

ENTERPRISE STORAGE SOLUTIONS

# RAPID DATA AVAILABILITY AND RECOVERY WITH NETWORK APPLIANCE™ DISASTER RECOVERY SOLUTIONS



## DATA PROTECTION SOLUTION

Network Appliance delivers a comprehensive data protection solution through a combination of products and services focused on your particular business or technology problem, which drives measurable business value into your organization.

# Powerful Disaster Recovery Solutions That Minimize Downtime



“We deployed the NetApp solution to simplify administration and save money. We also achieved business continuance, greater reliability, and other benefits. We can see that we’ll derive financial benefits even beyond the substantial reduction in costs.”

HENRY KING  
CIO  
Skidmore, Owings & Merrill, LLP

## The Challenge: To Recover Quickly When Disaster Strikes

Because organizations today depend on digital data to function, any event—planned or unplanned—that suspends the flow of information can effectively halt business operations. Minutes of downtime are costly; hours of downtime can be catastrophic.

To minimize downtime associated with catastrophic events, every business needs a disaster recovery plan. The foundation for such a plan includes acquisition and implementation of the technologies required to allow business continuity if significant downtime occurs. Studies predict that one in every 500 data centers will experience a severe disaster each year and that a company experiencing a computer outage of more than 10 days will never fully recover financially. In fact, 50% of these companies will go out of business within five years.

Every hour information resources are unavailable means lost revenues and profit to business, as well as damage to the company’s reputation, employee productivity, and competitive advantage. Can your enterprise afford to absorb potential losses like these?

## AVERAGE HOURLY BUSINESS LOSS BY INDUSTRY

Application	Industry	Hourly Cost
Brokerage operations	Finance	\$6.45 million
Credit card sales authorizations	Finance	\$2.6 million
Catalog sales	Retail	\$90,000
Airline reservations	Transportation	\$89,500
Teleticket sales	Media	\$69,000

## The Answer: NetApp Disaster Recovery Solutions

NetApp enables your company’s disaster recovery plan with simple, yet powerful, highly dependable solutions that deliver data security, high availability, and—in case of disruption—rapid and complete data recovery.

NetApp solutions—streamlined, reliable software combined with fast, efficient hardware and first-class global services—are positioned to ensure optimal disaster recovery. In addition to facilitating quick recovery from unplanned outages, NetApp solutions also offer high data availability, require minimal administration, and significantly reduce the network downtime typically caused by routine maintenance. Tested and proven as data management and data security solutions, NetApp solutions are an essential component of a comprehensive disaster recovery plan.

## NetApp Solutions Are Your Competitive Advantage

Competitive businesses require fully integrated, end-to-end, enterprise-wide solutions. NetApp offers scalable, cohesive, and cost-effective storage solutions that enable creation of a simplified and flexible storage infrastructure capable of addressing the data and storage needs of today’s information-intensive enterprise.

NetApp systems and software comprise a unified storage portfolio for:

- Application data in mission- and business-critical environments
- Archive and reference purposes
- Enterprise-wide or workgroup and departmental information requirements

“The day our Exchange server died would normally have been our worst nightmare. As it was, by having the filers mirroring each other, we were fully restored and running in an hour. If we had not had the Network Appliance™ storage network, we would have been down for a full 24 hours.”

SEAN ELLIOT  
IS Manager  
Scottish Life

NetApp solutions solve enterprise customer data management challenges relating to:

- Data protection mandates
- Regulatory and compliance data needs
- Storage consolidation initiatives
- Internet access and security regimes
- Technical application environments

Network Appliance is the only vendor today that offers a full line of unified storage solutions—for online, nearline, and distributed data requirements—all based on a single, heterogeneous platform, thereby lowering total cost of ownership (TCO) and improving customer satisfaction.

#### **Product Portfolio for Local and Remote Site Disasters**

NetApp offers different product/service portfolios for different customer scenarios.

