

Disaster Recovery Solutions for VMware


BROCADE

Optimize Disaster Recovery, Enable Choice

Server and storage virtualization deliver clear and compelling benefits to businesses of all sizes. Whether an organization virtualizes three servers or three hundred, it can expect to see significant capital and operational cost savings. Other benefits include improved utilization of server and storage hardware, reduced energy consumption and, importantly, improved business continuity and disaster recovery if the right tools are leveraged.

In fact, according to a recent survey of enterprise IT staff by the Enterprise Storage Group, disaster recovery and business continuity are the driving forces behind an increasing number of virtualization initiatives today (see Figure 1). By reducing the overall number of physical servers it needs to support its business, an organization is able to extend protection to more applications and data types. Doing so has important, cost saving benefits.

In challenging economic times, having proven, extensible disaster recovery and business continuity processes in place is more important than ever before. Downtime from system failures translates to lower productivity and lost revenue. In fact, industry research confirms that 85 percent of all companies that suffer a major data loss or significant downtime are out of business within a year¹. Even brief outages can drastically affect customer satisfaction and employee productivity.

While there is no question of the important role virtualization of both servers and storage plays in organizations, neither all virtualization solutions nor all IT environments are

¹ Mark Bowker. "Hitachi Data Systems Helps Users Realize Maximum Benefits from Virtualization." *Enterprise Storage Group*, 2009.

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created equally. Organizations need to do their homework to ensure the solutions they ultimately deploy have the features and functions to support their businesses today — and in the future.

With disaster recovery solutions for VMware, Hitachi Data Systems can help organizations improve their corporate disaster recovery and business continuity preparedness while building leaner, more cost-effective and adaptable systems. These solutions combine proven Hitachi storage, including Hitachi Adaptable Modular Storage 2000 family systems and Hitachi enterprise storage systems with Hitachi system-based replication software and networking technology from Brocade in a VMware Site Recovery Manager (SRM) environment.

These Hitachi Data Systems solutions for disaster recovery are easy to deploy and manage, and they provide a cost-effective disaster recovery platform for VMware-based applications. When a Hitachi enterprise storage system is deployed, end-to-end (or server-to-storage) virtualization is possible, driving further efficiencies across the data center.

Disaster Recovery Solutions for VMware

Disaster recovery solutions for VMware combine proven Hitachi modular and enterprise storage- and system-based replication software with networking components from Brocade. This integration provides an end-to-end disaster recovery network, from primary VMware sites to local and remote recovery storage.

When using Hitachi Adaptable Modular Storage and Hitachi TrueCopy® Synchronous or Hitachi TrueCopy Extended Distance system-based replication software, organizations can host local copies of data anywhere on the storage network for quick recovery of lost data.

Using Hitachi enterprise storage systems with Hitachi Universal Replicator software, organizations can add full business continuity protection by replicating their entire virtualized computing environment to a remote failover site. All storage, including third party storage, can be virtualized when using Hitachi enterprise storage models. This gives organizations maximum flexibility in allocating and preserving their storage assets and creates a true end-to-end virtualization solution.

The Role of the Network Infrastructure

The addition of storage networking capabilities to VMware disaster recovery environments allows organizations to deploy protection economically, in a variety of configurations to suit their business needs.

For example, storage switching onsite can move data quickly from all VMware servers to a centralized Hitachi storage system with onboard replication. Metropolitan area networks can consolidate both server and storage facilities. Companies can more easily add remote replication facilities and reconfigure and expand their storage needs using a combination of highly reliable Hitachi storage systems and high performance storage networking components.

POWERFUL BUSINESS AND TECHNICAL BENEFITS

Business Benefits

- **Reduced cost, complexity and risk:** A consolidated, virtualized data center requires less hardware and maintenance. As a result, more applications can be protected for less. Also, companies gain the flexibility to decide where disaster recovery data should reside (locally or remotely across geographically dispersed sites), according to business needs and overall risk assessment.
- **Less downtime, greater productivity:** With more applications protected and available 24/7, businesses see greater employee productivity.
- **Increased utilization of existing and new assets:** With virtualization, companies can exploit the full capacity of their server and storage investments and spend less on new hardware.
- **More efficient management of data center resources:** Consolidating server and storage management reduces operation costs and improves system reliability.
- **Better overall data center performance:** Fewer components translate to fewer possibilities of hardware failure. In addition, a consolidated solution ensures a quicker recovery of applications and data in the event of a disaster.

Technical Benefits

- **Zero or near zero recovery point objectives:** Hitachi system-based replication software provides synchronous (real time) or asynchronous (near real time) replication options for local or remote protection (see bullets above).
- **Remote data replication and disaster recovery testing under VMware SRM:** Disaster recovery and storage administrators can test replicated data integrity and disaster recovery preparedness on Hitachi system-based copies without impacting production servers, storage or applications.
- **Low VMware server impact:** Because Hitachi system-based software applications handle all replication operations, VMware server performance is preserved.
- **Small-to-large VMware environments:** Hitachi Disaster Recovery Solutions scale from small to large environments and represent a solid investment in affordable, expandable disaster recovery protection.

