



NetApp™
Go further, faster



Infrastructure Solutions

NetApp Backup Solutions for VMware Environments

Eliminate your backup window and increase data protection with our backup solutions

KEY BENEFITS

Increase data protection

Perform frequent and complete backups without affecting system performance.

Speed recovery time

Recover your data faster with less downtime and better service levels using our disk-based Snapshot™ technology.

Save storage, power, and space

Improve your storage utilization by implementing our deduplication technologies. You'll make the most of your existing storage and enjoy significant cost savings by not having to purchase additional storage.

Improve productivity

Simplify complex backup and replication configuration tasks for hundreds of data sets. Using our Protection Manager, you can group data with similar protection requirements into data sets to which protection policies can be applied and customized and detailed reports generated.

THE CHALLENGE

Reducing backup complexity in virtualized environments

You can create dramatic returns on your investment by taking advantage of the reductions in server power, cooling, and floor space that are generated by server virtualization. But with the benefits of server virtualization, you face a dramatic increase in the complexity of your backup architecture. Traditional backup methods might no longer provide you with the protection that your virtualized environment requires.

In your virtual environment, a typical tape backup problem can be even more difficult to deal with. When you plan for your virtual environment, you should consider the following realities:

- A single server failure can take down multiple applications.
- As your backup demands increase, the backup process alone can place excessive demands on your server I/O bandwidth, making it challenging to meet your backup window.
- When you back up all your data, you create a processing load that places excessive demands on your CPU, which makes it impractical for you to perform traditional backups.

- As you reduce the frequency of your backups to accommodate backup challenges, you increase your potential data loss.
- Recovery from tapes is laborious, time-consuming, and fraught with security issues.

Backup and recovery can be the biggest challenges you face when you implement virtualized server environments. And because traditional backup processes and technologies are no longer capable of helping you meet the demands of virtualized server environments, you will have to rethink your backup strategy completely. We know you have many backup options to choose from. How do you know you're getting the right one?

THE SOLUTION

Implement NetApp's backup infrastructure for all recovery types

VMware® ESX Server supports several different backup methods, including the agent-based, server-free backup provided by VMware Consolidated Backup. Many organizations choose to adopt multiple backup solutions to address different recovery needs: one for file-level restores, one for full virtual server image restores, and yet another for application-consistent

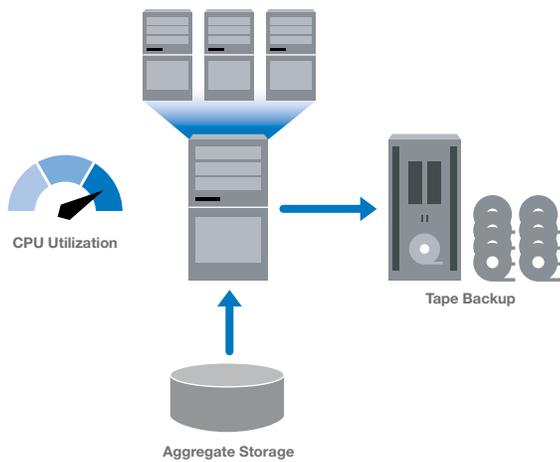


Figure 1) Backing up all data places an excessive load on the CPU.

Traditional backup methods might become impractical in a virtual environment because of their affect on CPU performance.

backups of databases and applications. Solutions that provide application-consistent backups—ensuring that the backup data is in a recoverable state—add to the complexity when they make you shut down or quiesce your databases and applications during backup. Multiple solutions with multiple processes can give you a data management headache.

You can simplify your backup decision by employing our data management infrastructure. We provide efficient backup and restores for files, virtual machines, and data stores. With our solutions, you can easily perform hot backups (a process that delivers application-consistent backup while the virtual machine remains up and servicing requests), fast recovery, and granular restores.

ELIMINATE BACKUP WINDOWS

With our Snapshot and replication solutions, you gain the business benefits that virtualized infrastructures promise along with the ability to back up files and applications as your business requires.

