z/OS 1.13 Early User Experience

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SCE Configuration

• Two data centers about 100 KM apart
  • One in LA County, one in Orange County
  • One is primarily for Disaster Recovery for the other
• Four full function parallel sysplexes
  • Two z10s and one z9
  • Sysprog sandbox (two members)
  • Development sysplex subject to SLA (two members)
  • Development sysplex was the agreed target for the ESP
  • Other sysplexes are client oriented production systems
• Also one basic sysplex for XRC/GDPS (DR)
Migration Ambition

- All images were running on R12
- z/OS upgrade to R13 on all images
- We do not run multiple levels for long periods
  - We lose migration path for down-level releases
  - We install and migrate with all deliberate speed
- There are tools to help manage multiple levels
  - Use ASAP in Service Link
  - Run FIXCAT against each release’s CSI
  - Order maintenance by APAR, not PTF
  - Submit the same order list for each level
Migration Aids

• Several Health Checks are available
• Install via PTF and run on previous level(s)
• Named ZOSMIGVR* for z/OS release
  • ZOSMIGV1R13_CNZ_CONS_OPER_MODE
    • R13 defaults to distributed mode if not specified
  • ZOSMIGV1R13_RO_SYMLINKS
    • Possible symlink definition incompatibility
  • ZOSMIGV1R13_ZFS_FILESYS
    • Interface level 3 and sysplex level ‘filesys’ or higher
• Remember to activate checks via either…
  • UPDATE action
  • SDSF CK function
More Migration Aids

- FIXCAT reports using enhanced hold data
  - Means ‘fix category’
- IBM.TargetSystem-RequiredService.z/OS.V1R13
- Identified APARs/PTFs should be installed on all down level systems in advance of first R13 installation
- If pulling enhanced hold data from service.boulder.ibm.com via FTP then…
- ...you must request full.txt to get FIXCAT data
ESP Migration Time Line

• 04/29/2011  SCE orders ServerPac via ShopzSeries
  - First ESP where we could place a ‘standard’ order
• 06/07/2011  Order ready for download from Shop
• 06/07/2011  SCE downloads order (to PC)
• 06/08/2011  SCE begins ServerPac install
  - My first install in several years
• 06/27/2011  SCE 70+ usermods are installed
• 06/28/2011  IPL on first sandbox sysplex member
  - Included all ‘environmental’ tailoring and config
• 07/07/2011  IPL on remaining sandbox system
• 07/20/2011  First IPL on development sysplex
Notes on R13 ServerPac

- Download package size 13.2 GB vs. 11.3 GB for R12
- We added some products, e.g. OMEGAstuff
- Unable to download in office via SCE network ???
- From home, accessed Shop directly over internet
  - Using Download Director, process took 5 hrs 20 mins
  - Number of connections varied from two to five @ 700 KBS
- Uploaded to host via FTP to Mod-27 full-volume zFS
  - Allocated as extended VSAM for > 4 GB
    - DEFINE CLUSTER (NAME(hlq.R13WORK1.ZFS) -
      - VOLUMES(R13WK1) SHR(3) DATACLAS(EXT) -
      - CYLINDERS(30000,100) LINEAR)
    - EXT is our SMS data class for extended data sets
More Notes on ServerPac

- All DASD Shark virtual allocations
  - Single Mod-9 sysres migratable via volume dump/restore
  - System zFS files migratable via logical dump/restore
  - Non-migrating Mod-9/Mod-27 for SMPE CAT/DLB volumes

- USS file system space
  - Multi-volume zFS simplifies migration
  - Use preallocated object for DFDSS RESTORE
  - Capacity not tied to specific volume layout
Still More Notes on ServerPac

• We always use the Full-System Replace option
• Easiest ServerPac to date
• Sizing of libraries better than ever
  • Less need to adjust space or directories
  • But be prepared to increase allocations over time
• Consider giving LINKLIST libs secondary allocations
  • Fixing out-of-space condition during APPLY is laborious
  • StarTool (or antecedent PDS command) helps a lot
  • Health Checker complains, but YOU run maintenance!
ServerPac and Me

- This was my first ServerPac installation in years
- One rut in the road: ‘alien’ HLQs in delivered files
- We rename all files to SYS1 during install
  - Seven RACF plexes to manage
  - We own SYS1, other HLQs could conflict with apps
- One job renames install data sets to user HLQ
- I had RACF problems with ‘TCPIP’, etc.
- There were HLQ.* profiles in place for all aliens
  - Created by the regular ServerPac guy
  - No ACCESS list in the profiles
  - They worked for him because he was ‘owner’
SCE Customizing with USERMODs

