Upgrading from POWER5 to POWER6 @ Australia Post

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AUSTRALIA **POST**

Who is this bloke!?

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Purpose

❑ Share our POWER6 upgrade experience with AIX community.

❑ Exchange ideas with other AIX customers.

❑ Provide feedback to IBM development.

Audience

❑ Technical

❑ AIX

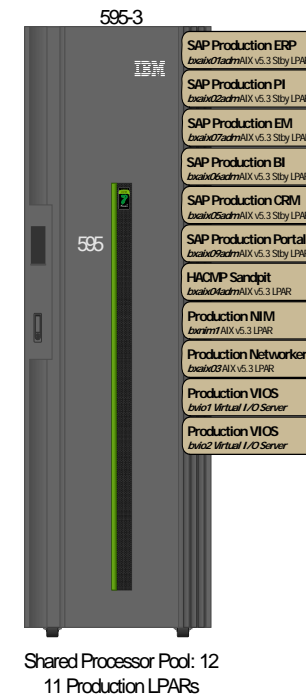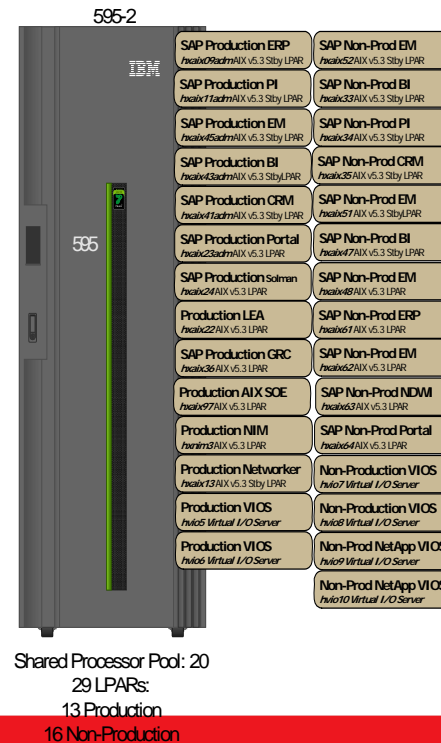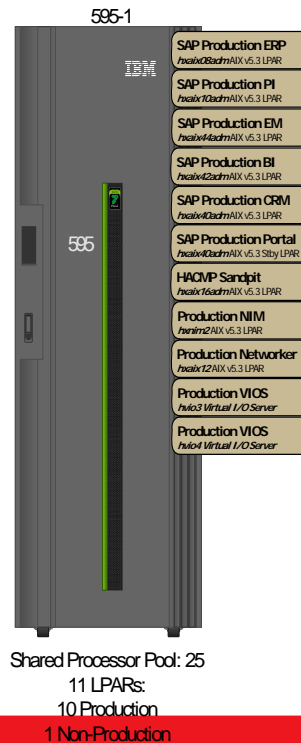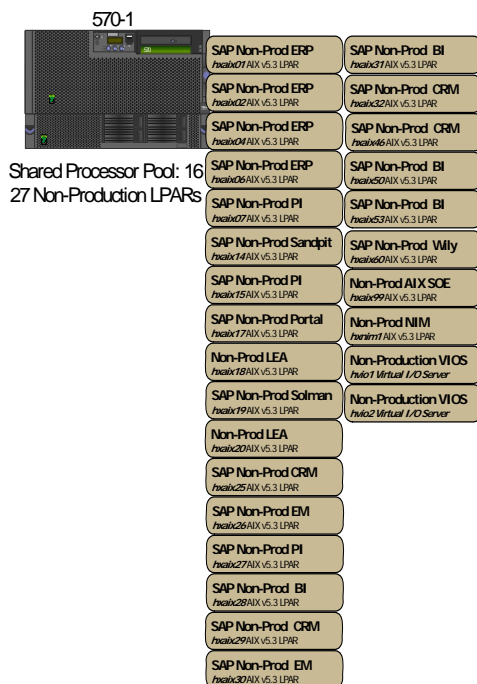**AUSTRALIA POST**

Introduction

❑ Discuss my experiences when upgrading a POWER5 595 to a new POWER6 595.

❑ Not intended as an official "how-to" guide

❑ Discussion on how I performed the upgrade and what decisions and considerations I made during the planning and execution phases.

❑ I hope that this information will help others who need to perform similar tasks within their own organizations or those of their customers.

❑ Each environment is different. Most sites customize their AIX and POWER hardware configuration to meet their requirements.

