z/VSE Live Virtual Class 2013

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z/VSE Release Migration Considerations Part 2

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Agenda

PART 1

- Planning Issues
  - New Hardware
  - Performance
  - System layout
  - Optional and Vendor Products
  - Test
  - Latest Service, RSL, PSP
- Migration Options
  - FSU – Fast Service Upgrade
  - Initial Installation

PART 2

- Independent Migration Issues
  - Migration of VSAM and other Data
  - Security Setup
  - Compiler/Languages
  - Performance Considerations
  - Hardware Issues
  - Vendor Software

Performing an Initial Installation

Initial Installation is described in the Installation manual, for details concerning layout, configuration see also Planning.

After Initial Installation, optional and vendor products must be installed.

- Startup and hardware must be configured
- VSAM catalogs and data must be established
- POWER Files must be loaded
- CSD File needs to be updated
- DTSFILE (ICCF) user libraries restore
- DB2 and DLI data if available, Install and restore database
- Security setup (IESCNTL and BSTCNTL)
- Other data

Many of above actions are not required with FSU

Parts are documented in the CICS Migration Guide and Administration

Check List Initial Installation

Please also see Installation Guide and Installation worksheet there.

- Check if all startup procedures of previous release are available (ICCF, CMS, Volley ...)
- Under VM – prepare the new VSE guest (CMS profiles, storage, OSA etc.)
- Select large enough system packs
- Select correct environment
  - Correct VSIZE, processor storage – consider NOPDS
- Install extended Base, Optional and Vendor Products
- Reestablish ICCF, POWER queues and generation
- Re-establish your startup procedures
- Migrate user profiles and BSTFILE – SKBSTSAV
- Reestablish VSAM data
- Reestalish data base
- Reestablish applications
  - CSD
  - Application libraries
  - Check LE and language setup
- Test

Migration of VSAM Data and Other

VSAM (not required for FSU, but recommended)

- VSAM Backup/Restore
- VSAM catalogs with EXPORT-DISCONNECT and IMPORT-CONNECT
- Please carefully check definition of models used for workfiles on other disks than DOSRES or SYSWK1
- Entire catalogs can also be copied using Flashcopy
  - For each catalog, all disks where it owns space has to be flashed
  - Be aware that disks have to have same model type, e.g. 3390-3.

Other data

- Entire disks can be copied using:
  - FCOPY
  - IXFP Flashcopy
  - DDR

For the two system packs, make sure in case of DDR that the system is down. For FCOPY standalone FCOPY is recommended for the system packs. If the master catalog or VSESPUC catalog have storage on disks other than DOSRES or SYSWK1, these volumes also have to be saved.

Migration of Databases

DLI
- Take data base backups
- Data base can also be migrated
- Be aware of different releases, DLI 1.10 on CICS/VSE and DL/I 1.11 are no longer supported (z/VSE 4.3.x and higher). Migration to DL/I 1.12 is required.
- Do not use disk copies – DDR or FCOPY while data base is in use

DB2
- Use DB2 Data Restore feature

Other Data Bases
- Use the tools provided by the data base provider

Migration of POWER Files

FSU

- Files are migrated automatically, no POFFLOAD required
- It might help in fallback case to take POFFLOAD BACKUP
- For older systems (before VSE/ESA 2.7) Cold start is done requiring POFFLOAD
- Shared Spool during FSU requires special emphasis, an IPL procedure without the SHR attribute on POWER disks and POWER generation without share are recommended.

General

- Migration with POFFLOAD on a tape (VTAPE)

Shared Spool

- Conversion of POWER files is not recommended, POFFLOAD and cold start from the master system is recommended.

Migration of CICS CSD

FSU

- IBM provided groups like VSESPG, VSETYPE LE-Group CEE are upgraded
- User definitions are not changed.
- Upgrade only works with CSD file with DLBL in standard label area
- Upgrade for production CICS PRODCICS see skeleton SKCSDFC2

Initial Installation

- Standard CSD file will be established
- In order to migrate CSD from old system we recommend:
  - Save (VSAM Repro) new IBM provided CSD
  - Copy old CSD (VSAM Repro), and run SKCSDFIL to upgrade to current level.