Speed backups and restores

One way you can make sure that your backup window is met is to eliminate the window altogether. Unlike other snapshot

implementations, NetApp Snapshot technology enables near-instantaneous, space-efficient, server-free backups. Because of the speed and space efficiency of our Snapshot copies, you can perform backups frequently without affecting system performance.

Snapshot copies reside on storage and provide protection against data corruption. To protect data in the event of a primary system failure, you can use NetApp SnapVault® technology to vault backups based on Snapshot copies. Our SnapVault solutions are ideal if you have a deployment that involves centralized backups of remote systems or if you are moving backup data off-site or to tape for disaster protection.

In the past, you might have thought disk-to-disk backup was unaffordable because increasing storage capacity could be so costly. That is no longer true. We help you change that cost equation by significantly reducing the amount of data to be backed up. Our SnapVault technology transfers only the block-level data that has changed since the previous backup, allowing faster backups that use less network bandwidth and storage capacity. As a result, you can now affordably store more backups on disk.

You can extend the advantages of our Snapshot technology to your third-party storage using our Open Systems SnapVault. This lightweight, host-based software agent takes data residing on third-party and direct-attached storage and stores it in a Snapshot format on secondary NetApp storage.

Recover data quickly

We at NetApp know that recovery is as important as backup in the availability equation. You need to quickly recover data with as little disruption to service as possible. You can access data easily and directly and facilitate faster recovery times and improved service levels with disk-based Snapshot copies. When you pair NetApp Snapshot technology with SnapRestore®, you get rapid recovery for a variety of scenarios:

- Your end users can restore single files or entire virtual machines in minutes.
- You can run virtual machines directly from cloned backup storage for fast recovery.
- You can recover application-consistent backups with NetApp SnapManager® products integrated with key enterprise applications, including Oracle® and Microsoft® Exchange, SharePoint®, and SQL Server™.

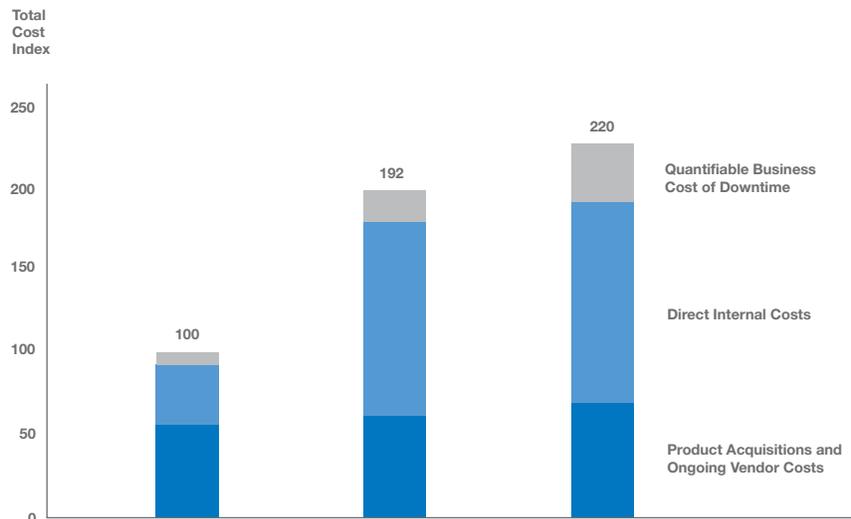


Figure 2) Centralized backup total cost comparison: summary findings.
Indexed total cost of NetApp SnapVault = 100.

SIMPLIFY BACKUP AND RESTORES

Automate backups

With our backup solution, it's easier to meet your service-level agreements. You can automate complex backup and replication configuration tasks using Protection Manager, which features automated setup and policy-based management to help you simplify the process of protecting your enterprise data. By grouping data with similar protection requirements into data sets, you can quickly apply a particular protection policy to all data of a certain type. You can also use Protection Manager to create customized and detailed reports.

MAXIMIZE STORAGE EFFICIENCY

Buy less storage

You can greatly enhance storage utilization using our deduplication technologies. When you use our deduplication technology, you can transparently deduplicate data in any volume regardless of the data type. This enables you to reduce storage costs in VMware environments by deduplicating your highly redundant virtual machine and virtual desktop image data.

