Successful Practices for Installing and Rolling Out z/OS Maintenance User Experience

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Agenda

• Environmental Assumptions
• Constructing Initial Run-Time Environment
• Implementing Initial Run-Time Environment
• Constructing Maintenance Environment
• Summary
• Finally…
Environmental Assumptions

- ServerPac install completed
- Res volume(s), USS volume(s), program product volume(s)
- Nothing indirectly cataloged
- SMP/E DDDEFs not volser pointed, PATH alternate
- SMP/E program products similarly installed
- Non-SMP/E program products also similarly installed
- Must support TEST, QA, and PROD LPARs
- Each LPAR will have "active" and "inactive" res sets
- Each LPAR will have fully-functional SMP/E environment
- 6 res sets and 6 active SMP/E environments will be created
Constructing Initial Run-Time Environment

• After ServerPac, create maintenance ready SMP/E
• Create system symbols for maintenance volumes
• Create new master catalog if necessary for your shop
• Indirectly catalog all target datasets
• ICKDSF INIT target res, USS, program product volumes
• COPY ServerPac res, USS, PP vols to target vols
• Create SMP/E target environment
  • Allocate target CSI, ZONECOPY TZONE, set up DDDEFs
• Create BPXPRMxx member to mount USS filesystems
Constructing Initial Run-Time Environment

• As an example, ServerPac creates these volumes
  • ZOSRS1 – primary res volume
  • ZOSRS2 – secondary res volume
  • ZOSUS1 – primary USS volume
  • ZOSUS2 – secondary USS volume
• Additional volumes you create
  • ZOSPP1 – primary program product volume
  • ZOSPP2 – secondary program product volume
• Together, these 6 volumes comprise the "res set"
• If required, use process to create new master catalog
Constructing Initial Run-Time Environment

- Create system symbols for indirect cataloging
  - &SYSR1 – primary res volume
  - &SYSR2 – secondary res volume
  - &SYSP1 – primary program product volume
  - &SYSP2 – secondary program product volume
- Indirectly catalog datasets on RES and program product vols
  - Use ISPF 3.4 on volume to generate list of datasets
  - Create DELETE NOSCRATCH and DEF NVSAM VOL(symbol)
- Indirect catalog and symbols for USS datasets unnecessary
- USS datasets will use &SYSR1 in USS dataset name
Constructing Initial Run-Time Environment

- INITIALIZE volumes for the initial run-time environment
  - ZTRS1A – primary res volume
  - ZTRS1B – secondary res volume
  - ZTUS1A – primary USS volume
  - ZTUS1B – secondary USS volume
  - ZTPP1A – primary program product volume,
  - ZTPP1B – secondary program product volume
- Z for z/OS, T for Test, RS for RES, US for USS, PP for program product, 1 for RES SET 1, A for the first sequential volume, B for the second sequential volume
Constructing Initial Run-Time Environment

• Copy datasets from ServerPac to initial run-time environment
  • ZOSRS1 → ZTRS1A
  • ZOSRS2 → ZTRS1B
  • ZOSUS1 → ZTUS1A
  • ZOSUS2 → ZTUS1B
  • ZOSPP1 → ZTPP1A
  • ZOSPP2 → ZTPP1B
• When copying USS datasets, rename dataset using &SYSR1
  • OMVS.ZOSV1R12.ROOT → OMVS.ZTRS1A.ROOT
  • OMVS.ZOSV1R12.VAR → OMVS.ZTRS1A.VAR
  • etc.
Constructing Initial Run-Time Environment

- Create SMP/E target environment
  - Allocate new empty CSI to hold target zone
  - ZONECOPY MVST100 to TSTTGT1
  - ZONECOPY program product target zones
  - Dump DDDEFs with SMP/E UNLOAD DDDEF to a dataset
  - Edit DDDEFs to add UNIT(3390) and appropriate VOLUME
  - Change all PATH names to add /SERVICE at the front
  - Reload DDDEFs with UCLIN REP
Implementing Initial Run-Time Environment

- Maintenance is installed by IPL
- Backout also accomplished with IPL
- SYS1.PARMLIB is on the res volume and NOT shared
- Simplifies backout by not requiring prompt and reply at IPL
- Standard member suffix is "00"
- Sharing PARMLIB greatly complicates install and backout
- Dynamic activation of maintenance on case-by-case basis
- Dynamic activation will "invalidate" current environment
- SMP/E libraries become out of sync with dynamic activation
- IPL should be scheduled ASAP after dynamic activation
Implementing Initial Run-Time Environment

- Create PARMLIB concatenation
  - SYS1.IBM.PARMLIB (members change only with maintenance)
  - SYS1.PARMLIB (customized PARMLIB on res volume)
- Create SYSy.IPLPARM(LOADxx) for new res

```plaintext
IODF     00 SYS1
SYSCAT   ZTMCAT133CATALOG.MASTER.TEST
NUCLST   00
NUCLEUS  1
IEASYM   00
PARMLIB  SYS1.IBM.PARMLIB  *****
PARMLIB  SYS1.PARMLIB      *****
```
Implementing Initial Run-Time Environment