Understanding business requirements for application performance and data protection will allow an organization to make informed choices between various data protection strategies. These strategies include decisions on local and remote site recovery solutions.

Solutions will differ depending on the type of events that the solution will be deployed to protect against, such that local disasters (single system interruptions) and disaster recovery (site interruptions) have different goals. Local disaster can be caused by human

error, component failure, or system failure; with these events, the primary goal is availability of resources locally. Enterprise or remote disasters can be viewed as events that make the primary site unreachable; again these can be caused by the same factors as above but tend to affect the entire site rather than just one system or resource. Here the goal is to resume services remotely with minimal impact on operations.

Following the Network Appliance history of providing fast, simple, and reliable solutions, our DR solutions are easy to install, deploy, and manage. They are designed to be flexible enough to go from a local to a remote solution by combining products. If a customer were to deploy a local cluster solution and determine later that not only do they need to consolidate locally to a disk backup solution, they also want to do replication to a remote site at a very large distance, it is typically a matter of implementing additional options to their current configuration. This ability to have the solution change with business goals is critical for customers who need to change with the industry and control costs.

#### **Key Components for High Availability and Local Disaster Recovery**

- Disk Protection: NetApp offers a unique, patented, high-performance RAID protection technology on NetApp storage systems.
- System Data Recovery: NetApp

Snapshot™ and SnapRestore® software provide optimized local backup and recovery.

- Secondary System Data Recovery: NetApp SnapMirror® replicates data at high speeds over a LAN or a WAN for fastest recovery for mission-critical applications
- Tape Recovery: NDMP tape backup provides the basic, traditional tape protection.
- Clustered Failover Configurations: Clustering software for maximum availability.

#### **Key Components for Enterprise Business Continuity and Remote Disaster Recovery**

- Remote Synchronous Data Recovery:
  - Synchronous remote mirroring with NetApp SnapMirror allows for immediate replication of data across FC or IP connections.
  - A more comprehensive solution can include online synchronous clusters with MetroCluster and remote SyncMirror™ for solutions that require metropolitan distance solutions.
- Remote Asynchronous Data Recovery: Asynchronous remote mirroring with NetApp SnapMirror.
- Remote Disk Backup: Backup to disk with NetApp SnapVault™.
- Remote Client Recovery: Near-instant client failover with VFM™.
- Offline Disaster Recovery Procedures: Includes a backup to tape.

**NetApp Solutions Deliver Real, Measurable Benefits**

**More Current, Faster Recovery**

NetApp technology provides replicas of your data as up-to-date as you choose—fully synchronous or within minutes, hours, or days. When an unplanned failure occurs, you simply return to the most recent data copy and quickly resume business.

**Lower TCO, Higher ROI**

NetApp disaster recovery solutions are easy to implement and operate, with minimal demand on IT and network administration resources. A NetApp solution integrates smoothly into existing infrastructure and is operational almost immediately—without necessitating a change in the way existing systems or business works. In addition, NetApp solutions offer a 70% to 80% lower TCO than competitive storage solutions, vastly improving return on investment (ROI).\*

**Superior Reliability**

NetApp solutions are sophisticated and powerful, yet straightforward, logical, and dependable. Built-in reliability means virtually no downtime and 24x7 access to mission-critical data for employees, customers, and partners.

**Economical and Superior Disaster Recovery and Data Protection**

Nearline storage is the ideal solution for disaster recovery and for workloads needing faster random access than that afforded by offline storage, but not necessarily as fast as the continuous, high-volume access of primary storage. A data protection architecture using NearStore® systems in concert with a tape library addresses the problems inherent in direct backup to tape.

**A Comprehensive Disaster Recovery Solution**

When a catastrophic disaster cannot be avoided, NetApp solutions make data recovery faster and easier than other vendor technologies or

approaches. The comprehensive NetApp offering of data recovery solutions is flexible and modular in order to meet the varying needs of any enterprise.