Lower TCO

With our storage efficiency and simplified data management, you get proven, substantial savings over traditional backup

systems. With shorter recovery times, you can decrease the cost of downtime.

According to a recent Mercer study,¹ NetApp SnapVault solutions can help you lower the cost of each of three contributors to total cost. Respondents in the Mercer Study reported that the ease of use, improved administration, and increased reliability of SnapVault lead to a 3x to 8x gain in labor efficiency. (See Figure 2)

Reduce operating costs

Our backup solution offers you the opportunity for substantial cost advantages by lowering your media costs and allowing you to conduct remote office backups over a WAN connection with only a small incremental software investment. For a typical backup environment using typical backup rotations and schedules, you can spend 54% less with a NetApp SnapVault solution than you would with a tape backup solution that has a similar capacity.¹

SPEED RESTORES AND IMPROVE BACKUP RELIABILITY

As you virtualize your server environments, the backup environment associated with a physical server becomes even more critical because even just a single failure in the backup environment can affect the protection of every application and virtual

server in your environment. This makes it especially important for you to increase the reliability of your backup systems. All too often, traditional tape backup is neither fast enough nor robust enough for virtualized environments. As an alternative, we offer you cost-effective disk storage technology and highly efficient data management software that provides reliable and easy-to-manage data backup and recovery.

Optimize existing tape backup

You get all the advantages of disk-based backup in your existing tape environment when you use the NetApp NearStore® Virtual Tape Library (VTL). You can use any open-systems primary storage and all major backup applications in combination with NearStore. And because NearStore fits seamlessly into your existing tape and VMware environments, it doesn't disrupt your operational processes or require you to change your backup software. With our high-performance, hardware-accelerated data compression, you can reduce the cost of disk-to-disk backup by 50% to 67%.

Improve reliability

Thousands of organizations rely on our disk-to-disk backup solutions to offer verifiable backups and provide higher than 99.99% availability. These organizations use RAID-DP® to provide extra protection

against drive failures. Without increasing their drive usage beyond that required by RAID 5, they can enable their storage systems to tolerate two simultaneous drive failures (or more realistically, a drive failure plus a media error during rebuild).

PUT YOUR BACKUP ARCHITECTURE TO WORK

You gain an important competitive advantage when you move rapidly through test, development, and deployment activities. But to do so usually involves generating physical copies of data or virtual machines, which take time to generate and can consume large quantities of disk space. You can create instant space-optimized copies of data, including server instances, virtual machines, and application data, by using NetApp FlexClone® on your

backup systems. In addition to test and development, you can leverage your backup architecture for a variety of other productive business purposes such as data mining, end user restores, DR testing, and so on.

ENSURE YOUR SUCCESS

When you partner with our Professional Services and Global Support teams, you gain access to our extensive storage expertise, innovative technologies, and best practices. You can accelerate the return on your infrastructure investments and ensure that you get the most business benefit from them. We respond quickly to your problems, no matter where in the world they occur, and with one of the most flexible support programs in the industry, you always get just the support you need for your unique IT and business requirements.

FOR MORE INFORMATION

- Disk-to-Disk Backup in a NetApp/VMware Environment
www.netapp.com/library/tr/3610.pdf
- NetApp and VMware ESX Server 3.0: Building a Virtual Infrastructure from Server to Storage
www.netapp.com/library/tr/3515.pdf
- NetApp and VMware ESX Server 3.0: Storage Best Practices
www.netapp.com/library/tr/3428.pdf
- Disaster Recovery for VMware Environments Solution Brief
www.netapp.com/solutions/infrastructure/server-virtualization/vmware.html
- SnapVault Best Practices Guide
www.netapp.com/library/tr/3487.pdf
- OSSV Best Practice Guide
www.netapp.com/library/tr/3466.pdf

1. Based on the Mercer study "Total Cost Comparison: NetApp SnapVault vs. Tape-Based Backups."

NetApp creates innovative storage and data management solutions that help you accelerate business breakthroughs and achieve outstanding cost efficiency. Discover our passion for helping companies around the world go further, faster at NetApp.com.



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