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

```
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 enviroment
- 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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