Technology

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

By leveraging the power of HyperFactor, ProtectTIER VT 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

ProtectTIER VT's flexible architecture allows for unmatched scalability, with enterprise-class performance and redundancy. A ProtectTIER solution can scale in several ways to increase performance and capacity in a smooth, nondisruptive manner. Unlike closed appliances, this scaling is achieved through simple hardware configuration changes on the ProtectTIER VT server or the attached storage system. It does not require additional appliances or management points. Multiple ProtectTIER VT servers can be used to provide superior throughput performance and greater levels of capacity.

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 technology. Applying assessment, planning, design, and implementation services, Global Solution Services consultants can create, deliver, and integrate a custom solution that

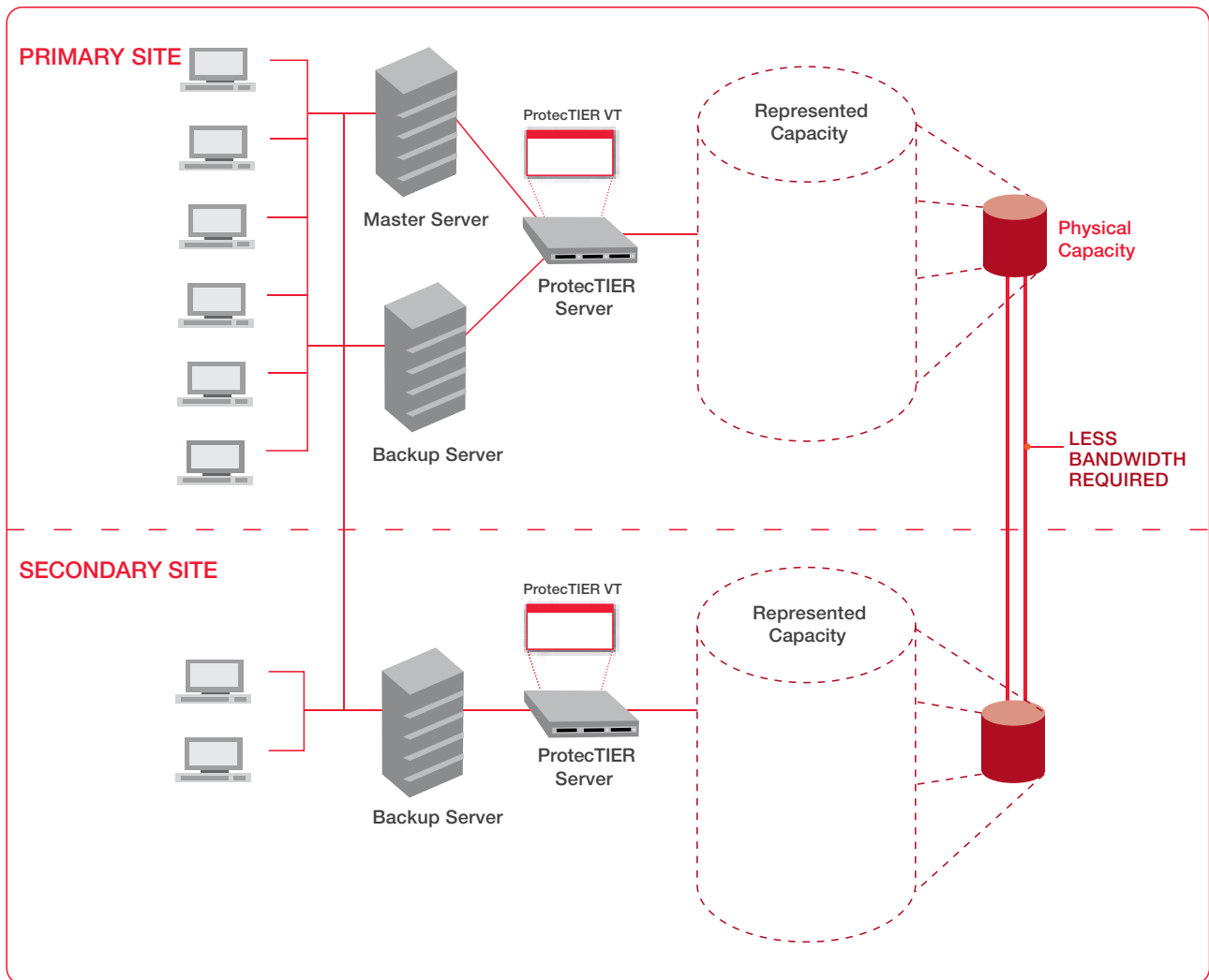


Figure 3. ProtecTIER, using HyperFactor technology, reduces bandwidth needs for replication.

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, it allows large amounts of data to be economically replicated over long distances, providing superior data availability and disaster protection (see Figure 3).

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