Migration of ICCF DTSFILE File and Control File IESCNTL

FSU

- Only IBM provided members and libraries are updated
- Optional reorganize of the DTSFILE during FSU
- No change to IESCNTL during FSU

Initial Installation

- User libraries migrated via DTSUTIL backup/restore
  - System Libraries are:
    - 1, 2 Common , 50-69 Public
  - Don‘t migrate system libraries
  - In case System Libraries were migrated by mistake, you can reload these from the install tape using skeleton SKICFRST.
  - Make sure DTRICCF.PROC reflects all extents of DTSFILE
- ICCF users are migrated with IESBLDUP together with IESCNTL
  - Migration with IESBLDUP utility after Initial Installation.
  - All user profiles, user defined selections and application definitions will be migrated.
  - The Control File of the original System and a Backup of the ICCF DTSFILE is needed.
  - From CICS/VSE the migration of the SNT (Phases) can be done with IESBLDUP utility.

Migration of Control File IESCNTL

Initial Installation: Performing Migration with IESBLDUP

- Skeleton IESBLDUP to migrate.
  - Standard user profiles are used
  - Special profiles can be specified
  - Recommended to use IESCNTL and DTSFILE backup
  - After IESBLDUP job, use PF6=GROUPS in dialog „Maintain User Profiles” to update BSTCNTL with user definition.
- As well as after FSU, it is recommended to sign on with SYSA and perform PF6 in Application Profile Maintenance (fastpath 213) and Selection Panel Maintenance (fastpath 212).

Migration of BSTCNTL and DTSECTAB

FSU

- FSU Stage 2 will run without batch security, original DTSECTAB phase if saved in PRD2.SAVE is re-established.
- BSTCNTL is updated (transaction security) by FSU

Initial Installation

- DTSECTAB has to be re-established after installation
  - No User profiles in DTSECTAB except for FORSEC and DUMMY.
    - See source DTSECTRC in ICCF 59
- BSTCNTL
  - This file is defined on the new system, all user specific data must be migrated using skeleton SKBSTSAV
    - Don't copy this file using VSAM REPRO or similar
- DTSECTXN based Security (old concept)
  - Converted via Dialog 285, Details in Administration manual

Migration LE and Languages

FSU
- Everthing is done for LE
- Reinstall compilers
- Make sure USERBG.PROC contains
  // PWR PRELEASE RDR,CEEWARC

Initial Installation
- CSD Definitions may be old - SKCSDFIL
- Reinstall compilers

General Remarks
- Migration from old compilers please refer to manuals
  - Cobol for VSE/ESA Migration Guide
  - PL/I for VSE/ESA Migration Guide
  - C for VSE/ESA Migration Guide
- Run-Time Options
  - Check options CEEDOPT and CEECOPT and adjust
  - See LE z/VSE Customization Guide
- CICS System settings
  - RUWAPOOL (in DFHSIT)
- SVA usage - $SVACEE

Migration LE and Languages

COBOL
- For old compilers see VSE/ESA Migration Guide
- If you have customized COBOL COBPACKs review and reapply after upgrade.
- SVA usage, consider $SVAIGZM load list
- If Side-File Exits (SYSDEBUG) are used, migrate to new system if needed

PLI
- PL/I for VSE/ESA Migration Guide
- SVA usage, consider $SVAIBMM load list
- Run-Time Options unique to PL/I Applications
  - Condition code handling – DEPTHCONDLMT(0), ERRCOUNT(0)
  - Recommended option if using full BMS and experiencing display corruption setting STORAGE=(NONE,NONE,CLEAR,0K) else STORAGE=(00,NONE,CLEAR,0K)

C for VSE/ESA
- SVA usage, consider $SVAEDCM load list
- If you use a specific tailored C locale, keep source changes (EDCLOCI). After upgrade extract JCL member EDCLLOCL.Z from PRD2.SCEEBASE and insert EDCLOCI.