❑ What I describe here may not match what you have in your environment.

❑ Use your best judgment and only apply if it is appropriate for your site.

❑ Only you can make this call, as you know more about how your AIX and POWER infrastructure is configured (and why) than anyone else!

Posts POWER and AIX Landscape

❑ An important note: All of my LPARs were virtualized; i.e. micro-partitioned, virtual I/O (VIO) for all disk and network devices.

❑ All physical devices were owned by the Virtual I/O servers (VIOS).

❑ There is always an exception! One LPAR had FC adapters for Tape.

~80 LPARs

570-1
Shared Processor Pool: 16
27 Non-Production LPARs

SAP Non-Prod ERP *hxaix01* AIX v5.3 LPAR	SAP Non-Prod BI *hxaix31* AIX v5.3 LPAR
SAP Non-Prod ERP *hxaix02* AIX v5.3 LPAR	SAP Non-Prod CRM *hxaix32* AIX v5.3 LPAR
SAP Non-Prod ERP *hxaix04* AIX v5.3 LPAR	SAP Non-Prod CRM *hxaix46* AIX v5.3 LPAR
SAP Non-Prod ERP *hxaix06* AIX v5.3 LPAR	SAP Non-Prod BI *hxaix50* AIX v5.3 LPAR
SAP Non-Prod PI *hxaix07* AIX v5.3 LPAR	SAP Non-Prod BI *hxaix53* AIX v5.3 LPAR
SAP Non-Prod Sandpit *hxaix14* AIX v5.3 LPAR	SAP Non-Prod Wlly *hxaix60* AIX v5.3 LPAR
SAP Non-Prod PI *hxaix15* AIX v5.3 LPAR	Non-Prod AIX SOE *hxaix99* AIX v5.3 LPAR
SAP Non-Prod Portal *hxaix17* AIX v5.3 LPAR	Non-Prod NIM *hxnim1* AIX v5.3 LPAR
Non-Prod LEA *hxaix18* AIX v5.3 LPAR	Non-Production VIOS *hvio1 Virtual I/O Server*
SAP Non-Prod Solman *hxaix19* AIX v5.3 LPAR	Non-Production VIOS *hvio2 Virtual I/O Server*
Non-Prod LEA *hxaix20* AIX v5.3 LPAR	
SAP Non-Prod CRM *hxaix25* AIX v5.3 LPAR	
SAP Non-Prod EM *hxaix26* AIX v5.3 LPAR	
SAP Non-Prod PI *hxaix27* AIX v5.3 LPAR	
SAP Non-Prod BI *hxaix28* AIX v5.3 LPAR	
SAP Non-Prod CRM *hxaix29* AIX v5.3 LPAR	
SAP Non-Prod EM *hxaix30* AIX v5.3 LPAR	

595-1
Shared Processor Pool: 25
11 LPARs:
10 Production
1 Non-Production

- SAP Production ERP *hxaix08adm* AIX v5.3 LPAR
- SAP Production PI *hxaix10adm* AIX v5.3 LPAR
- SAP Production EM *hxaix44adm* AIX v5.3 LPAR
- SAP Production BI *hxaix42adm* AIX v5.3 LPAR
- SAP Production CRM *hxaix40adm* AIX v5.3 LPAR
- SAP Production Portal *hxaix40adm* AIX v5.3 Stby LPAR
- HACMP Sandpit *hxaix16adm* AIX v5.3 LPAR
- Production NIM *hxnim2* AIX v5.3 LPAR
- Production Networker *hxaix12* AIX v5.3 LPAR
- Production VIOS *hvio3 Virtual I/O Server*
- Production VIOS *hvio4 Virtual I/O Server*