**Online Backups with Snapshot Technology Minimize Data Loss**

At the center of the NetApp disaster recovery approach is Snapshot technology, which enables near-instantaneous, transparent, online backups by storing multiple read-only versions of each data volume. The NetApp Snapshot function requires minimal disk space and does not disrupt service. Because only changed data is stored, one can take Snapshot copies far more frequently than tape backups, minimizing data loss in an unplanned outage.

**SnapRestore Software Solution**

Allows an enterprise to recover almost instantly from these disaster scenarios. In seconds, SnapRestore software can recover anything from an individual file to a multiterabyte volume so that operations can be quickly resumed. NetApp SnapRestore software makes recovering your data fast and easy.

**MultiStore™ Software Solution**

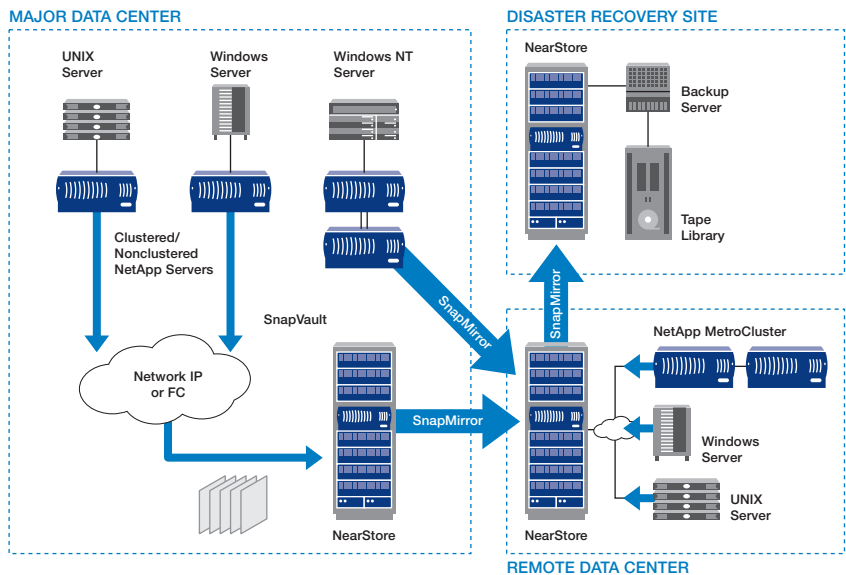
Enables secure, multiprotocol storage and multiple domain (Windows® and UNIX®) consolidation across enterprises. It enables you to partition the networking and storage resources of a single NetApp storage system for simplification of storage consolidation.

**DataFabric® Manager Helps Ensure Data Availability**

NetApp DataFabric Manager (DFM) offers an efficient and robust means for managing an infrastructure of NetApp storage and NearStore systems. With a rich set of administrative tools and capabilities, DFM allows an organization to rapidly deploy, provision, and manage a complete enterprise storage network. The DFM Business Continuity Module allows for SnapMirror relationship monitoring and helps ensure data availability.

**SnapMirror Prevents Catastrophic Data Loss**

By replicating data at high speeds over a LAN or a WAN, NetApp SnapMirror software provides the highest possible data access and fastest recovery for mission-critical applications. SnapMirror



**Figure 1) Disaster Recovery Solution Architecture**

NetApp provides a very simple, efficient, and cost-effective solution for replicating data to local or remote sites for disaster recovery protection.

\* INPUT, Database Storage Solutions, Total Cost of Ownership Analysis for Database Storage Solutions, December 2001

“We have been impressed and reassured by the resilience of Network Appliance systems; it is so rare to find technology that actually performs in the field...The whole project was completed on time and came in 15% under budget.”

**MARTIN COOPER LEADER**  
London IT Services  
Arup

provides quick, reliable, easy-to-use, asynchronous replication as well as synchronous and semisynchronous replication, allowing customers to meet source and destination site data-set synchronization requirements. One also may elect to use async mode for the bulk of data and sync and semi-sync modes for mission-critical data that needs the most up-to-date data should the primary site be inaccessible.

