IBM Education Assistance

Solution (Epic) Name: JES2 Multi Job NJE Job Streams

Agenda

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- Session Objectives
- Overview
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- Interactions & Dependencies
- Migration & Coexistence Considerations
- Installation
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Trademarks

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

Session Objectives

- Discuss the changes to how NJE was updated to support multiple jobs in a single job stream
  - Done for JES3 but benefits JES2
- Discuss impacts to exits, etc

Overview

- Who (Audience)
  - Customers looking for JES3 behavior in JES2
  - JES2 customers wanting to submit multiple jobs in one NJE stream
- What (Solution)
  - Removal of the restriction of a single batch job per NJE job stream
- Wow (Benefit / Value, Need Addressed)
  - Can now send a set of jobs to a node and have them processed by input processing in the correct order
    - Send a JOBGROUP defining jobs and all the jobs related to the job group in one NJE job stream

Usage & Invocation

- JES2 restrictions only allowed one job object per NJE job stream
  - Between one job header and job trailer
  - In the data after a /*XMIT or a //XMIT
  - Includes JOBs and JOBGROUPs
  - If a second object is encountered, all jobs in the stream fail INPUT
- This property is enforced on the receiving node
  - Problem for existing NODE that migrates from JES3 (supports multiple jobs) to JES2 (did not support)
- This support removes the 1 job per NJE restriction
  - There is no external to enable this support
  - Existing JCL streams can create these jobs

Usage & Invocation

- Example : /*XMIT stream with JOBGROUP and two JOBs :

```
//XMITTST  JOB    MSGLEVEL=(1,1),MSGCLASS=A,USER=IBMUSER,TIME=1440,
//         PASSWORD=IBMUSER
/*XMIT     N2 DLM=ENDXMIT
//*
//*-------------------------------------------------------------
//*  JOBGROUP XMJG0001 :     XMJOBA --> XMJOBB
//*-------------------------------------------------------------
//XMJG0001 JOBGROUP OWNER=IBMUSER,PASSWORD=IBMUSER
//*
//XMJOBB   GJOB
//         AFTER NAME=XMJOBA,WHEN=(RC=0)
//*
//XMJOBA   GJOB
//*
//XMJG0001 ENDGROUP
//*------- JOB : XMJOBA ----------------------------------------
//XMJOBA   JOB TIME=NOLIMIT,REGION=0K,MSGCLASS=A,CLASS=A,
//         TYPRUN=HOLD
//         SCHEDULE JOBGROUP=XMJG0001
//STEP1    EXEC PGM=IEFBR14
//*------- JOB : XMJOBB ----------------------------------------
//XMJOBB   JOB TIME=NOLIMIT,REGION=0K,MSGCLASS=A,CLASS=A,
//         TYPRUN=HOLD
//         SCHEDULE JOBGROUP=XMJG0001
//STEP1    EXEC PGM=IEFBR14
//*-------------------------------------------------------------
ENDXMIT
```

Usage & Invocation

- Example Discussion :
  - The example above allowed us to package a JOBGROUP definition and it's two constituent JOBs into one NJE transmission unit.
    - We are guaranteed the JOBGROUP will be processed first and therefore will exist on the receiving node before the constituent JOBs are processed.
  - Previously, the only way to do this would be to send each JOBGROUP/JOB separately (via three separate /*XMITs).
    - Due to NJE transmission timing, the constituent JOBs could potentially be received and processed before the JOBGROUP definition….resulting in job failure.

- In summary, packaging all JOBs and JOBGROUPs that 'belong together' in a single /*XMIT unit is easier to understand and can eliminate potential NJE transmission timing issues.

Usage & Invocation

- Exception processing Considerations:
  - The transmission line may go down externally or via a $E LNE command.
  - If the line goes down during the processing of a multiple JOB/JOBGROUP XMIT stream, all jobs will be purged from the receiving node and the entire stream must then be resubmitted.
  - This exception processing behavior is similar to how single JOB XMIT streams have always been handled.
    - However, because multiple JOBs/JOBGROUPs are being processed, the timing window can obviously be much larger.

Interactions & Dependencies

- To exploit this item, all systems in the Plex must be at the new z/OS level: No, only the NJE node receiving the job stream,
  - However it is recommended it be on all members that do NJE

- Software Dependencies :
  - Increased buffer and memory usage will be observed.
  - For SNA, buffer (EXTBUF and HDRBUF) limits may need to be adjusted to avoid running out of buffers the processing of multi job XMIT streams.
    - EXTBUFs can be adjusted using : **$T BUFDEF,EXTBUF=(LIMIT=nnnn)**
    - HDRBUFs can be adjusted using : **$T NJEDEF,HDRBUF=(LIMIT=nnnn)**
- Hardware Dependencies :
  - None
- Exploiters
  - None

Migration & Coexistence

- Migration considerations :
  - None
- Coexistence considerations:
  - No technical coexistence considerations.
  - However, note that :
    - V2.4 members are the only members that will accept a multi JOB/JOBGROUP XMIT stream.
    - Downlevel (pre v2.4) members will reject a multi A Multi JOB/JOBGROUP XMIT stream in the same way they always have been rejected.
    - Therefore, ensure your receivers are at release 2.4 on the receiving node.

Migration & Coexistence

- Change to order of processing
  - When a second (or later) JOB/JOBGROUP card is encountered, processing of the current job is suspended.
    - Job remain busy (active) in input on the NJE receiver
  - Subsequent jobs are likewise processed (old job suspended to process new)
  - Once the job trailer is received, all suspended job go through final processing
- May look “funny” to someone observing jobs in INPUT phase
- This change can result in exits for multiple jobs on the same device to be intertwined
  - Early job exits for all jobs called first, then the end of job exits for all the jobs
  - Environment for the exit (control blocks etc) is not changing
- No changes to exits are anticipated

Installation

- None

Appendix

- Publications
  - z/OS V2R4.0 JES Application Programming – SA32-0987-40
  - z/OS V2R4.0 JES2 Commands – SA32-0990-40
  - Z/OS V2R4.0 JES2 Diagnosis - GA32-0993-40
  - z/OS V2R4.0 JES2 Initialization and Tuning Guide – SA32-0991-40
  - z/OS V2R4.0 JES2 Initialization and Tuning Reference – SA32-0992-40
  - z/OS V2R4.0 JES2 Installation Exits – SA32-0995-40
  - z/OS V2R4.0 JES2 Macros – SA32-0996-40
  - z/OS V2R4.0 JES2 Messages – SA32-0989-40
  - z/OS V2R4.0 MVS JCL Reference - SA23-1385-40
  - z/OS V2R4.0 MVS Using the Subsystem Interface – SA38-0679-40