• Create IEASYMxx member to define system symbols

  SYMDEF(&SYSR2.= '&SYSR1(1:5).B')
  SYMDEF(&SYSP1.= '&SYSR1(1:2).PP&SYSR1(5:6)')
  SYMDEF(&SYSP2.= '&SYSR2(1:2).PP&SYSR2(5:6)')

• Create BPXPRMxx member for USS filesystems

  ROOT    FILESYSTEM('OMVS.&SYSR1..ROOT')
          TYPE(ZFS)
          MODE(RDWR)
  MOUNT   FILESYSTEM('OMVS.&SYSR1..VAR')
          MOUNTPOINT('/var')
          TYPE(ZFS)
          MODE(RDWR)
Implementing Initial Run-Time Environment

• Once ZTRS1A is IPL'd and tested, we’re ready to clone
• Clone the ZTxxxx volumes to other environments
  • ZTRS1A → ZQRS1A
  • ZTRS1B → ZQRS1B
  • ZTUS1A → ZQUS1A
  • ZTUS1B → ZQUS1B
  • ZTPP1A → ZQPP1A
  • ZTPP1B → ZQPP1B
• Clone USS datasets
  • OMVS.ZTRS1A.ROOT → OMVS.ZQRS1A.ROOT
  • OMVS.ZTRS1A.VAR → OMVS.ZQRS1A.ROOT
Implementing Initial Run-Time Environment

- Clone SMP/E target environment
  - Allocate new empty CSI to hold QA target zone
  - ZONECOPY TSTTGT1 to QATGT1
  - ZONECOPY program product targets
  - ZONEEDIT DDDEF to change volumes for QATGT1
    - CHANGE VOLUME (ZTRS1A,ZQRS1A).
    - CHANGE VOLUME (ZTRS1B,ZQRS1B).
  - ZONEEDIT DDDEF to change volumes for program products
    - CHANGE VOLUME (ZTPP1A,ZQPP1A).
    - CHANGE VOLUME (ZTPP1B,ZQPP1B).
- Create IEASYMxx and BPXPRMxx members as before
Implementing Initial Run-Time Environment

- After ZQRS1A is IPL'd and tested, clone to production
- Once cloned to production and tested, initial run-time environment is now complete
- But seriously, how many times do you roll-out from Test to QA to PROD with no problems?
- Somewhere along the way, you may have to apply some maintenance
- On to the maintenance environment…..
Constructing Maintenance Environment

- Backup vols listed below, as well as DLIB and SMP/E vols
  - This step not performed during initial creation
  - Recommend two tape backups to prevent against media failure
- INITIALIZE volumes for the maintenance environment
  - ZTRS2A – primary res volume
  - ZTRS2B – secondary res volume
  - ZTUS2A – primary USS volume
  - ZTUS2B – secondary USS volume
  - ZTPP2A – primary program product volume,
  - ZTPP2B – secondary program product volume
Constructing Maintenance Environment

• Copy datasets from run-time to maintenance environment
  • ZTRS1A → ZTRS2A
  • ZTRS1B → ZTRS2B
  • ZTUS1A → ZTUS2A
  • ZTUS1B → ZTUS2B
  • ZTPP1A → ZTPP2A
  • ZTPP1B → ZTPP2B

• When copying USS datasets, rename dataset using &SYSR1
  • OMVS.ZTRS1A.ROOT → OMVS.ZTRS2A.ROOT
  • OMVS.ZTRS1A.VAR → OMVS.ZTRS2A.VAR
  • etc.
Constructing Maintenance Environment

- Clone SMP/E target environment
  - Allocate new empty CSI to hold QA target zone
  - ZONECOPY TSTTGT1 to TSTTGT2
  - ZONECOPY program product targets
  - ZONEEDIT DDDEF to change volumes for TSTTGT2
    - CHANGE VOLUME (ZTRS1A,ZTRS2A).
    - CHANGE VOLUME (ZTRS1B,ZTRS2B).
  - ZONEEDIT DDDEF to change volumes for program products
    - CHANGE VOLUME (ZTPP1A,ZTPP2A).
    - CHANGE VOLUME (ZTPP1B,ZTPP2B).
- Mount USS filesystems at /SERVICE, /SERVICE/var, etc.
Constructing Maintenance Environment

- Run your SMP/E APPLY or APPLYs
- Create IEASYMxx and BPXPRMxx members as before
- IPL and test
- When tested, roll out to QA and PROD as before
- Production TZONE is PRDTGTx
- When ACCEPTing maint, relate MVSD100 to TSTTGTx, depending on the current active target zone
Summary

• Reviewed environmental assumptions
• Started from completion of ServerPac install
• Discussed how to create initial run-time environment
• Reviewed PARMLIB options related to IPL and backout
• Showed how to create maintenance environment
• Discussed methodologies for roll-out
Finally…

• I’d like to hear about how you roll-out maintenance
• Please Email me with comments and/or questions
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