

Solution Brief

LaserVault Backup and Data Domain Deduplication Storage

Challenges for iSeries Users

- > Rapid data growth driving increasing storage costs
- > Regulations requiring longer data retention periods
- > Most iSeries users still rely significantly on tape vaulting

Key Benefits of LaserVault and Data Domain Solution

- > Enable cost-effective storage on disk, reducing or eliminating reliance on tape
- > Implement and administer easily with far greater reliability than tape
- > Eliminate tape handling with automated backup process
- > Reduce significantly backup capacity needs, backup and DR times and administration costs
- > Shrink network bandwidth up to 99% for offsite replication over WAN, while also eliminating tapes on trucks
- > Enhance recovery by using disk instead of tape. Months of backups are now online in a small-footprint appliance and instantly available
- > Replace tape robotics with disk storage for less than \$0.35/GB, a huge cost savings over tape libraries
- > Enhance data integrity with continuous data verification and recoverability, unlike tape restoration

Deduplication Storage for IBM iSeries Environments

For decades, tape libraries have been the *de facto* solution for the backup and archiving of enterprise data. While tape has historically had its share of inefficiency and long-term reliability issues, no one questioned its superiority on a cost-per-gigabyte basis. However, tape technology has not kept pace with the exponential increase in corporate and regulatory requirements for data management and protection. Today, disk-based backup and recovery solutions provide far superior operational efficiency and time to recovery. And now, with the addition of deduplication technology, disk-based solutions present compelling cost advantages compared to tape in iSeries environments.

Today's Challenges

In iSeries and in open systems environments, rapid data growth has led to commensurate increases in storage and tape costs. Regulatory compliance has required long-term retention of large amounts of data. This, in turn, has increased the emphasis on data security in disaster recovery and business continuity planning. Most iSeries customers use manual offsite tape vaulting, which is very costly, time consuming, and entails the challenges of lost tapes, delays recovering data from tapes and damaged tape. Retrieving tape from off-site locations makes restores more difficult and delays the recovery process. Using more reliable disk-based backup techniques has not been feasible since the bandwidth required to replicate large data sets to a disaster recovery site may be limited or very expensive. What is needed is a solution for iSeries for rapid backup and recovery, cost-effective and timely replication to DR sites and storage media reliability.

The LaserVault and Data Domain Solution

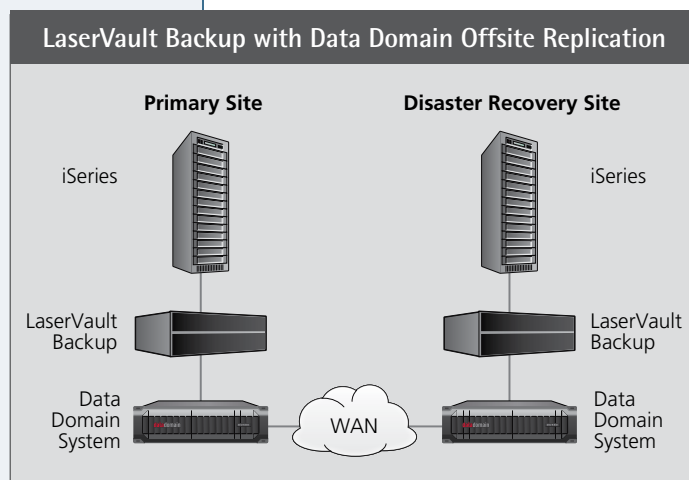
LaserVault and Data Domain have developed a powerful solution which allows iSeries users to reap the benefits of deduplication. By combining Data Domain deduplication storage systems with LaserVault Backup, iSeries administrators can reduce or eliminate their tape systems and adopt streamlined data protection processes.

LaserVault Backup is a tapeless disk-to-disk (D2D) backup system for iSeries. It stores each backup as a file on a Data Domain system that can be copied for offsite backup, or restored to the iSeries quickly. LaserVault Backup consists of a software library installed on the iSeries that implements SAVLIBLV and SAVOBJLV. These commands look very similar to SAVLIB and SAVOBJ, but save the files to a virtual save file. This save file is actually sent over a TCP/IP network via a CIFS share to the Data Domain system which functions as a backup repository. A virtual tape library (VTL) is not required.

LaserVault Backup does not use save files on the iSeries. All you need is an iSeries, a Windows-based backup server and a Data Domain system networked together, and LaserVault software.

The server also creates a backup catalog that contains an entry for each save and a list file that contains a list of the objects in each save. The result is very similar to a virtual tape library, without the expense of special hardware or the overhead of special software on the iSeries host.

The iSeries operator can view the catalog with the WRKVOLLV command, then view the save file object list and restore entire libraries or individual objects. The result is an archive of



Typical iSeries Implementation

backups so that the user can have multiple versions of each library as nearline storage. This eliminates tape handling and mishandling.

Data Domain systems are far more reliable than tape media, and more cost effective per gigabyte stored. You can also create two backups at once — to a Data Domain system and to a local server disk — for de-staging monthly archives to tape. Alternately, you can maintain current tape archive processes without any changes and yet achieve the benefits of deep onsite retention and fast recoverability of any or all data without tape via the Data Domain systems.

Most users can expect to cut their backup time significantly. Enterprises will reduce backup media expense and the uncertainty of never really knowing if that tape will restore or not. Backups can be completely automated, since there is no possibility of writing over the wrong tape.

LaserVault Backup is extremely affordable. It costs less than any tape drive of equivalent capacity, particularly if you include tape media cost, and it provides functions similar to virtual tape libraries costing many times more.

Reducing iSeries Backup Data

Data Domain systems are the industry's highest throughput, most cost-effective and scalable deduplication storage solutions for iSeries disk backup and network-based disaster recovery (DR). Data Domain systems store each unique data sequence only once and save significant physical storage capacity by substituting small references for each redundant data sequence. This technology is particularly well suited for backup data since there is typically a high degree of redundancy from one backup job to the next.

Data Domain systems offer an average of 10x-30x data reduction for enterprise iSeries backup data, enabling cost-efficient retention on disk for faster, more reliable recoveries. Local backups can now be effectively stored on local disk using a mere fraction of the capacity previously required, with data integrity protected by a full suite of operations built in to the Data Domain Data Invulnerability Architecture. These backups will be online and available for immediate recovery should the need arise. Vastly reduced data storage requirements can make it cost effective to keep weeks or months worth of iSeries backup data stored locally on Data Domain storage systems. And with all your backup data on disk, you can recover files in seconds, not hours.

Multi-site Disaster Recovery

Data Domain systems are also ideal for off-site WAN replication for disaster recovery, remote office data protection, or multi-site tape consolidation. With Data Domain deduplication storage, iSeries backup data set effective size is reduced by up to 99%, making WAN replication operationally feasible. This eliminates the need for expensive, high-bandwidth connections, as well as the need to move tapes offsite on trucks. With this data reduction, remote network-based backup and replication become viable and cost-effective for maintaining active backups at multiple locations.

Ultra-safe iSeries Backup Storage for Reliable Recovery

Data Domain Data Invulnerability Architecture provides the industry's best defense against data integrity issues. Unlike other enterprise backup solutions, this architecture provides continuous recovery verification to detect and protect against data integrity issues both during the initial backup and throughout the life cycle of the backup data. Data Domain storage systems are configured with dual disk parity RAID-6, so two disks can fail simultaneously and the system will remain healthy. Fans and power supplies are redundant and easy to replace for added system resilience.

For more information about LaserVault and Data Domain, visit www.datadomain.com/solutions/mainframe.html