- We have more than 70 USERMODs installed via SMP/E
- Exits, option modules, ISPF panels, etc.
- Most of them reinstall with only MCS updates
  - FMID and req/prereq changes
  - REWORK() date set current for doc purposes
- Some changes were required for R12 → R13
  - RMM: EDGUX100 exit module - SAMPLE EDGCVRSX
- Note: migrating from N-(>1) release requires care
  - Most doc deals with one level change
  - May need to consult older doc for previous changes
ISV Adventures

- Getting ready for any new z/OS release
  - Some routine, some emerging surprises
    1. Ask each ISV for required fixes or level
    2. Install required fixes/level and test
    3. Loop until no problems found

- Some of the ‘ISV’ (non-ServerPac) products we run
  - CA HSC and CA MIM for both silos and virtual tape
  - Control-D, Control-V
  - CA11, ISPW, JHS, MXG, Connect Direct (NDM)
  - StarTool, VPS, CA TPX
  - Tivoli Work Load Scheduler (TWS), OMEGAMON suite
  - CA Vision:Results (DYL280), QuickStart

- No show stoppers!
ISV Adventures

- ESP customers need ducks in a row by GA - 90 days
- We did not find any delinquent vendors/products
  - I.e. every vendor we contacted had info/fixes available
- Our products mostly worked without upgrade
- One exception: CA MIM for tape drive mgmt
  - “MIM0095E MIM MSIERROR CODE=1805 issued by ...”
  - “Unable to locate IEFW21SD.IEFAB4FA”
  - Problem was fixed by RO26445
PARMLIB Coexistence Issues

- Old, chronic problem with mixed releases
- New keywords may not be recognized by lower level(s)
- Especially true during IPL with IEASYSxx
- Sometimes new keywords are simply ignored
  - Maybe a complaint, system still comes up OK
- Sometimes unrecognized keyword stops IPL
- Or worse: system comes up wrong, e.g. SMS
  - Unrecognized parameter results in ‘default config’: yikes!
- A problem for migration, sharing, and fallback
PARMLIB Coexistence Issues

• One new keyword implemented so far in R13
• Parm in member DEVSUPxx (more later)
  • Controls O/C/E message description
• New keyword in DEVSUPxx is ignored by R12!
• Likewise command SET DEVSUP=xx ignores kwd
• Allows sharing of PARMLIB among releases
• Allows seamless fallback planned or otherwise
• Allows ROUTE *ALL commands regardless of level
• Note: toleration/coexistence PTFs are required
• A major advance in system management
First IPL Boo-boos ;-)

- Forgot new IPL text after post-ServerPac PTF
  - ServerPac includes a job to build IPL text
  - Before first IPL, installed a PTF that required new IPL text
  - Got wait state 075-06: IPL text does not match nucleus

- Forgot zFS parm change on sharing system
  - Sharing R12 system still had ‘sysplex_admin_level=2’
  - Changed R12 parm to ‘sysplex=filesys’ and restarted ZFS task

- Forgot about ICSF proc, missing in R13
  - R12 had PGM= change in ICSF task incompatible with R11
  - Moved ICSF proc to sysres resident PROCLIB for all systems
  - Did not put ICSF proc into sysres PROCLIB
  - Solution: moved proc back to shared PROCLIB
Open/Close/End-of-Volume
Abend and Reason Code Description

- PARMLIB(DEVSUPxx): OCE_ABEND_DESCRIP=YES
  - New text borrowed from message manual explanation
  - Appears in joblog and syslog
  - Not for all abends, just O/C/E
- OS Command: SET DEVSUP=xx
  - Allows extended message to be turned on or off
- No granularity at this point
  - All on or all off
  - Some customers have suggested enhancements
  - Not likely by GA, but see OA37074: shorten verbiage
- R12 does not complain or acknowledge new parm
O/C/E Message for IEC141I

IEC141I 013-18,IGG0191B,TESTMSG,ABEND214,SYSUT1,7802,BR9002,TED066.JCL.

ERROR DESCRIPTION:
An OPEN macro instruction was issued for a partitioned data set. The DSNAME parameter specified a member that could not be found.

END ERROR DESCRIPTION: IEC141I
O/C/E Message for IEC031I

IEC031I D37-04,IFG0554P,TESTMSG,ABENDX37,SYSTUB2,7802,BR9002,TED066.TOOO

ERROR DESCRIPTION:
A data set opened for output used all the primary space, and no secondary space was requested. Change the JCL specifying a larger primary quantity or add a secondary quantity to the space parameter on the DD statement.

