z/OS V2.5 IBM Education Assistant

Solution Name: Support for more than 2048 structures in CFRM

Solution Element(s): XCF/XES

Agenda

- Trademarks
- Objectives
- Overview
- Usage & Invocation
- Interactions & Dependencies
- Upgrade & Coexistence Considerations
- Installation & Configuration
- Summary
- Appendix

Trademarks

- See url http://www.ibm.com/legal/copytrade.shtml for a list of trademarks.
- Additional Trademarks:
  - “None”.

Objectives

- The maximum number of structures within the CFRM couple data set has been increased from 2048 structures to 4096 structures.

Overview

- Who (Audience)
  - Service providers, Cloud providers, and (some) Banking Service providers, need to increase the number of clients they can accommodate within a Sysplex.
- What (Solution)
  - Increase the maximum number of XCF structures that can be defined (and used) from 2048 to 4096 structures.
- Wow (Benefit / Value, Need Addressed)
  - Improved sysplex scalability

Usage & Invocation

- Run the couple data set utility (IXCL1DSU) to format CFRM couple data sets for more than 2048 structures
  - ITEM NAME(STR) NUMBER(4096)
- Switch in the new CRFC couple data sets
  - SETXCF COUPLE,TYPE=CFRM,ACOUPLE=*New.primary.CFRM.dataset*
    - *Bring new primary CFRM couple data set on as the alternate*
  - SETXCF COUPLE,TYPE=CFRM,PSWITCH
    - Make the new CFRM couple data set the primary
  - SETXCF COUPLE,TYPE=CFRM,ACOUPLE=…. *New.alternate.CFRM.dataset*
    - *Bringk on a matching alternate.*
- Use the IXCMIAPU utility to define CFRM Policies with the structures needed

Interactions & Dependencies

- Software Dependencies
  - Lock, and serialized list, structures use a unique XCF GROUP (IXCLO000 to IXCLOFFF) for each allocated lock and serialized list structures. The maximum of 2045 active XCF GROUPS remains unchanged.
- Hardware Dependencies
  - Each CFCC image is limited to 2047 structures each. There must be enough CFCC images available in the Sysplex to accommodate the number of structures that are planned to be allocated at any time.
  - Current hardware is limited to 2048 list vectors and 2048 cache vectors per LPAR, therefore, only 2048 cache structures, and 2048 list structures with vectors assigned (Minus one for each CF) can be allocated at any one time.

Upgrade & Coexistence Considerations

- To exploit this solution, all systems in the Sysplex must be at the new z/OS level: No
  - Coexistence APAR (OA60356) must be applied on all (lower level) systems in the sysplex.
  - Coexistence APAR will be available for z/OS V2.3, and V2.4
- A CFRM couple dataset formatted for more than 2048 structures will be rejected if any system in the Sysplex does not support Greater Than 2048 Structures.
- If the Sysplex is using a CFRM couple data set formatted for more than 2048 structures, and new system that does not support Greater Than 2048 Structures is IPLed into the Sysplex, CFRM services will not be available to the new system.
  - If CFRM services are required (for example GRS STAR, or only XCF signal structures are specified), the new system will wait state.
- Once a primary CFRM couple data set formatted to support more than 2048 structures is brought into use within the sysplex, a Sysplex-wide IPL is required if it becomes necessary to fall back to a CFRM couple data set that is formatted for fewer structures.

Installation & Configuration

- PTFs for OA60356 must be applied (via rolling IPL) to all non-V2.5 systems in the Sysplex.
- Run the couple data set utility (IXCL1DSU) to format CFRM couple data sets for more than 2048 structures
  - ITEM NAME(STR) NUMBER(4096)
- Switch in the new CRFC couple data sets
  - SETXCF COUPLE,TYPE=CFRM,ACOUPLE=*New.primary.CFRM.dataset*
    - *Bring new primary CFRM couple data set on as the alternate*
  - SETXCF COUPLE,TYPE=CFRM,PSWITCH
    - Make the new CFRM couple data set the primary
  - SETXCF COUPLE,TYPE=CFRM,ACOUPLE=…. *New.alternate.CFRM.dataset*
    - *Bring on a matching alternate.*
- Use the IXCMIAPU utility to define CFRM Policies with the structures needed

Summary

- The maximum number of XCF structures that can be defined (and used) has increased from 2048 to 4096 structures.

Appendix

- z/OS MVS Setting Up a Sysplex(SA23-1399)
  - Format utility for couple data -> Coding the couple data set format utility->CFRM parameters for format utilityChange the Maximum value for the NAME(STR) NUMBER( ) from 2048 to 4096

    `ITEM NAME(STR) NUMBER( )`
    Specifies the number of coupling facility structures that can be defined in one policy. This number refers to structure definitions, not to the number of allocated structure instances. One structure definition can refer to more than one allocated structure instance, as would be the case for a structure that was being rebuilt or duplexed. (Default=50, Minimum=1, Maximum=**4096**)