LUMINEX™
MODERN MAINFRAME DATA SOLUTIONS

MVThsm™: Off-Host HSM Recycle

OPTIMIZE ML2 CAPACITY AND MANAGEMENT

ML2 without the Tradeoffs

Since its introduction, HSM Migration Level 2 (ML2) has offered enterprises a tradeoff: virtually extend the capacity of fast and expensive mainframe DASD in exchange for slower access times and expensive mainframe MIPS to manage expired data sets. The advent of virtual tape improved access times, but the CPU cost for management remains a challenge for many data centers.

Luminex MVT Off-Host HSM Recycle (MVThsm) shifts capacity optimization, normally achieved by the HSM recycle process, to the tape infrastructure itself without mainframe CPU cycles for tape reads/writes or HSM Catalog Data Set (CDS) updates.

How it Works

MVThsm is a lightweight started task that gathers a list of expired ML2 data sets from the mainframe's Tape Table of Contents (TTOC) at customizable intervals and sends it to Luminex Mainframe Virtual Tape (MVT) via FICON. The MVT compares the expired/valid data set ratio for each tape in the library against a pre-configured value and, much like HSM on the mainframe, writes a new tape that only includes valid data. Unlike host-based HSM, MVThsm performs the compare and read/write processes without mainframe I/O or MIPS. Additionally, MVThsm rewrites the valid data sets to a capacity-optimized clone of the original VOLSERs, eliminating the need to update the HSM CDS and improving performance with each successive cycle.

Block for Block, Kilobyte for *Byte*

Updating the HSM CDS is the most resource intensive aspect of the recycle process. The block IDs for every data set on the affected tapes must be updated so that HSM can find those data sets for future use and management.

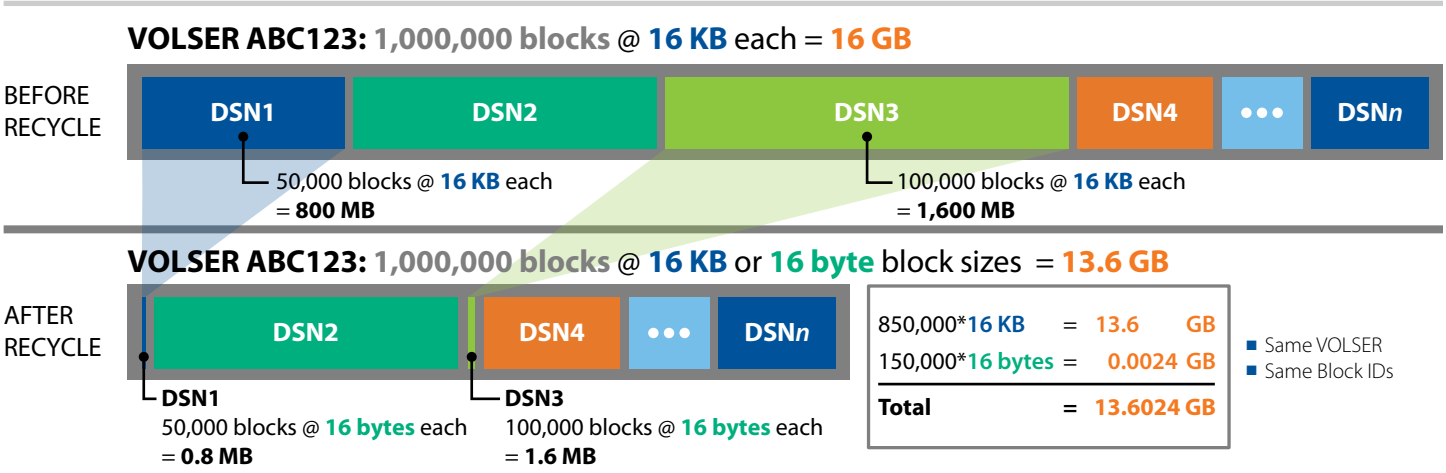
MVT 2.0™

Features

- Off-host HSM capacity optimization for ML2 data
- Configurable thresholds and scheduling

Benefits

- Reclaim virtual tape storage capacity
- Eliminate MIPS for:
  - Tape read/write
  - HSM Catalog Data Set updates
- Performance improves with each optimization
  - Full tape reads/writes
  - Tape replication
- Enables greater flexibility for scheduling and migration policies
- Reduced capacity requirements for virtual tape system



MVThsm replaces 16 KB blocks of expired data sets with 16 byte blocks, reducing space used by expired data sets by 99.9%. This enables the remaining valid data sets to be referenced by the same block IDs on the same VOLSERs without updating the HSM CDS.

MVThsm eliminates the need to update the CDS after each optimization by improving a key factor in HSM's approach. HSM writes data in 16 KB blocks and references those block IDs in the CDS. By effectively re-writing expired data sets as 16 byte blocks, all of the remaining valid data sets can retain their original block ID and VOLSER references. The expired data sets are reduced in size by 99.9%, thus freeing up virtual tape capacity without mainframe resources.

Performance Continuously Improves

The benefits also improve with each successive cycle. With HSM recycle, tapes are read in their entirety and the remaining valid data sets are stacked on a new tape that is written to capacity. A full virtual tape takes longer to read for the next recycle and takes longer to replicate when compared to a partial capacity tape. In contrast, MVThsm reduces the used capacity on existing HSM tapes with each optimization. These tapes, with less data to read in and less data to replicate, enable the process to continuously improve over time.

Greater Flexibility, Lower Capacity Requirements

Performing HSM capacity optimization off-host frees the process from mainframe scheduling restrictions, enabling more frequent optimization and greater flexibility in migration policies. HSM users can now free up more virtual tape capacity using more aggressive scheduling and lower valid/expired ratio thresholds to maintain a lower requirement for total virtual tape capacity.

For existing Luminex MVT users with growing capacity requirements, adding MVThsm will reclaim storage that can extend the life of the solution past its originally designed lifecycle. And, new MVT users can migrate from larger virtual tape systems into more cost and capacity efficient MVT solutions and see even better performance.

Data centers that rely on HSM recycle for ML2 can now take advantage of a more efficient and flexible off-host approach, freeing mainframe resources for mission critical tasks, postponing system upgrades and improving its value to the enterprise.

Additional MVT Options

- **Synchronous Tape Matrix™ (STM)**
  True continuous availability for mainframe virtual tape
- **Luminex Replication**
  Improve your disaster recovery plan with remote replication to one or more DR sites with replication monitoring
- **RepMon™**
  Replication monitoring and auditing at the VOLSER level
- **Push Button DR**
  Disaster recovery and testing with "push button" ease
- **CGSafe™**
  Encryption and key management
- **CloudTAPE™**
  Replace physical tape archives and/or third copy backups with always available, geographically dispersed and secure cloud storage
- **MVT Vault™**
  Cost-effective virtual tape vaults for remote, off site storage
- **P2V™**
  Off-host conversion of 3490 or 3590 physical tapes to virtual tapes for remote, off-site archives
- **Multitenancy Management**
  Manage multiple tape subsystems for hosted clients or internal business units while providing tenants with an isolated view and feature subset
- **Tape Migration Software and Services**
  Seamlessly transition physical and virtual tapes with exact copies of original VOLSER numbers and labels
- **LTMon™**
  Integrated, centralized management from the mainframe console

About Luminex

Luminex serves as a trusted advocate helping enterprise customers protect, manage, and leverage corporate data assets by developing and delivering high quality, innovative technology solutions.

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