RPG II Online (CICS TS)
- Required PTF PM75512/UK83060 RPG

Migration Performance

Performance Measurement

- CPU Monitor Tool see home page
- For checking DTRIATTN can be used (POWER time controlled)
- QUERY TD, always perform SYSDEF TD,RESETCNT first
  - Sample
  - // EXEC DTRIATTN,PARM='STACKQUERTD|QUERY TD|SYSDEF TD,RESETCNT'
  - // EXEC DTRIATTN,PARM='QUERTD'
- Healthchecker see home page
- DFH0STAT for CICS TS
- DLI Statistics
- POWER D STATUS command
- IUI Display System Activity
- IUI Channel and Device Activity
- SIR SMF
- SIR MON
- Job Accounting via SKJOBACC
- Monitor like TMON or Explore

Migration Performance

Performance Parameters

- PRTY
  - Use Balance Groups
    - PRTY N,I,E,P,F5,BG,FB,F9,F4,F6,FA,F8,F7,Y,Q,C,Z=X=W,F2,F3,F1
    - PRTY SHARE,X=500,W=200
- CICS related
  - LSR Groups
  - Shared data tables
  - Transaction priority
  - MXT
  - SOS
- TCP/IP
  - Contact IBM, BSI or CSI about performance related parameters
- LE Options
- POWER SET WORKUNIT=PA
- Turbo dispatcher threshold to quiece a processor with low usage
  - SYSDEF TD,THRQ=50

Migration Performance Hints

Some General Remarks

- One partition can only exploit the power of a single CPU
- Use as many partitions as required for selected n-way
- Use/define only as many CPUs as really needed
- z/VSE can exploit up to 3 CPUs in an efficient way, consult IBM if more are required
- Exploitation increases by reduction of non-parallel work units (e.g. Shared tables/ data in memory)
- Partition setup
  - Set up more batch and/or (independent) CICS partitions
  - Split CICS production partitions into multiple partitions (MRO)
  - Use a database (DB2)
- Try to minimize number of CPUs
  - Use CPU Balancing and Threshold

Restrictions

- Overall workload's non-parallel share too high
- Single CICS can only exploit one CPU
- Non Parallel Share too high
- Try to minimize number

Migration Hardware

Processor

- New processor if activated after software migration will cause overlap messages cause of new CPUID on
  - Page data set
  - Label area on old systems (no virtual disk)
- In case of a shared system, make sure CPUID is changed in in ASIPROC
  - Check DLF NCPU parameter is CPU is added in addition
- Consider turbo dispatcher threshold parameter
- z/VSE 5.1 requires a z9 or higher (Architectural Level Set)

Migration Hardware

OSA

- What is new with OSA Express 3 (OSAX3) and higher
- OSA/SF is used to configure and load a so called OSA Address Table (OAT) onto the OSA cards for SNA running over the OSA card (OSE)
  - IOCD: CHPID PCHID=1B0,PATH=(B0),TYPE=OSE,PART=(ZVSE,BRSPRD),SHARED
  - Configuration is done running IOACMD REXX and IOAMAIN
  - OSAX3 and higher supports 2 ports per CHPID, it requires
    - UK82285 for z/VSE 5.1
    - UK71893 and UK82199 for z/VSE 4.3
    - UK58684, UK71894 and UK82200 for z/VSE 4.2
  - Samples for an OAT and IOACMD run can be provided
- All OSA features can be configured in the IOCDS as CHPID type OSD (1000BASE-T also supports CHPID type OSA, OSC, OSE).
- When used with CHPID type OSD they are used for TCP/IP traffic, through the DEFINE LINK,TYPE=OSAX,... command.
  - If port 1 is to be used TCP/IP PTF PK66917 (4.1) newer releases, code is included in base
    - DEFINE LINK,TYPE=OSAX,DEV=(D00,D01),DATAPATH=D02,OSAPORT=1