Brocade

The integration of Hitachi Data Systems, VMware and Brocade technologies provides industry leading, end-to-end disaster recovery solutions for VMware environments (see Figure 2). Brocade storage network components provide a complete storage area network (SAN) infrastructure for replicating VMware environments to either local or remote Hitachi storage.

The Brocade Fabric Infrastructure can be designed and implemented to provide the necessary connectivity for failover within a location using Brocade 8Gb/sec host bus adapters (HBA) and DCX Backbones, or to a remote location using Brocade's latest distance extension solutions, leveraging Traffic Isolation Zones (TiZ) to prioritize business critical data replication.

Implementing Brocade quality of service (QoS) at the HBA level can extend many of the fabric-based services into the server and isolate traffic down to the virtual machine level, thereby improving overall application performance and minimizing latency. Administrators can pair Brocade components with the Hitachi Adaptable Modular Storage 2000 family systems or Hitachi enterprise storage systems².

Hitachi Integration with VMware Center Site Recovery Manager

Disaster recovery solutions for VMware support the VMware environment using the Hitachi Storage Replication Adapter, which links Hitachi hardware platforms and replication software to the SRM application. Executed as a vCenter component, the Hitachi Storage Replication Adapter enables SRM to take advantage of advanced features in Hitachi storage, such as synchronous and asynchronous replication and failover operations. This SRM integration enables seamless operation of disaster recovery operations from the VMware servers through the storage networks to the high performance Hitachi storage.

² For more detail about the Hitachi and Brocade solution, please refer to the Technical Brief on <http://www.hds.com/assets/pdf/hds-and-brocade-disaster-recovery-solutions.pdf>.

