ELIMINATING TAPE FROM YOUR BACKUP AND RESTORE PROCESS

A major challenge in the area of mainframe batch processing, DFHSM, archival and backup is the growth of information throughout the enterprise; some estimates say this can be as high as 60 percent per year. While tape has traditionally provided inexpensive storage for batch, backups, disaster recovery, and long-term archives, it does present a number of challenges. Today’s data centers face demand for better service-level agreements (SLAs), shorter backup and restore operations, and less complex and less costly tape management processes. Eliminating the risk of missing information due to lost or damaged tapes is a must.

The EMC Disk Library for mainframe is the leading mainframe Virtual Tape Library on the market today. The Disk Library for mainframe is available in two models; the DLm8100 for large enterprise data centers and the DLm2100 for smaller data centers. The two models share the functionality that virtual tape delivers, but can vary in scalability, performance, and storage platforms supported.

Disk Library for mainframe combines RAID 6 protected disk storage, hot-standby disks, tape emulation, deduplication, replication, and hardware compression. All are essential capabilities to provide your enterprise with a high-capacity and performance-oriented mainframe storage solution in the smallest possible footprint.

MANAGE ALL MAINFRAME TAPE USE CASES

In addition to traditional backup and recovery, mainframe tape is an active storage tier for space management and archive applications. Beyond backup, tape is used for production batch applications, fixed-content archival, and DFHSM migration that extends online storage for a variety of data types including information, billing records, and call center data. Unlike any other vendor, the Disk Library for mainframe supports all of the common mainframe tape use case workloads in a single platform.

The Disk Library for mainframe connects directly to the mainframe host via FICON channels and it appears to the mainframe operating system as 3480/3490/3590 tape drives. All tape commands are supported by the Disk Library for mainframe and it responds as physical tape drives. This means existing work processes, tape management systems, and applications can run without any modifications.

PERFORMANCE, SCALABILITY AND FLEXIBILITY

Volumes of data continue to increase while batch windows are shrinking and backup windows and recovery time objectives continue to decrease. Disk Library for mainframe provides a significant advantage over tape by eliminating physical tape mounts, robotic movements, tape rewinds, and drive contention. Batch and backup operations that took hours can now finish in minutes.
The Disk Library for mainframe stores each volser as an individual file on disk and only uses as much space as required, eliminating the need for tape stacking. As a result, when the tape management system issues a mount request, it is typically satisfied within one second. This feature is ideal for recall operations such as accessing fixed-content data or DFHSM recalls. With Disk Library for mainframe, the retrieval time for information is reduced from minutes via tape to just seconds via disk.

Disk Library for mainframe can help reduce CPU utilization by redirecting DFHSM workloads from tier-1 storage. By leveraging its disk-based performance and compression, you can migrate L0 data sets directly to ML2 and avoid ML1 processing, without compromising recall time.

The modular architecture of the Disk Library for mainframe allows FICON channels and storage capacity to be added non-disruptively as processing requirements change. FICON channels can be added up to the maximum supported in each system. Storage can be added to meet your storage requirements.

Disk Library for mainframe enables you to share tape drives between 64 active LPARs and SYSPLEX systems without the need for additional tape-sharing software on the mainframe, reducing CPU utilization and avoiding maintenance costs.

**MAINFRAME COMPATIBILITY AND SEAMLESS INTEGRATION**

The Disk Library for mainframe presents itself to the mainframe as native IBM tape drives. It easily integrates into your existing infrastructure without requiring changes to JCL or additional mainframe host software. With native IBM 3480, 3490, and 3590 tape drive emulation, you can leverage a Disk Library for mainframe system in IBM z/OS, z/VM, z/VSE or TPF and UNISYS OS2200 environments. The solution is transparent to all applications and provides fast throughput and consistent recovery times.

The Disk Library for mainframe works with the leading mainframe backup products including IBM DSS and Innovation Data Processing FDR and all leading Tape Management Systems including IBM RMM, CA-1, TLMS, BMC CONTROL-T, ASG ZARA, VM/Tape, BIM-EPIC, and others.

**FASTER BACKUP AND RESTORES**

Traditionally mainframe data centers have had to decide between faster backups and slower restores or slower backups and faster restores. With Disk Library for mainframe that compromise has been removed from the equation. The performance of the Disk Library for mainframe scales to over 6 GB/sec. Tape data is transmitted to the recovery site and mount requests are typically satisfied in less than one second, greatly reducing recovery times.