Migration Hardware

Tape Libraries see also http://www.redbooks.ibm.com/abstracts/sg247712.html

- IOCDS
  - Sample TS77xx

```
CNTLUNIT CUNUMBR=0850,PATH=(E2,60),UNIT=3490,UNITADD=((00,02))
IODEVICE ADDRESS=(0850,2),CUNUMBR=(0850),UNITADD=00,UNIT=3490,       x
      STADET=Y
```

  - Sample TS55xx

```
CNTLUNIT CUNUMBR=0890,PATH=(77,73),UNIT=3590,UNITADD=((00,02))
IODEVICE ADDRESS=(0890,2),CUNUMBR=(0890),UNITADD=00,UNIT=3590,       x
      STADET=Y
```

- VSE configuration
  - TS7700 has virtual 3490E drives, ADD as 3490E.
  - TS3500 is has real 3590/3592 drives, ADD a TPA or TPAxxx
  - VTS usage
    - LIBSERV command interface
- Vendor software
  - VTS support, multi-volume support

Migration Hardware

Disks

- Storage subsystems
  - ECKD up to 64K-1 cylinders larger disks not supported
    - VTOC must be within first 4369 cylinders (DSF)
    - VSAM BIG DASD and FAT DASD
  - SCSI based FBA up to 24GB BAM, 16GB VSAM
  - VM based FBA up to 2GB
- See planning hints for consolidation to larger disks

Micro code update, please refer also to

http://www-03.ibm.com/systems/z/os/zvse/about/status.html

- z/VSE with the latest service level supports concurrent microcode upgrade for IBM tape and ECKD storage. Please consult your device documentation for details.
- Recommendation for Tape storage:

z/VSE recommends to take the tape units offline (z/VSE OFFLINE command) prior to the microcode upgrade or use the next maintenance window. Once the upgrade completed, take the tape units online again (z/VSE ONLINE command). Please check with your software vendors (e.g. tape management systems), if they support concurrent microcode upgrade.

Summary FSU versus Initial Installation

FSU

- No change to user data, applications
- z/VSE code is upgraded in a fast efficient way
- Refresh of optional products is optional, vendor products need updates
- After FSU all applications and data are ready for testing
- Data base may need migration to newer level
- No change to language/compiler setup
- Network definition will stay unchanged

Initial Installation

- New vanilla system all data, applications need to be brought in again
- Optional and vendor products need to be installed
- Control data like IESCNTL, CSD, DTSFILE, BSTCNTL need to be migrated.
- Import customer data, restore customer applications
- Load POWER queues
- Implement data base
- Adjust compile options
- Adjust layout
- Adjust network setup

Migrating CICS/VSE Security Definition

Security

- REXX Procedures that can help are:
  - SKSECTXS Migration of PCTs
  - SKSECTX2 Migration of Transactions using CICS Migration Aid
  - SKSECTX3 Migration of DFHCSDUP Control Statements

For more information also see Hints and Tips

OLD RSL based definitions – new Concept

The profiles below can be migrated with the procedures SKRSLXS (Macro Format), SKRSLX2 (Migration Aid Band) and SKRSLX3 (DFHCSDUP Format):

- DCT Profile
- PCT Profile
- FCT Profile
- JCT Profile
- PPT Profile
- TST Profile

NO Migration possible for:

APPL Profile and Facility profile

Migrating from CICS/VSE to CICS TS Some Remarks

DFHSNT
- Signon table can be migrated to IESCNTL using IESBLDUP
  - Works with DFHSNT phase copied from old system

For more information see also System Utilities manual

For General Migration Aspects see CICS Migration Guide

Migration inhibitors are
- Macro Level Programming
- Old IBM or Vendor Applications
- Security Concept or special sign on programming
- Old level languages
- RPG now also on CICS TS (no inhibitor anymore see page 26)

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धन्यवाद
Hindi

Bedankt
Nederlands

شكراً
Arabic

Merci
French

Obrigado
Brazilian Portuguese

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Gracias!
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Thank You

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