



Where Does Tape Fit In?

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For today's IT department, no word packs more menace than "downtime." That's because of the nature of the IT department's marching orders: it is charged with ensuring the security and availability of the company's mission-critical information. Anything that disrupts that security and availability causes downtime, and downtime costs money. When disruptions do occur, it's up to the IT department to get the enterprise restarted and restored to the "moment before" state as rapidly as possible.

Traditionally, tape has dominated as the backup and recovery medium of choice. But as the cost of disk-to-disk backup decreases and the need to restore rapidly becomes ever more important, disk is increasingly finding its place in what researcher IDC calls the "backup hierarchy." This article looks at some of the issues to be addressed when considering a backup medium.

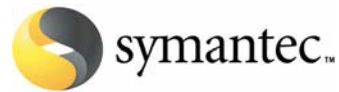
Don't dismiss tape

Not that long ago, industry pundits regularly predicted the coming demise of tape as a viable enterprise storage technology. They cited reliability issues, the large investment in hardware and software required, and the length and scheduling of backup windows as factors that would ultimately doom tape.

For example, a 2004 CMP-Reality Research survey stated that 59 percent of IT managers were concerned about their company's ability to reliably back up and recover data. Part of the concern was due to the fact that tape is not a sealed medium.

But thanks to a combination of technical advances and recent regulatory initiatives, tape as a medium for backup and archival storage continues to attract attention. (The Sarbanes-Oxley Act, for example, requires organizations to have necessary controls in place to ensure the integrity of their information.) Plus, many enterprises have invested significant time and money in their tape solutions, and they're unlikely to walk away from those investments overnight.

As if to underscore that point, Freeman Associates, a consulting firm in Ojai, Calif., issued a report last summer showing that, after three consecutive years of decline, compact tape (e.g., LTO, SDLT, high-end 8-millimeter) is poised for a rebound through 2009. So-called super drives, which work with mid-range open systems and the low



range of enterprise servers, are expected to perform particularly well. “All super-drive categories will experience significant growth each year through 2009,” the report noted.

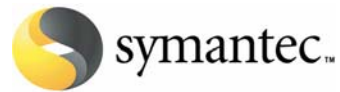
Speed is key

But while tape is great for archival purposes, there remains the thorny issue of downtime. Tape is slower in creating backups and recovering systems or data compared to disk-to-disk solutions. As IDC noted in a 2004 white paper (“Enterprise Systems and Storage Management Convergence Using File Systems Virtualization”), “Writing to disk provides fast backup and recovery and depends chiefly on the read/write speeds of the disk storage. In the tape case, volumes are stored in an offline vault, whereas in the disk case, the backups are always online. The total time from a data-loss event to recovery for disk is usually shorter.”

Even under the best circumstances, performing a bare metal recovery from tape is tedious. Traditional tape backup software has been designed for file backup and recovery. If rebuilding a system were as simple as a file transfer, then file recovery alone would serve the purpose. Including a systems boot structure, file tables, embedded settings, and applications requires a more comprehensive approach than traditional file backup tools to enable full bare metal recovery.

Disk-to-disk solutions are also especially useful for these tasks:

- **Bare metal system recovery.** In the event of system hardware or software failure, or user error, a disk-to-disk solution enables administrators to recover a system much faster than traditional methods. Depending on the amount of data, a server with applications, settings, and data can often be recovered in less time than it would take to reinstall the operating system alone.
- **File recovery.** Once an initial image has been created, an administrator can mount the image with a Windows drive letter. File recovery is then just a matter of browsing to the file and using drag and drop to replace it on the working drive. Because the image appears as a typical drive, users can search and sort through the directories using native Windows functionality.
- **Change management.** When a new device, application, patch, or hotfix must be applied to a system, a disk-to-disk solution gives an administrator assurance that there will be no unplanned downtime. If problems occur due to the new device or patch, the solution enables a full recovery back to the most recent incremental.
- **Database backups.** A disk-to-disk backup and disaster recovery solution enables administrators to put databases that are Microsoft VSS-compliant into a “quiet” state needed for backup without actually taking them offline. It also allows them to back up databases that are not VSS-compliant.



Disk-to-disk solutions can also complement and enhance a company's tape backup system. An IT department can use a disk-to-disk solution to perform disk-to-disk-to-tape (or D2D2T) operations. For example, the disk-to-disk solution runs its backup operations to a network-based storage device. This is usually Network Attached Storage (NAS) or Storage Area Network (SAN) of some type. Aged backups can then be archived to a tape backup set and transported offsite. In this way, disk-to-disk acts as a first line of defense.

Making administrators' lives easier

IT administrators' lives are made difficult by the traditional backup process of consolidating massive numbers of files and volumes into databases, where those files are reorganized on a large scale for tape volume filing. (And the exact same process is used in reverse for restoration.) With the latest disk-to-disk solutions, a major "paradigm shift" in understanding can take place, as administrators can now manage volumes rather than files and no deconstruction/reconstruction is needed. The backup itself can be browsed, mounted, replicated, or recovered without any intermediary, time-consuming steps.

Conclusion

While many companies today use a tape backup system to protect their critical corporate server data, desktop and laptop data is often left unprotected. According to IDC, 60 percent of critical corporate data actually resides on those desktops and laptops, and only 18 percent of organizations believe they have adequate protection for their workstations. This lack of protection leaves many organizations vulnerable and at risk for data loss. In today's regulatory environment, where the number of regulations and their unique requirements are growing daily, such a state of affairs is unacceptable.

More and more industry experts agree that a solid disaster recovery plan incorporates the archival strengths of tape backup but also addresses business continuity issues with a disk-to-disk solution. Disk-to-disk backup and recovery solutions offer an effective first line of defense, helping to minimize organizations' risks by ensuring they have backups to recover from in the event of a failure. For IT departments, that can help take the sting out of the prospect of downtime.

Related links

Symantec LiveState Recovery

<http://sea.symantec.com/content/discipline.cfm?categoryid=22>

Webcast: "Protecting the Integrity and Availability of your Company's Information"

<http://enterprisesecurity.symantec.com/content/webcastinfo.cfm?webcastid=158>

Flash Demo: Symantec LiveState Recovery

http://sea.symantec.com/demo/livestate_v3/livestate_demo.html