IBM Education Assistance for z/OS V2R2

Items: Index Record Locking
Secondary Space Reduction

Element/Component: VSAM RLS

Material current as of May 2015

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Presentation Objectives

- Introduce Index Record Locking and Secondary Space Reduction

Overview

- **Problem Statement / Need Addressed**
  - There is a single point of contention (DIWA) preventing concurrent VSAM RLS data CI splits in different CAs, CI reclaims, and spanned-record insertions and updates
  - Spanned-record segments are written separately with multiple I/O requests, causing performance issues and possible inconsistent segments
  - Large amounts of free space which is less than what the user specified for secondary allocation amount is left unused on the current volume
- **Solution**
  - Introduce a new level of serialization at the sequence set index CI level
  - Chain the spanned-record segments so only two I/O requests are made
  - Allow secondary allocation of a reduced specified %, so the less-than-full-secondary free storage on the current volume can be utilized

Usage & Invocation

- Benefit / Value
  - Improved performance. Performance test results were very promising. Reduces the window for inconsistent spanned-record segments. Less DASD storage is wasted unused.
  - The usage for index record locking and spanned-record chained I/O is automatic and transparent to the user. No changes are required to use/invoke the new functions.
  - To activate 'secondary space reduction', specify “Reduce Space Up To(%) (0 to 99)” in the ISMF data class panel.

Usage & Invocation

New SMF fields were added to MVS System Management Facilities (SMF) for the new index record locks

- SMF42xxH* – No. of component_1 class_4 (index record) locks (obtain/alter/promote).
- SMF42xxI* – No. of component_1 class_4 (index record) locks that caused true contention.
- SMF42xxJ* – No. of component_1 class_4 (index record) locks that caused false contention.
- SMF42xxK* – No. of component_1 class_4 (index record) release lock requests.

* where xx = FP (Subtype 15, sysplex wide), FS (Subtype 15, per system), GS (Subtype 16, sysplex wide), GT (Subtype 16, per system), HE (Subtype 17, sysplex wide), HJ (Subtype 17, per system).

Migration & Coexistence Considerations

- For index record locking, toleration APAR OA42676 is required to be applied on all V1R13 and V2R1 systems around the sysplex prior to bringing in any V2R2 systems.
- Releases prior to V1R13 cannot be in the same sysplex as V2R2 systems. Broken data sets can occur as index record locking is a serialization change.

Installation

- Toleration APAR OA42676 requires a re-IPL to install correctly.

Presentation Summary

- For index record locking, toleration APAR OA42676 is required to be installed on all systems at V1R13 and V2R1 prior to bringing in a V2R2 system.
- Index record locking and spanned-record chained I/O require no new or changed externals; the functions run automatically and cannot be disabled.
- 'Secondary space reduction' requires specification of a reduced % of secondary allocation amount in the ISMF data class panel.

Appendix

- MVS System Management Facilities (SMF) SA38-0667-02