#### **SyncMirror Software**

Ensures your data is available and up-to-date at all times. By maintaining two copies of data online, SyncMirror protects your data against all types of hardware outages, including triple disk failure. When used with the NetApp Clustered Failover high-availability solution, SyncMirror enables you to achieve the highest level of data availability—a level previously attainable only with mainframe architecture. In addition, the simple-to-administer and cost-effective NetApp solution delivers an unmatched ROI.

#### **MetroCluster Extends Failover Capability to Remote Sites**

NetApp MetroCluster is an integrated, high-availability, business continuance solution that leverages proven NetApp and partner technologies. A simple-to-administer solution, MetroCluster extends failover capability from within

a data center to a remote site located many miles away. MetroCluster also replicates data from the primary site to the remote site to ensure that data is completely current (i.e., a synchronous replication capability). The combination of failover and data replication ensures absolute disaster recovery—with no loss of data—in minutes rather than hours or days.

#### **Clustered Failover ensures data availability in business-critical environments.**

Data availability is ensured by transferring the data service of an unavailable system to the other system in the cluster. The transfer is transparent to end users and applications, and the data service is quickly and automatically resumed with no visible interruption to business operations.

#### **VFM (Virtual File Manager) Software**

A highly scalable, highly available file-server virtualization solution that supports the consolidation of file storage. With VFM, you can easily meet the challenges of managing and optimizing storage in distributed, multiprotocol Windows and UNIX environments. VFM creates a global namespace that aggregates files located on NetApp systems and Windows servers to present a single logical “pool” of storage. This enables you



“Now that we're familiar with the Network Appliance products, we've discovered that they are having a profound effect on our vision of what we can do in the future. It's clear to me that NetApp storage solutions will become more and more central to our operations.”

**HELEN RICHARDSON**  
VP/Manager of Technical Services  
BOK Financial Corporation

to easily and quickly change, add, consolidate, or migrate storage without an impact on end users.

**NearStore storage system is cost-effective and fast-access storage.**

Ideal for disaster recovery purposes, NetApp NearStore nearline storage systems work in concert with a tape library to address problems inherent with direct backup to tape. NearStore systems complement and improve existing tape backup processes by inserting economical and simple-to-use disk-based storage between application storage and tape libraries in a two-stage backup configuration.

**Enterprise storage system simplifies and unifies enterprise data storage.**

A scalable suite of highly available, field-proven networked storage systems, NetApp enterprise storage systems are easy to install, configure, and manage and deliver one of the lowest total costs of ownership and highest returns on investment in the industry.

**Customized Services to Meet Your Needs**

NetApp customizes disaster recovery solutions to meet each client's unique requirements. NetApp Professional Services assesses specific business and technical needs, designs an appropriate storage network architecture, helps write an optimized disaster recovery plan, and deploys and manages the selected solution. To keep staff working at maximum efficiency, NetApp Educational Services also provides training courses and certification programs. To minimize difficulties whenever they arise, the award-winning NOW™ (NetApp on the Web) global support site also is available for technical support, knowledge solutions, real-time engineering support, details on your installed base, and more.

**Discover the Advantages of Simplicity**

Where other storage vendors contribute to environment complexity, NetApp eliminates it. For more than a decade, NetApp solutions have set the standard for simplicity and ease of operation, with the lowest TCO and highest ROI in the storage industry. Through leadership and innovation, NetApp continues to define the enterprise storage solution landscape, driving "The evolution of storage.™"

See how NetApp disaster recovery solutions can keep your business operating during planned and unplanned system disruptions. For more information, visit [www.netapp.com](http://www.netapp.com). Let NetApp show you what its solutions can mean to your business.



**Network Appliance, Inc.**  
495 East Java Drive  
Sunnyvale, CA 94089  
[www.netapp.com](http://www.netapp.com)

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