z/OS V1R13

BCP program binder: Reuse of DESERV connections

Session objectives

- To gain an understanding of the Reuse Connections line item, and answer questions:
    – What problem does this line item solve?
    – What activity uncovered this issue?

Overview

- **Problem Statement / Need Addressed**
    – There was a 64K member limit when using IEBCOPY between a PDS and PDSE, if copying all members with REPLACE. Exceeding this limit resulted return code 8 with the following messages:
        - IGW01204T BINDER ENCOUNTERED AN I/O ERROR WHILE PROCESSING MEMBER nnnnnnnn BINDER RETURN CODE = X'0000000C' REASON CODE = X'83000406'
        - IEB1130E A TERMINATING MESSAGE FROM PDSE PROCESSING APPEARS ABOVE DIAGNOSTIC INFORMATION IS X'281400CC'
    – IEBCOPY uses the binder API for PDS <=> PDSE copy:
        - Create Dialog and Workmod
        - INCLUDE, RESETW …
        - …
    – Other applications using Binder API to process over 64K dataset members or UNIX files would have been impacted.
        - INCLUDE call will get RC=12, reason code =0x83000513
        - Binder will issue message IEW2702S
            – IEW2702S D40B GET DIRECTORY ENTRY FAILED FOR MEMBER NAME nnnnnnnn, DDNAME NAME OUTPUT. DIRECTORY SERVICES ISSUED RETURN CODE 16 AND REASON CODE 2708043D
            – RSN 2708043D <=> DESRS_CONNID_OVERFLOW is issued when the maximum limit of 65,536 connections has been reached.
    – Binder did not ever release any CONNIDs !
    – The problem was originally documented by SUG APAR OA11043, with slightly different symptoms.
        - 0F4 RSN27080404 MORE THAN 64K CONNIDS RUNNING SOFTAUDIT LARGE PDS/E
            – - DFSMS APAR OA11643 will address the 0F4 abend, so that if the limit is exceeded the existing binder message IEW2702S will be issued without any abend. The future binder change will address the 65536 limit.
        - IEW2702S D40B GET DIRECTORY ENTRY FAILED FOR MEMBER NAME nnnnnnnn, DDNAME NAME OUTPUT. DIRECTORY SERVICES ISSUED RETURN CODE 16 AND REASON CODE 2708043D
            – - RSN2708043D <=> DESRS_CONNID_OVERFLOW is issued when the maximum limit of 65,536 connections has been reached.
- **Solution**
    – Explicitly DESERV release connections
        - On RESETW and DELETEW
            – Fixes IEBCOPY problem
            – Note that RESETW only releases the connections when using INTENT=ACCESS
        - During AUTOCALL
            – Prior to subsequent library processing
                » Eliminates potential problems with lots of libraries
                » Common code paths (freeing SMDEs and so on.)
- **Benefit / Value**
    – Ability to use IEWBCOPY to copy over 65536 members between PDS and PDSE
    – Ability for other API applications to process over 65536 dataset members or UNIX files
    – Addresses potential issue with AUTOCALL where a very large number of libraries are used

Usage and invocation

- Using IEBCOPY to copy all members from between a PDS and PDSE (which uses Binder API)
- Using the Binder API directly, INCLUDE over 64K dataset members.
    – RESETW(with INTENT=ACCESS) or DELETEW API calls now release all connect IDs, enabling an application to use Binder API to process over 64K members

Interactions and dependencies

- None

Migration and coexistence considerations

- None

Installation

- None

Session summary

- An application using the Binder API to INCLUDE over 65536 dataset members or UNIX files would encounter Binder errors and/or an 0F4 abend.

- A common scenario to reproduce this error was using IEBCOPY to copy over 64K members of a dataset from a PDS to a PDSE, or vise versa.
- The issue was resolved by adding calls to DESERV to release connections in RESETW and DELETEW API calls.
- A potential AUTOCALL issue was also addressed in a similar fashion.

Appendix - References

- Publications:
    - SA22-7643-11 z/OS V1R13.0 MVS Program Management: User's Guide and Reference
    - SA22-7644-13 z/OS V1R13.0 MVS Program Management: Advanced Facilities