

BACKUP AND RESTORE

Multiple forces and factors are driving two conflicting requirements on enterprise storage management, namely shrinking recovery time windows and rapidly expanding data volumes to be restored as part of recovery. Traditional technology used to protect data-tape back-up, is rapidly encountering difficulty addressing these requirements. At the same time, the stability, familiarity, low cost, and portability of tape-based back-ups set a baseline that emerging technologies must meet while achieving superior recovery performance.

Exploiting disk-space for the purpose of backup, with its improved read/write times over tape, is the logical step in backup and restore architecture. Speed and reliability alone, however, cannot beat the cost effectiveness that tape represents and tape remains the major backup media. Since tape provides a removable-media option, it is often the last line of protection and the preferred media in disaster recovery strategies.

Business requirements dictate that in backup and restore strategies a majority of the data should migrate to less expensive disk storage technologies in a timely fashion. Staging areas comprised of less-expensive ATA- and SATA-based storage pools would house the data prior to being committed to tape media. While gaining ground in the area of backup performance, ATA and SATA arrays are still not cost-effective and they still require tape as the restore option.

For a disk-to-disk solution to be a viable option, it must demonstrate that it can extend beyond current constraints and provide exceptional integrity and dependability. To achieve this, disk-to-disk must:

- Come close to rivaling tape in its cost structure
- Exploit the random access benefits of disk for both backup and restore across multiple data profiles
- Enable vaulting capabilities to meet with various off-site business requirements

Disk-to-disk (D2D) backup is the optimal approach to the backup and restore problem. Within the D2D landscape, a combination of two emerging technologies address the business requirements currently associated with backup & restore: **Data Reduction and Virtual Tape Library for Open Systems.**

Data Reduction techniques are based on the SHA-1 (Secure Hash Algorithm). **Data Reduction** runs in the background to eliminate redundant blocks, offering a significant reduction in actual data to be backed up. These data reduction processes are best suited for common



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business data (i.e., file & print and email applications).

Virtual Tape Libraries present disk as tape to the backup application. The cartridge-as-disk is transparent to the application layer. The backup operates as if it is writing to tape. This process leverages the disk's speed to read and write data (versus that of traditional tape) while maintaining continuity within an organization's operations. VTL's are particularly effective in organizations that handle rich-media files that currently do not have a cost-effective fit with the traditional role of tape.

By deploying Data Reduction and VTL, organizations now have the opportunity to match the characteristics of their core asset, data, with the appropriate characteristics of their backup strategy.

Our approach to an efficient backup and restore solution begins with an operational assessment followed by development and implementation. We engage with clients at any point through this lifecycle. The entire process includes:

- Assessment—evaluate your current backup strategy (including the data profiles, acceptable backup windows, and hardware and software tools), using systems reviews, report outputs, and stakeholder interviews
- Strategy—identify and define applicable backup and restore policies, processes, and activities based on the client's environment and needs
- Design—specify the backup and restore procedures, organizational structures, job descriptions, skill set requirements, service and system management tools, business requirements, service level agreements, Recovery Time Objective (RTO) and Recovery Point Objective (RPO)
- Implementation—lead or assist with a Proof of Concept, pilot, and production rollout of the design specifications, to manage the implementation of the selected solution
- Operation—upon certification, we can assist in the operation of the new environment until the customer is ready to assume full responsibility

The goal is to allow you to focus on more complex problems rather than investing time, resources, and money in something as inefficient as physical tapes. The **Backup and Restore** solution will:

- Virtually eliminate backup window requirements
- Reduce data when applicable
- Improve RTO and RPO
- Immediate save costs in backup storage through tape reduction and through limiting long-term archival dependence on tape



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- Integrate the new backup system with existing infrastructure wherever possible
- Eliminate the need to create tapes, but still offer the option to create archival tapes when needed (e.g. compliance requirements)
- Provide minimal interruption to existing backup policies and procedures
- Preserve or increase overall staff productivity



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