**DATA ENCRYPTION**

Your tape data can be encrypted at rest or during replication to a remote site. For data at rest the Disk Library for mainframe invokes VTE-based static Key Encryption on VNX storage, D@RE (Data at Rest Encryption) for VNX-based storage used by the Dlm (VNX5400 or VNX7600), D@RE for all Data Domain storage configurations within the DLm as well as D@RE for the VMAX 40K DLm configuration.
MULTI-SITE DISASTER RECOVERY
EMC replication software enables network-efficient replication to one or more disaster recovery sites. If confidentiality is required, data can be encrypted in-flight when being replicated between Data Domain systems.

Leveraging snapshot technology found in EMC storage systems, you can perform complete end-to-end DR testing with read/write capabilities on all tape data at the target site. This enables you to have 100 percent confidence in your disaster recovery (DR) readiness. In addition, replication continues uninterrupted during DR testing. When testing is complete, the snapshot is simply deleted without affecting the existing backup tape volumes.

REMOTE SUPPORT CAPABILITIES
The Disk Library for mainframe is protected by EMC’s Secure Remote Support (ESRS). ESRS proactively identifies and resolves potential issues before they impact your operations by providing secure, high-speed, around-the-clock remote support for your EMC information infrastructure. If unexpected issues arise, our proven processes ensure the fastest possible response, escalation, and resolution time to maximize information availability and reduce costs. With ESRS, we handle the workload so that you can devote more time to your business.

THE RIGHT STORAGE FOR YOUR REQUIREMENTS
The Disk Library for mainframe supports different storage platforms configurations that can be tailored to the specific needs of your environment.

VMAX Storage for Critical Tape Operations
The DLm8100 supports VMAX 40K and 20K storage arrays that utilize SRDF/S and Consistency Groups to insure Universal Data Consistency between DASD and tape data at identical points in time in production and recovery sites. By having this consistency, customers can benefit from the fastest possible recovery with highly available and predictable results. The DLm8100 also supports for SRDF/A using Multisession Consistency (MSC) for an out-of-region data center supporting a three-site STAR configuration. EMC’s Geographically Dispersed Disaster Restart (GDDR) product automates disaster restart of applications and systems in mainframe environments in the event of a planned or an unplanned outage.

VNX Primary Storage
VNX storage delivers industry-leading innovation and enterprise capabilities. The VNX combines powerful and flexible hardware with advanced efficiency, management and data protection software to meet the demanding needs of today’s enterprises. VNX also supports guaranteed replication so you will know the status of tape files at the recovery site and WORM support for fixed content archive.

The DLm2100 supports a single VNX5400 with usable capacity of up to 221 TB. As of release 4.3, the DLm8100 supports one or two VNX7600 or VNX5400 platforms with a total capacity of 3.1 PB usable.
**Data Domain Deduplication Storage**

The Disk Library for mainframe can be configured with Data Domain storage systems. Deduplication reduces the amount of disk storage needed to retain and protect data by an average to 10-30 times. This greatly reduces the amount of disk storage needed to safely store your tape data and also is beneficial with replication to a recovery site since the amount of data to be transmitted is reduced.

The DLM2100 supports a variety of Data Domain storage platforms (DD2200, DD4xxx, DD7200 and DD990 currently). With logical capacity ranging from 83TB to 5.7 PB.

The DLM8100 supports one or two DD990 or DD7200 storage systems with a total logical capacity of up to 11.4 PB each.

**Concurrent VNX and Data Domain Storage**

The DLM8100 offers concurrent support for both primary and deduplication storage within the same platform. Tape data can be directed to the appropriate storage based on its intended use. For example, backup operations can be directed to deduplication storage where the data footprint will be minimized, significantly reducing storage and replication costs. Unique data types, such as DFHSM migration, can be directed to primary storage and will be available for near-instantaneous recalls. One VNX (either VNX5400 or VNX7600) and one Data Domain storage model (DD990 or DD7200) can be intermixed behind the DLM8100, combining the best performance-based storage and deduplication storage.

**Mixed Use For Mainframe And Distributed Systems**

The Data Domain storage system attached to the DLM can be shared with other non-mainframe server platforms concurrently. This streamlines your entire backup process into a single storage platform reducing overhead and simplifying management. This feature is specifically designed to address the needs of enterprises that desire a converged mainframe and distributed systems approach to data protection. Release 4.3 simplifies this sharing of Data Domain Storage by supporting the Data Domain Mtree directory structure.