END ERROR DESCRIPTION: IEC031I
SDSF Sysplex Communication

- SDSF can now use XCF for sysplex communication
- Previously MQ was required for...
  - Health checker
  - Processes
  - Enclaves
  - Resource monitor
- New cmd SET CMODE 1 to accommodate down-level
  - 1. z/OS V1R12 (z12)
  - 2. z/OS V1R13 (z13)
  - 3. Default (i.e. #2)
Multiple Colors in SDSF Operlog

- We modify console messages for color
- Each system in a plex gets its own color
- Code in WTO exit IEAVMXIT sets color flags
- These colors now show up SDSF operlog
- Also some additional color(s) based on ???
- In the following slide…
  - Green is from ‘this’ system (R13)
  - Blue is from the ‘other’ system (R12)
  - Yellow is RYO health check, green on MCS console
### Multiple Colors in SDSF Operlog

<table>
<thead>
<tr>
<th>COMMAND</th>
<th>INPUT</th>
<th>DATE</th>
<th>COLUMNS</th>
<th>SCROLL</th>
</tr>
</thead>
<tbody>
<tr>
<td>STC01142</td>
<td>00000010</td>
<td>2011/08/03</td>
<td>6 WTORS</td>
<td>CSR</td>
</tr>
</tbody>
</table>

**STC01142**

00000010 | ANTX00511 NO ACTIVE XRC SESSIONS. ISSUE XSTART COMMAND

993 | 00000010 | XRC0001E No active XRC sessions

993 | 00000010 | Session: None Master: None Couple status: None

993 | 00000010 | Start XRC and try again

993 | 00000010 | Check version: XRCCK01_EXEC

000000201 | $HASP249 COMMAND RECEIVED FROM AUTO COMMAND ID=7775 994

994 | 000000201 | $RALL,0=AEHJOP,R=LOCAL,D=NR590,OUTDISP=WRITE

996 | 000000201 | $HASP249 COMMAND RECEIVED FROM AUTO COMMAND ID=7775 996

998 | 000000201 | $RALL,R=COM,D=NR590,OUTDISP=WRITE

000 | 000000201 | $HASP249 COMMAND RECEIVED FROM AUTO COMMAND ID=7778 800

002 | 000000201 | $RALL,R=AUTOCOM,D=NR590,OUTDISP=WRITE

004 | 000000201 | $HASP249 COMMAND RECEIVED FROM AUTO COMMAND ID=7779 802

006 | 000000201 | $RALL,R=COM,D=NR590,OUTDISP=WRITE

008 | 000000201 | $HASP249 COMMAND RECEIVED FROM AUTO COMMAND ID=7920 806

010 | 000000201 | $RALL,R=COM,D=NR5920,OUTDISP=WRITE

012 | 000000201 | $HASP249 COMMAND RECEIVED FROM AUTO COMMAND ID=7921 808

014 | 000000201 | $RALL,R=COM,D=NR5921,OUTDISP=WRITE

016 | 000000201 | $HASP249 COMMAND RECEIVED FROM AUTO COMMAND ID=7922 810

**STC07990**

00000010 | ANTX00511 NO ACTIVE XRC SESSIONS. ISSUE XSTART COMMAND

116 | 00000010 | XRC0001E No active XRC sessions

116 | 00000010 | Session: None Master: None Couple status: None

116 | 00000010 | Start XRC and try again

116 | 00000010 | Check version: XRCCK01_EXEC

000000215 | $AAP8102 PEER LINK A0 SEND COUNT(1210), RECEIVE COUNT(1211), VE

000000215 | $AAP8102 PEER LINK A1 SEND COUNT(1209), RECEIVE COUNT(1208), VE

000000205 | $AAP0200 2 ITEMS SHOWN

**STC08108**

00000010 | E3QX0041 MB10 CSQXSPRAM Channel initiator is using 37 MB of 120 storage, 1599 MB are free
Wandering SSH

- At first we could not find SSH
- Orderable under ‘Ported Tools’
- Feared we might have failed to order it
- We use SSH a lot
- SSH formerly lived in zFS AFOROOT
- R13 does not supply an AFOROOT zFS
- We eventually found SSH in OMVS ROOT zFS
- Same directory structure, different file location
- SSH works fine
That Demon FTP

• In R13, FTP daemon FTPDx now runs APF authorized
  • Previously, FTPDx messages had ‘+’ prefix
    • ‘+’ is standard indication for problem state tasks
• We use Tivoli AFOperator for automation
• Table driven, needs exact msgid w/ or w/out ‘+’
• In R12 we were looking for…
  • +EZY2702I Server-FTP: Initialization completed
  • +EZYFT59I FTP shutdown complete
• In R13 AFOP didn’t know when FTPDx was up/down
• Changing AFOP to plain msgid fails under R12
CSP Stumbles, Limps Along

- Cross System Product
- Eons out of support
- Still worked without intervention up to z/OS R7
- ‘Compile’ stage failed in z/OS R8 with new LE
- Workaround: use a copy of R7 SCEERUN
- It still works in R13 with R7 copy

- Anyone interested in a therapy group?
Questions?