

# z/OS V21R13

## DFSMSHsm: SDSP performance improvements

### Session objectives

At the completion of this session, you will be able to:

- Understand the performance improvements made to DFSMSHsm's SDSP (small data set packing) processing.

### Overview

- Problem Statement 1:
  - Installations use DFSMSHsm's SDSP to manage millions of small data sets as well as the ARCMMEXT (migration exit) to keep these small data sets on ML1 to reduce the migration overhead cost to ML2. Currently, DFSMSHsm goes through its queue scanning and SDSP serialization for each data set, which includes those that the ARCMMEXT will later reject for migration. This processing is not very efficient if the ARCMMEXT rejects the request to migrate the data set.
- Solution
  - Move the point of invocation for the ARCMMEXT to before the queue scanning and SDSP serialization.
- Benefit / Value
  - Data sets will no longer go through the overhead of secondary space management (SSM) processing for those data sets that the ARCMMEXT will later reject for migration. Performance improvements should be seen in installations with high SDSP utilization that use the ARCMMEXT.
- Problem Statement 2:
  - Currently HSM takes the ML1 volumes with SDSPs in the order in which they were added with ADDVOL, using the same ones repeatedly until they are full. This results in RECALL contention problems and SDSP full conditions which requires a reorganization of the SDSP.
- Solution
  - Create a balanced SDSP selection algorithm that is based on free space rather than ADDVOL sequence.
- Benefit / Value
  - The new balanced SDSP selection algorithm will fill the SDSPs evenly, resulting in less reorg's and less contention problems.
- DFSMSHsm's secondary space management (SSM) will now only go through the queue scanning and SDSP enqueueing for those data sets that were actually going to be migrated.
  - The ARCMMEXT exit will now receive control first during the MCD scanning to validate whether the data set is eligible to be migrated.
  - Then, if the data set is going to be migrated, DFSMSHsm places the data set onto the SMQE migration queue.
  - If the ARCMMEXT rejects the data set for migration to ML2, then no additional SSM overhead is done.
- The new balanced SDSP selection algorithm is always used in z/OS V1R13 DFSMSHsm.
- The main criterion for the SDSP data set selection is the free space in the SDSP data set.
- Free space will be calculated during two time periods of SDSP processing:
  - During ADDVOL processing
  - When an SDSP is closed at the completion of processing data
    - Note: This enhancement takes into account the VSAM CA reclaim feature.
- Calculate SDSP Free Space
  - SDSP free space is calculated using High Allocated and High Used RBA values for base DATA and INDEX components. If you use the CA Reclaim feature for VSAM, this free space will be increased by the free space of reclaimed CAs.

### Usage and invocation

- No special usage or invocation is necessary. This enhancement is meant to be utilized in installations that have a large number of SDSPs and have implemented the ARCMMEXT to reject the migration of some SDSP data sets to ML2 during the secondary space management (SSM) window.

### Interactions and dependencies

- None

### Migration and coexistence considerations

- None

### Installation

- None

### Session summary

- There are two main focus areas addressed in this support:
  - Moving the point of invocation for the ARCMMEXT to reduce unnecessary overhead.
  - Introduction of the new balanced SDSP selection algorithm.

### Appendix - References

- Publication - z/OS DFSMS Installation Exits, SC26-7396-14