

## Business and Technical Advantages of Digital Storage Solutions

Data backup and recovery continues to be one of the top pain points for many organizations. Dealing with problems including failed backups, tape drive failures, and media errors takes up about two-thirds of the effort required to manage storage systems. In addition to these management issues, tape technology alone no longer provides best practice recovery service levels.

According to industry analyst, META Group, 80% of Global 2000 organizations will rely primarily on high availability, disk-based recovery solutions that enable rapid business resumption.

Over the last ten years, disk space costs have changed dramatically with disk space costing pennies per MB while employee time and cost are running at a premium. In today's 24/7 operating world, system uptime is business- and mission-critical. Loss of data or slow recovery time can bring a business to its knees. Whereas computer hardware was previously the cost to be minimized, downtime and people are the primary costs to be managed.

The new technology available today focuses on delivering time-to-restoration. Digital devices are emerging that provide an interim step to the traditional hard-drive-to-tape process by installing an intermediate step. This step uses digital devices to capture the data at digital speeds and, in case of failure, return the data at digital speeds – this is a dramatic improvement of the older tape drive technology and the management of tape related failures.

Here are some interesting statistics from the META Group:

- 5-20% of tape backup/recovery fail nightly
- 60-70% of storage management effort is devoted to backup/recovery
- The number one cost of backup/recovery is tape media
- Recovery from a single file from tape takes at least one hour and can take up to 24 hours
- The majority of restore requests are for individual files or table spaces
- More than 80% of restore requests are made within 48 hours of data loss
- Less than 3% of data loss is due to a disaster event
- Reliance on tape alone for data recovery is no longer a best practice

## Relying on Older Technology

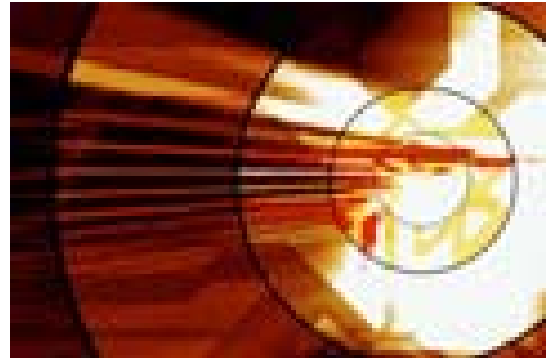
Reliance on tape technology solely for data recovery increases not only personnel operating costs of an organization, but also its risk of data loss and unplanned downtime. As a removable media, tape also represents a vulnerability to data security. As data volumes continue to grow at a 45-50% compounded rate per year, tape systems gradually run out of capacity. Other tuning problems include adequate tape drive speed/capacity, network bandwidth, backup server processing power and disk drive controller throughput.



## Expanding Role of Disk Technology

A near-line (close to primary disk drives) disk device is a technology that is emerging as an important supplement to traditional tape backup. Disk libraries are usually ATA-based arrays, making them an economical solution to the overall backup and recovery process. These devices operate by emulating a tape device/library, or simply being the target of backup management software.

A typical backup job first sends the data to the near-line disk library. A subsequent operation then moves that data from the disk library to magnetic tape in the usual fashion (after an allotted time) for final archiving. This model has four key advantages:



- **Rapid data restoration:** by using a disk library and maintaining backup images for 72 hours, the vast majority of restore requests can be served at disk replica speeds. Whereas tape restores require from one to 24 hours to execute, restores from a disk library should range from 10 minutes to one hour.
- **Reduced labor:** The majority of the manual storage administrative effort associated with tape-based restore operation is the time to locate, load and search for the proper media element. It is estimated that data restoration time can be reduced by 50%.
- **Lower operating costs:** best practices for tape backup dictate that daily backup media be duplicated, at least for critical systems. Obviously, this doubles the required media. By having one copy of the data in the disk library, only one tape copy needs to be kept in the tape library or sent off site. This should save 20% of the media costs.
- **Reduced risk:** anytime a backup job fails, the organization is at greater risk for lost data. With 5-20% of jobs failing nightly, lost data for most organizations is an eventuality. Near line disk libraries can help mitigate this risk. High availability disk-based solutions significantly reduce the primary causes of failed jobs.

In cost comparisons, tape continues to be the best choice for long term, off site archival storage (more than seven years). Tape remains the least expensive in terms of media cost (\$.0004/MB for tape versus \$.005/MB for ATA disk). It remains wise to use tape to provide a physical disconnect between disk replications and the 'last chance' data image on tape to guard against malicious attacks or propagated data corruption.

So, tape continues to have an important place in the backup/recovery process. When augmented by disk libraries, they take on a secondary role however in day-to-day performance capabilities.

## Data Backup/Recovery in Small to Midsize Organizations – Using Digistor

Midsize organizations face far different backup recovery issues than large enterprises. With limited staff, these organizations can gain significant improvements in manpower productivity. Services from Virtual Management Technologies' Digistor service uses digital media to:

- create disk libraries
- manage the flow of data from hard drives to disk using various software tools
- manage data recovery
- data management and recovery for client defined periods (e.g. six months)
- manage movement of data from disk storage to tape archival storage
- manage off-site disk and tape storage in safe environments

For organizations with limited staff, Digistor allows:

- Re-allocation of resources to key business IT projects which deliver high value
  - Industry statistics show that between 7% and 10% of a dedicated backup/recovery administrators time is dedicated to data restoration and 5% to overall backup administration.
  - In smaller organizations, where IT professionals handle multiple tasks, Digistor can help an organization reallocate between 200 and 300 hours a year to mission critical business improvement tasks
- Management of entire process - data creation to data archiving
- 24/7 management of the data collection and backup process

***Virtual Management Technologies (VMT) provides advanced data center infrastructure management for midsize organizations. VMT improves data center management by using sophisticated tools to remotely manage your infrastructure including: servers, operating systems, networks, security, and core communications systems including email and web sites. Leaving the infrastructure to professionals allows you to focus on your business applications. Visit our web site: [www.VMTech.net](http://www.VMTech.net).***