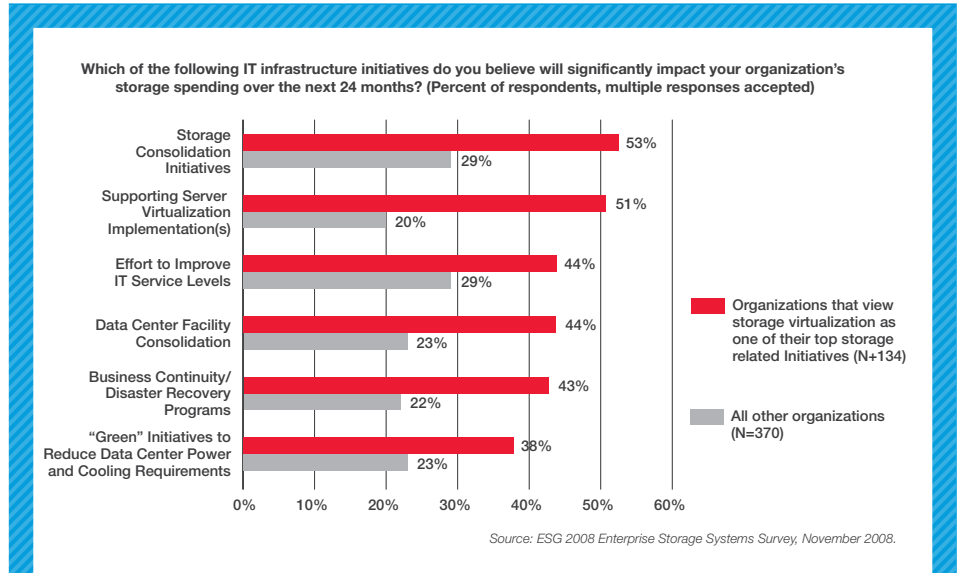


Figure 1: The Alignment of Server and Storage Virtualization Initiatives

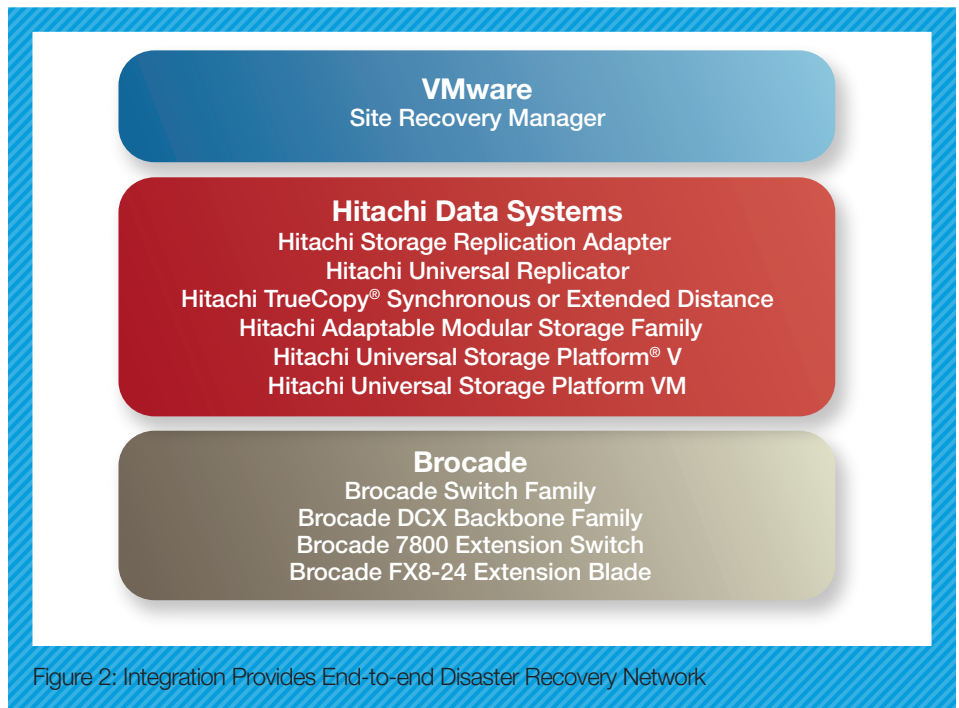


Figure 2: Integration Provides End-to-end Disaster Recovery Network

Summary

With Hitachi Data Systems solutions for disaster recovery, companies can now deploy dependable disaster recovery and business continuity for their VMware environment and at the same time reduce overall operating costs and complexity. The solutions are tightly integrated with VMware and combine industry leading storage

network components for end-to-end performance and reliability. Hitachi Data Systems Global Solution Services can also design and deploy custom solutions for organizations based on their system requirements and budget.

Nobody knows virtualization better than Hitachi Data Systems. With over 13,000 virtualization solutions installed for customers

worldwide, Hitachi Data Systems has the experience, integration knowledge and time tested products to deliver the most economical and efficient VMware storage solution on the market. Easy to install and expand, Hitachi Data Systems solutions for disaster recovery have already proven themselves in the field, at businesses large and small.

For More Information

To learn more about how to effectively plan and deploy the Hitachi Data Systems solutions for disaster recovery for VMware please contact your Hitachi Data Systems representative or your Hitachi TrueNorth Channel Partner, or visit www.hds.com.

INSIDE DISASTER RECOVERY SOLUTIONS FOR VMWARE

Hitachi Data Systems combines the following proven Hitachi hardware and software in disaster recovery solutions for VMware.

- **Hitachi Adaptable Modular Storage 2000 Family:** The Hitachi Adaptable Modular Storage 2100, 2300 and 2500 are extremely scalable and reliable systems suitable for most medium-sized VMware environments. Their SAS-based drive architecture delivers industry leading price to performance for midrange systems and is an affordable way to add high performance disaster recovery for VMware applications. The 2000 family is the only midrange storage product line with symmetric active-active controllers, which automatically perform many of the complex and time consuming tasks administrators routinely face.
- **Hitachi Enterprise Storage:** Hitachi enterprise platforms have redefined storage for both physical and virtualized environments. They deliver large scale storage virtualization combined with automated data placement so VMware sites can enjoy total end-to-end (server to storage) virtualization. When coupled with proven Hitachi enterprise replication software, VMware customers also benefit from highly resilient disaster recovery. In virtual server environments, Hitachi enterprise storage platforms can scale up to support the increasing number of virtual machine (VM) and vSphere (VS) clusters with greater availability and performance. The Hitachi Command Suite provides management visibility into the virtual infrastructure.
- **Hitachi System-based Replication Software:** Hitachi system-based replication software operates directly with VMware through the vCenter Site Recovery Manager. This tight integration enables high performance, highly reliable VMware protection. Also, since all replication and copy functions are executed on the storage systems themselves, VMware server performance is unaffected. Hitachi offers three system-based replication technologies: Hitachi TrueCopy® Synchronous, Hitachi TrueCopy Extended Distance and Hitachi Universal Replicator.
 - **Hitachi TrueCopy® Synchronous:** Providing synchronous replication or zero data loss, TrueCopy Synchronous replication is done in real time, locally or across distance. The replication process is managed centrally from the VMware console. This software is supported on Adaptable Modular Storage and Universal Storage Platform models.
 - **Hitachi TrueCopy Extended Distance:** Providing asynchronous replication for the Adaptable Modular Storage family systems, TrueCopy Extended Distance replication is done in near real time, locally or across distance.
 - **Hitachi Universal Replicator:** Providing asynchronous data replication for VMware applications hosted on Universal Storage Platform models, this software delivers true enterprise-class remote VMware replication performance without the need for redundant servers or replication appliances.

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