595-2
Shared Processor Pool: 20
29 LPARs:
13 Production
16 Non-Production

SAP Production ERP *hxaix09adm* AIX v5.3 Stby LPAR	SAP Non-Prod EM *hxaix52* AIX v5.3 Stby LPAR
SAP Production PI *hxaix11adm* AIX v5.3 Stby LPAR	SAP Non-Prod BI *hxaix33* AIX v5.3 Stby LPAR
SAP Production EM *hxaix45adm* AIX v5.3 LPAR	SAP Non-Prod PI *hxaix34* AIX v5.3 Stby LPAR
SAP Production BI *hxaix43adm* AIX v5.3 Stby LPAR	SAP Non-Prod CRM *hxaix35* AIX v5.3 Stby LPAR
SAP Production CRM *hxaix41adm* AIX v5.3 Stby LPAR	SAP Non-Prod EM *hxaix51* AIX v5.3 Stby LPAR
SAP Production Portal *hxaix23adm* AIX v5.3 LPAR	SAP Non-Prod BI *hxaix47* AIX v5.3 Stby LPAR
SAP Production Solman *hxaix24* AIX v5.3 LPAR	SAP Non-Prod EM *hxaix48* AIX v5.3 LPAR
Production LEA *hxaix22* AIX v5.3 LPAR	SAP Non-Prod ERP *hxaix61* AIX v5.3 LPAR
SAP Production GRC *hxaix36* AIX v5.3 LPAR	SAP Non-Prod EM *hxaix62* AIX v5.3 LPAR
Production AIX SOE *hxaix97* AIX v5.3 LPAR	SAP Non-Prod NDWI *hxaix63* AIX v5.3 LPAR
Production NIM *hxnim3* AIX v5.3 LPAR	SAP Non-Prod Portal *hxaix64* AIX v5.3 LPAR
Production Networker *hxaix13* AIX v5.3 Stby LPAR	Non-Production VIOS *hvio7 Virtual I/O Server*
Production VIOS *hvio5 Virtual I/O Server*	Non-Production VIOS *hvio8 Virtual I/O Server*
Production VIOS *hvio6 Virtual I/O Server*	Non-Prod NetApp VIOS *hvio9 Virtual I/O Server*
	Non-Prod NetApp VIOS *hvio10 Virtual I/O Server*

595-3
Shared Processor Pool: 12
11 Production LPARs

- SAP Production ERP *hxaix01adm* AIX v5.3 Stby LPAR
- SAP Production PI *hxaix02adm* AIX v5.3 LPAR
- SAP Production EM *hxaix07adm* AIX v5.3 LPAR
- SAP Production BI *hxaix06adm* AIX v5.3 Stby LPAR
- SAP Production CRM *hxaix05adm* AIX v5.3 Stby LPAR
- SAP Production Portal *hxaix09adm* AIX v5.3 Stby LPAR
- HACMP Sandpit *hxaix04adm* AIX v5.3 LPAR
- Production NIM *hxnim1* AIX v5.3 LPAR
- Production Networker *hxaix03* AIX v5.3 LPAR
- Production VIOS *hvio1 Virtual I/O Server*
- Production VIOS *hvio2 Virtual I/O Server*

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Upgrade Overview

❑ I needed to upgrade my existing System p® 595 (9119-595) landscape to the new POWER6 595 (9119-FHA).

❑ MES upgrade. MES stands for Miscellaneous Equipment Specification. An MES upgrade includes any server hardware change, which can be an addition, improvement, removal, or any combination of these.

❑ An important feature of an MES upgrade is that the systems serial number does not change.

Upgrade Overview – continued.

❑ Essentially, our upgrade from POWER5 to POWER6 involved moving the existing I/O drawers (including internal disks, FC, and Ethernet adapters) from the POWER5 frame to the POWER6 frame.

❑ Once completed, the POWER6 system would be powered up and the IBM CE (Customer Engineer) would then hand back the system to me.

❑ Attempt to bring up the LPARs on the new POWER6 server.

❑ This was the first time I had migrated to a newer POWER platform using the MES upgrade method, and I had concerns.

❑ In the past I had migrated AIX systems to newer platforms with both the old and new systems sitting side by side.

❑ For example, POWER4 to POWER5:

  • New 9119-595 sat next to the old p4 p690.
  • Connected 595 to SAN and network.
  • Started moving LPARs from the p690 (one at a time) by restoring a mksysb using Network Installation Manager (NIM).

Upgrade Overview – continued.

- The advantage with this method was if we had an issue on the new 595, we could easily fallback to the p690, as the original LPAR was still available. It also allowed us time to test the 595 before we unleashed any workload onto the system.
- This gave us greater confidence that all our components were compatible (such as software and firmware) and functioning as expected. It essentially gave us time to shake out any bugs or issues with the new hardware.

❑ This method was what I considered, at the time, my preferred way of performing the migration to POWER6.

❑ MES upgrade method. Old p5 system shut down, rolled out the door, and the new p6 moved into its place.

❑ IBM CE transfer I/O drawers, configure the system, verify it was OK, hand it back to me, and walk away (so to speak!).

❑ The *'big bang'* upgrade approach. Not able to rehearse or test the upgrade process. *Potential* to be caught out by unknown issues.

