



## The Best of Both Worlds

Disk and tape backups: an optimal solution

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### Summary

Speedy disk backups are gaining in popularity as networking demands increase, but the traditional tape data protection won't disappear overnight. Maybe it's time to think about the best of both worlds.



By [Phil Rousel](#)

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With more and more pressure on Linux system administrators to protect data and make it readily accessible 24 hours a day, an increasing number of companies are looking for alternatives or supplemental solutions to traditional client-to-tape backup/restore.

Faced with budget constraints and a steadily escalating need for quick if not instant data recovery, disk-to-disk backup is an option that some businesses have implemented. Both Linux-based hardware and software manufacturers are moving to meet the increased demand for methods that don't rely exclusively on tape backup.

Comparing disk backup to tape backup isn't really an exercise in what is best. More realistically, the comparison is based on what is most appropriate in terms of networking demands and structure.

Complete backup and restore is, of course, the best protection against data loss and the two foremost methods available are tape or hard disk systems. Historically, tape has been the preferred method because tape cartridges were inherently cheaper than disk drives. A secondary reason was that tape cartridges were portable and could be stored away from the computer system. Since the disk drive was internal to the PC, it could not be removed and/or stored easily or conveniently.

However, technology evolves to meet demands. The design of system/drive components has steadily pushed down the cost of disk drives, resulting in a competitive alternative to pure tape systems. Of equal significance is the fact that tape is comparatively slow and sequential, sometimes making it difficult to find files quickly. Disk drives, on the other hand, rely on direct random access, noteworthy time-saving (time = money) and read/write efficiencies that translate into enhanced productivity, and a potential drop in operating costs.

Industry professionals who tout disk-to-disk options point out advantages that are primarily related to instant access of mission-critical information. They claim:

- Much shorter backup windows with little or no downtime
- Rapid restore
- Cost effective

Users and servers are increasingly scattered across wide-ranging time zones, leading to applications and data being available 24x7x365.

For data to be unavailable during a backup window of significant duration is no longer just inconvenient, it's unacceptable. In highly competitive situations, businesses of all sizes need up-to-the-minute data protection without sacrificing high availability.

Disk-to-disk can shorten or eliminate some backup window problems. Simply put, writing straight to disk is faster than to tape. Downtime is reduced or eliminated, thus decreasing the time when data is vulnerable to loss.

Similarly, restoring data from a disk is quicker than from tape. Instant access to files is possible for everyone on the network without a time-costly restore of huge tape archives.

It should be pointed out that some software users (and producers) advocate disk backup because their backup software does not allow the multiplexing or multistreaming of data to tape drives. This software

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limitation is avoided by multiple access to disk applications.

The cost factor between the two methods is also becoming less and less substantial. Disk-based storage hardware prices are at an all-time low. When considering speed and capacity ratios, hard disks can offer an impressive return on investment. While tape has historically been substantially less expensive than equivalent disk storage, disk prices have fallen dramatically (and capacities grown) to the point where disk-based systems have become a financially feasible alternative to tape-based systems, while delivering significantly superior performance.

Tape drive backups are still easier to secure, either by archiving to a different site, or by pulling the tape each night and taking a copy home in your backpack. High volume disk arrays are just not as flexible when formulating security guidelines.

In actuality, the combination of disk and tape backup is an optimal solution for many businesses, especially if there is a regular need for quickly retrieving and restoring files as part of business demands. Data is backed up to a hard drive, giving users immediate access to the previously saved files. Meanwhile, the disk array is backed up offline to archive the files as they change. Users don't lose any working time and data isn't vulnerable for long periods of downtime. The tape drives can be at a different location or duplicated by tape management software in order to take a copy offsite.

Essentially, then, the question "Is disk or tape backup best?" isn't as valid as "What's right for my configuration and network demands?"

**About the author**

Phil Roussel is chief executive officer and cofounder of Arkeia Corporation.

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