z/OS 1.12 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 (three members)
  - Development sysplex was the agreed target for the ESP
  - Other sysplexes are client oriented production systems
- Also one basic sysplex for XRC/SDM/GDPS (DR)
Migration Ambition

- All images were running on R11
- z/OS upgrade to R12 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 have been released
• Install via PTF and run on previous level(s)
• Named ZOSMIGV* for z/OS release
  • ZOSMIGV1R11_CS_DNSBIND9
  • ZOSMIGV1R11_CS_RFC4301
  • ZOSMIGV1R12_RCF_PCCA_ABOVE_16M
  • ZOSMIGV1R12_SUP_LCCA_ABOVE_16M
• Remember to activate checks via either…
  • UPDATE action
  • SDSF CK function
• Watch out for ‘EXCEPTION-LOW’
More Migration Aids

- FIXCAT reports using enhanced hold data
  - Means ‘fix category’
- IBM.TargetSystem-RequiredService.z/OS.V1R12
- Identified APARs/PTFs should be installed on all down level systems in advance of first R12 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

- 05/10/2010  SCE orders ServerPac
- 06/22/2010  IBM ships order electronically
- 06/23/2010  SCE downloads order to PC
- 06/23/2010  SCE begins ServerPac install
- 06/25/2010  Most of 70+ usermods are installed
- 06/29/2010  IPL on first sandbox sysplex member
  - Included all ‘environmental’ tailoring and config
- 06/29/2010  IPL on remaining sandbox system
- 11/28/2010  ‘Sticky’ IPL on development sysplex
- 03/20/2011  IPL on mission critical sysplex
Notes on ServerPac

- Download size was double that for previous (R9)
  - 11.3 GB vs. 6.8 GB
  - Most of the difference was probably WASOEM for z/OSMF
- All DASD Shark virtual allocations
  - Single Mod-9 sysres migratable via volume dump/restore
  - System zFS 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
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
  - Still, maintenance down the road takes its toll
  - Be prepared to increase allocations over time
- Consider giving LINKLIST libs secondary allocations
  - Fixing out-of-space condition during APPLY is laborious
  - Health Checker complains, but YOU run maintenance!
SCE Customizing with USERMODs

- We have more than 70 USERMODs installed via SMP/E
- Exits, option modules, ISPF panels, etc.
- Most of them reinstalled with only MCS updates
  - FMID and req/prereq changes
  - REWORK() date set current for doc purposes
- Some changes were required for R11 → R12
  - User exit CBRHADUX for OSMC in OAM (new sample)
  - New JES2 Exit 7 required for TWS (PM06579)
- Note: migrating from N-(1+) release requires care
- E.g. there were some serious JES2 changes in R11
ISV Adventures

• Several products needed maintenance for R12
  • 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
  • ‘HSC’ and pals for both silos and virtual tape
  • Control-D, Control-V
  • CA11, ISPW, JHS, MXG, Connect Direct (NDM)
  • StarTool, VPS, TPX
  • Tivoli Work Load Scheduler (TWS), OMEGAMON suite
  • CA Vision:Results (DYL280), QuickStart

• No show stoppers but some show freezers ;-(
ISV Adventures

- ESP customers need ducks in a row by GA - 90 days
- A few vendor products were not ready for ESP
- One product was IBM’s own!
  - We had to wait some time for an updated system exit
  - We never got an explanation for the delay
- Another was a hot-potato media management product
  - This one was especially troubling
  - “We will be ready for new z/OS by GA + 90 days”
  - Reflects what we consider a ‘non-mainframe mindset’
- Vendor did not initially have access to an R12 system
- To their credit, vendor got cracking and beat GA after all
Soaring Control Blocks

- LCCA and PCCA have always resided ‘below the line’
- In R12, these CBs go above the line by default
- They can be forced back below the line
  - SYS1.PARMLIB member DIAGxx or SET DIAG command
  - Keyword CBLOC with values of 24 or 31
- Readiness Health Checks warn if CBs below the line
- Most current products can handle CBLOC 31
- Watch out for very old releases benignly neglected
- To be safe, try CBLOC 31 in pre-R12 environment
- Failures circumvented by reverting to CBLOC 24
- Problems may surprise you later in migration path
Fixing Linklist and LPA Update

- SETPROG LNKLST UPDATE has been around a while
- Major problem with original implementation
  - SETPROG LNKLST DEFINE NAME(your-name)…
  - …required parm COPYFROM(CURRENT)
  - If omitted, new linklist would contain only added library(s)
  - Recipe for catastrophe
- Now you can specify a default for SETPROG
- In PROGxx: DEFAULTS LNKLST COPYFROMCUR
  - Now omitting COPYFROM causes no problem
- Also: DEFAULTS LPA ADDALIAS
  - Aliases will be included even if keyword is omitted
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
PROCLIB Coexistence Issues

- Major issue in R12 is ICSF for crypto processing
- PGM= changes to CSFINIT (from CSFMMMAIN)
- R12 and pre-R12 cannot use the same PROC
- Our SYS1.PROCLIB is shared across sysplex
- Solution: move ICSF to sysres resident PROCLIB
  - Each release has its own unique version
  - Shared only by members IPLed at the same level
- REMOVE ICSF from shared PROCLIB
- Do this on all systems before you forget!
- Do not forget to put it back after R12 is everywhere
Automatic SAD and Re-IPL

- Statement in DIAGxx in PARMLIB

- AUTOIPL SADMP(uuuuu, SMSYSC) MVS(LAST)

- In case of system failure, first IPL SAD from uuuuu
- Then re-IPL the system using the last sysres volume
- In the case of SysStatDetect auto partitioning
- We got a standalone dump
  - System ‘IPLed itself’
- Took us a while to figure out why everyone denied doing it!
zAAP on zIIP

- We have only zIIP engines, no zAAP
- Could not find enough zAAP workload to justify its own engine
- In R11+, zAAP eligible workload will run on a zIIP if no zAAP is installed
- WASOEM included for z/OSMF does have a zAAP eligible component
- We have observed increased zIIP usage with WASOEM running
Problem with SFTP

- We use SFTP/SSH (IBM Ported Tools) a lot
- R12 ServerPac ships SSH 1.2 OpenSSH_5.0p1
- We discovered a problem with large files
  - “FOTS2050 xrealloc: out of memory” in batch jobs
  - Means insufficient LE heap memory on z/OS
  - Same jobs worked fine under R11 and prior
  - Problem showed up in the third environment to get R12!
- DOC APAR OA34819 against SA23-2246-xx
  - “IBM Ported Tools for z/OS: OpenSSH User’s Guide”
  - Various workaround actions suggested
SFTP/SSH Heap Problem

- Error tied to file size
- First reported problem involved 160+ MB file
  - Small files transferred with no problem
- Our reported problems are all batch jobs
  - OTOH our FTP/SFTP from mainframe is mostly (all?) batch
- Tried setting variables with STDENV DD card
- Jobs still failed as before
- Failing jobs typically use smallish region like 8 MB
- Only relief is to increase region size to, say, 64 MB
  - Must code on both JOB card and STEP cards
  - We circumvented via IEFSUI exit based on program executed
CSP Stumbles, Limps Along

- Cross System Product
- Eons out of support
- Still worked without intervention up to R7
- ‘Compile’ stage failed in R8 with new LE
- Workaround: use a copy of R7 SCEERUN
- It still works in R12 with R7 copy

- Anyone interested in a therapy group?
Questions?