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Upgrade Overview – continued.

❑ Concern if there was a problem with the 9119-FHA, we did not have a way to easily back out to the old system.

❑ Could not simply power up the old p5 and start the LPARs.

❑ Nor could we test that the new hardware was functioning OK, in advance, before activating the LPARs and running production workload.

❑ Given that this was an MES upgrade and that wasn't going to change, I set about planning for the upgrade.

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Planning and Preparation.

❑ Decide migration approach.

❑ Two choices here;

- Rebuild VIOS and LPARs from mksysb. ☹
- Attempt to boot them from disk. :-\

❑ Official method to migrate LPARs to newer or different hardware was using a "mksysb clone" operation. Taking a mksysb of the LPAR and restoring it on the new p6 system.

❑ Interested in simply booting the LPARs on the new p6 595.

❑ Not guaranteed to work. Need appropriate device driver filesets to support the new platform.

❑ Systems installed with "*Enable System Backups to install any system*" set to *Yes*.

❑ Enables systems to be installed on any other system (using cloning) by installing all devices and kernels. No guarantee is implied by this setting.

❑ Think about how Live Partition Mobility works, and the fact that you can move a Virtual I/O client (VIOC) LPAR from one physical system to another (without a mksysb restore), I wonder if this may change in the future?

❑ /usr/lpp/bosinst/bosinst.template.README file for more details.

Planning and Preparation - continued.

❑ Some evidence on the AIX forums suggested that this method may work. One customer had reported using this method when they upgraded from a p5 570 to a p6 570.

❑ MES upgrade impact on I/O bus numbering and LPAR profiles?

❑ 9119-595 to 9119-FHA MES upgrade instructions stated that the I/O bus numbering did not change after the upgrade.

❑ Were my LPAR profiles going to be recovered, and intact, on the new p6, or would I need to rebuild?

❑ The MES upgrade instructions stated the IBM CE should perform a Recover Partition Data operation, using the HMC, after the upgrade.

❑ I should not need to recreate all of my LPAR profiles from scratch (either using the System Planning Tool (SPT) or a scripting method).

❑ System serial number was guaranteed not to change. No application licensing problems.

Planning and Preparation - continued.

❑ My approach to the upgrade. Boot LPARs (VIOS included) and use mksysb restore only if I had serious issues bringing up the systems (in a clean state).

❑ My procedure would be:

- Document virtual mappings on each VIOS i.e. *lsmap –all* and *lsmap –all –net*.
- Collect PVID/LUNID info for all VTDs backed by physical disks.
- Take a mksysb of all LPARs and VIOS. Use these to restore from, if required.
- Back up the managed systems partition profile data.
- IBM CE perform the hardware upgrade to POWER6.
- IBM CE restore the managed systems profile data from the previous backup.
- Verify profile data for each AIX LPAR and VIOS is correct on the HMC.
- Upon successful verification of LPAR and VIOS profiles, boot each VIOS.
- Enter the SMS menu, confirm the boot list, and boot the VIOS.
- Verify the virtual device configuration and status on each VIOS.
- Perform a health check on each VIOS. If health check not successful → mksysb restore via NIM.
- Upon successful verification of each VIOS, boot each LPAR.
- Enter the SMS menu, confirm the boot list, and boot the LPAR.
- If booting LPAR failed, restore LPAR from mksysb.
- Correct the boot list on each LPAR.
- Start functional verification of environment i.e. VIOS failover and application startup and test.

❑ Ensure the process executed with great deal of care and attention.

❑ Any unforeseen issues that could not resolve quickly → revert to mksysb.

Planning and Preparation – FLRT - cont.

❑ Check software and hardware levels to support the new POWER6 platform.

❑ Used the IBM Fix Level Recommendation Tool (FLRT) to determine levels compatible with the 9119-FHA.

❑ FLRT provides recommended fix level information on key components of IBM POWER systems.

❑ Highly recommend tool when planning any type of AIX or POWER upgrade activity.

Planning and Preparation – Levels - cont.

❑ In the months leading up to the upgrade, we updated the following components to the following levels, in the following order:

- HMC V7R3.4.0 + MH01152
- Firmware Updated various H/W (for example, FC, SCSI and Ethernet adapters)
- VIOS 1.5.2.1-FP-11.1 + SDDPCM 2.2.0.4
- AIX 5300-07-05-0831
- HACMP 5.4.1.3 + RSCT fixes

❑ Prior to upgrade, captured a plethora of configuration information relating to the 595, AIX, VIOS, HACMP, and HMC.

