z/OS V1R13

DFSMShsm: CDS backup improvements

Session objectives
▪ Review the two performance improvements to CDS backup provided in this line item
  – Non-intrusive journal backup
  – ARCCAT release

Overview: Non-intrusive journal backup
▪ Problem Statement / Need Addressed
  – During the backup of DFSMShsm control data sets (CDS), DFSMShsm activity is quiesced to ensure integrity of the backup. While Concurrent Copy can reduce the backup of each control data set to a few seconds, the backup of the journal can take many minutes. This can impact production processing as jobs may be waiting for DFSMShsm recalls, recoveries, or backups.
▪ Solution
  – The journal is a sequentially written data set and as such, allowing DFSMShsm activity to continue during the backup of the unchanged data would not impact the integrity of the backup.
▪ Benefit / Value
  – The time that DFSMShsm is quiesced during CDS backup would change from many minutes to only a few seconds. This could reduce delays to production processing.

Usage and invocation: Non-intrusive journal backup
▪ No invocation: Non-intrusive journal backup will be automatically performed when the installation requirements are met. If the installation requirements are not met, the existing technique or "Quiesced Journal Backup" will be performed.
▪ ARC0750I is an existing message that will indicate if the journal backup technique is non-intrusive or quiesced. When Quiesced is indicated, the message will also indicate the reason why non-intrusive backup was not performed.

Interactions and dependencies: Non-intrusive journal backup
▪ None

Migration and coexistence considerations: Non-intrusive journal backup
▪ Migration Considerations: None
▪ Coexistence Considerations: APAR OA32993 provides coexistence maintenance for lower-level systems which coexist (share resources) with V1R13 hosts.

Installation: Non-intrusive journal backup
▪ Non-intrusive Journal Backup will be performed on DFSMShsm hosts with the following configuration:
  – *SETSYS JOURNAL(RECOVERY)* is specified
  – *SETSYS CDSVERSIONBACKUP(DATAMOVER(DSS))* is specified
  – MCDS, BCDS, and OCDS are SMS-managed
  – Each CDS's management class indicates a BACKUP COPY TECHNIQUE other than STANDARD

Overview: ARCCAT release
▪ Problem Statement / Need Addressed
  – CDS backup requires an exclusive enqueue on the resource with major name ARCCAT and minor name ARCGPA for non-RLS CDSs or ARCENQG for RLS CDSs. Long running functions in DFSMShsm may hold this resource for indefinite amounts of time causing CDS backup to wait. Newly started functions then must wait for CDS backup to obtain and release the resource before they can start. This can lead to many minutes of delays to production processing that may rely on DFSMShsm functions to complete.
▪ Solution
  – Have all functions release the ARCCAT resource when CDS Backup starts so that CDS Backup completes quickly. Pending CDS updates are allowed to complete before release of ARCCAT and new updates are held until CDS Backup completes, ensuring integrity of backup.
▪ Benefit / Value
  – Newly started DFSMShsm functions are not required to wait until CDS Backup can obtain the resource, complete backup of the CDS's, and then release the resource. Production processing that may rely on these functions will not be delayed.

Usage and invocation: ARCCAT release
▪ ARCCAT release will be performed on all R13 systems automatically.

Interactions and dependencies: ARCCAT release
▪ Software Dependencies
  – None
▪ Hardware Dependencies
  – For configurations with multiple DFSMShsm hosts in an HSMplex, XCF services are required to communicate the start of CDS Backup to other hosts.

Migration and coexistence considerations: ARCCAT release

- Migration considerations: None
- Coexistence considerations: An APAR is not necessary for lower level systems. Only hosts on V1R13 systems will perform ARCCAT Release.

Installation: ARCCAT release

- None.

Session summary

- Non-intrusive journal backup will minimize the time that DFSMShsm activity is quiesced during CDS backup.
- The ARCCAT release function will ensure CDS backup can start and complete quickly so that newly started functions are not delayed due to contention for the ARCCAT resource.

Appendix - References

- z/OS V1R13.0 DFSMShsm Storage Administration (SC35-0421-12)
- z/OS V1R13.0 DFSMShsm Implementation and Customization Guide (SC35-0418-12)
- z/OS V1R13.0 MVS System Messages, Vol 2 (ARC-ASA) (SA22-7632-21)