



## Disk-to-Disk Backup

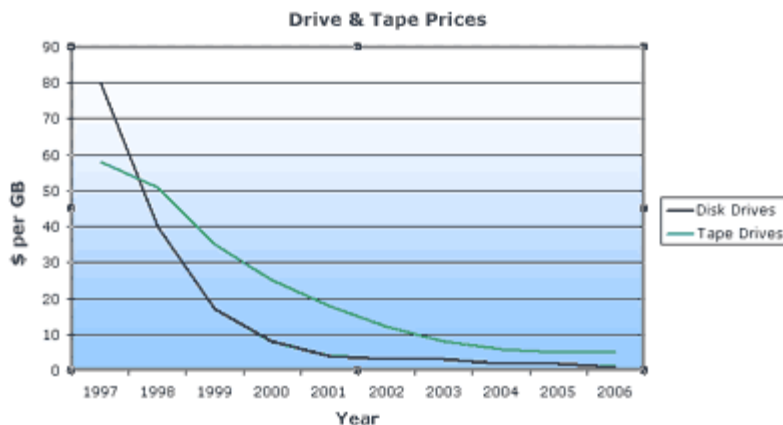
### Providing An Alternative

Planning around several-hour backup windows. Not being able to determine if backups were successful. Searching for specific tapes. Locating specific files for retrieval. Managing tape life expectancies-or dealing with failures and even data loss. These are all realities that IT managers may be faced with on a daily basis.

As presented in recent polls and surveys, more and more IT shops are turning to disk-to-disk (D2D) backup systems to relieve the burden of increasing data loads and eliminate the hassles associated with daily backups. There are several substantial reasons why a D2D implementation is an increasingly attractive alternative to traditional tape backup for many organizations.

### Old Perceptions - New Price & Performance

With tape storage standing as the only available, cost-effective backup method for so many years, it has become the default technique, assumed to be the only option; the idea of using disk drives for backup was traditionally considered to be just far too expensive. In recent years, however, the cost of a disk backup solution can actually be lower than that of a comparable tape implementation.



Administrative conveniences associated with high transfer speeds are another key reason to consider D2D backup. Companies accumulate ever-increasing quantities of critical data, resulting in backup times that can become operationally limiting or even impractical.

The fastest tape drives commonly available today perform at transfer rates of 30MB/sec. Parallel IDE disk drives, also referred to as Parallel ATA (Advanced Technology Attachment) or PATA drives, perform with rates of 40-50MB/sec. Newer ATA drives which use a serial data interface are referred to as Serial ATA (SATA) and deliver 60-75 MB/sec data transfer rates. Restoring files from disk is additionally

faster than from tape, considering that access to backed-up disk data takes just milliseconds.

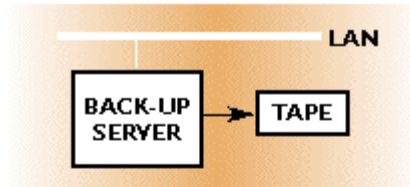
### Data Protection - Improving On a Top Priority

It is no new observation that tape drives and physical tape media have been found to be unreliable and often a significant source of backup failures. Tapes are inherently unable to offer the longer life cycles provided by disk drives. Newer SATA drives are not only associated with a relatively high MTBF (Mean Time Between Failure), but when these highly-reliable SATA drives are used in conjunction with RAID hardware for backup applications, a multiple layer of data protection is provided.

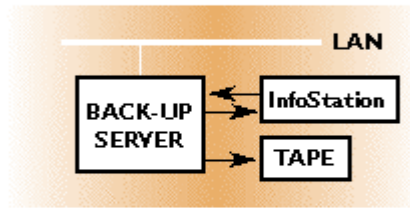
With the decline in disk drive costs and the operational conveniences and improvements introduced by disk backup, it is apparent that D2D backup is ideal for small to medium-sized businesses; those who do not necessarily require enterprise-class data protection. Appropriate applications can assure long-term data security and reliability with a disk backup solution, but only if the complete disk drive environment is also up to the task.

### Selecting the D2D Enclosure

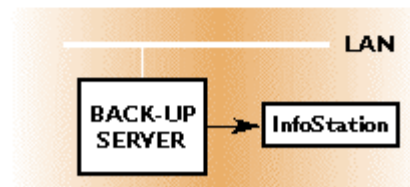
Although more reliable and durable than tape drives, disk drives are still mechanical devices vulnerable to occasional failure. By assuring that drives are housed within an environment specifically designed to accommodate the demands of the latest disk drive technologies, capacities, speeds and applications, however, the inevitable risk of data loss can be greatly reduced. Technology professionals implementing a D2D solution should take particular care to select a drive enclosure designed with specific attention to its power and signal quality management system, cooling system and overall mechanical construction.




**Conventional Back-up**



**Staging or Caching Back-up**



**Disk-to-Disk Back-up**

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