❑ If I needed to recover anything from scratch, I wanted to be well prepared and have a wealth of information at hand should I need it.

❑ The following highlights just some of the data I collected using scripts and other methods:

- Ran my *AIXinfo* script to collect vast amounts of information relating to the AIX configuration of each and every LPAR.

- The script ran several system commands, such as oslevel, lppchk, instfix, lsconf, lscfg, lsdev, lsattr and many more. The information was stored in a text file on another system.

- Created a Microcode Discovery Service (MDS) Report for each VIOS and any LPAR that contained physical hardware like FC adapters or SCSI disks.

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Planning and Preparation – Levels - cont.

Planning and Preparation – Levels - cont.

❑ Information from the HMC:

  - LPAR profile (CPU/Memory allocation).
  - Managed system properties.
  - Physical I/O adapter assignment.
  - Virtual adapter definitions.
  - This could be captured using the SPT or simple screen captures from the HMC.

❑ Virtual I/O mapping and configuration

  - lsmap –all and lsmap –all –net output.
  - Shared Ethernet Adapter (SEA) settings.
  - VTD mapping.
  - pcmpath output.
  - vhost slot numbers, and more.
  - Location codes for the VIOS rootvg disks, which proved to be an important step.

Planning and Preparation – Levels - cont.

❑ Cable locations and labels.

- All SAN and network connections would be unplugged during the migration. Connected again after upgrade. Label each cable so they are connected to the right location after the upgrade.

❑ Build documentation.

- On hand in case I needed to refer to it. Outlined how systems had been built and configured originally.

❑ HACMP information.

- Several HACMP cluster nodes. Cluster information i.e. clstat, cltopinfo, clsnapshot, cldump, clRGinfo, and cldisp. Exported cluster configuration using the HACMP Online Planning Worksheets, such as # smit cl_export_def_olpw.dialog.

❑ HACMP configuration for each cluster synchronized prior to the upgrade.

❑ Reviewed AIX and VIOS error report. Catching (and resolving) issues before a major upgrade can save you from headaches later on.

❑ Check the HMC for any open hardware events, like $ lssvcevents –t hardware.

❑ HMC readiness checker to identify any 595 hardware issues that may impact the upgrade. You'll find this task on the HMC under "Updates." Once you select a managed system, you can click on Check system readiness.

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POWER6 Upgrade.

❑ On the day of the upgrade, I shut down all the LPARs and handed the system over to the IBM CE.

❑ 6 hours performing hardware upgrade.

❑ HACMP clustered systems. Production workload was processed on another 595 while one was down for the upgrade.

❑ When the CE gave the system back to me, the first thing I did was check that all of my cables were plugged in correctly. They were.

❑ Next I verified that all my LPAR profiles had been recovered successfully on the new system. They had.

❑ I double checked each profile and found that the partition id and the bus numbers had not changed.

❑ Also, the location codes for all adapters (e.g. TY-P1-C02) had not changed.

❑ The serial number, as promised, had not changed.

❑ This was all good news!

POWER6 Upgrade - continued.

Booting each VIOS.

❑ Next step was to boot the VIOS.

❑ Activated one VIOS.

❑ Took a while. Large number of disks disks (100+) assigned to VIOS. 4 paths to SAN. All scanned.

❑ Entered SMS. Confirmed boot list contained correct rootvg disk for this VIOS (which is where my documentation came in very handy).

❑ Needed to be careful here. Several disks identified with an AIX image installed. Did *not* belong to this VIOS rootvg!

❑ rootvg disks that belonged to client LPARs. Pick wrong disk, boot wrong system!

❑ Important to collect the location codes for VIOS rootvg disks prior to the upgrade.

❑ Exited SMS. VIOS boot as normal. The system came up without any errors.

❑ Console login (padmin). Ran lsmap –all and lsmap –all –net. All virtual adapter mappings and SEAs were available.

❑ Only difference observed, vhost location codes changed, from 595 to FHA (as shown below); however, slot numbers and serial number identical:

```
< vhost0 U9119.595.8369B40-V2-C20 0x00000000
---
➢ vhost0 U9119.FHA.8369B40-V2-C20 0x00000000
```

❑ Boot list on VIOS changed. hdisk0 and ent0 in list. Change boot list:

```
# bootlist –m normal hdisk0 hdisk8
```

❑ Expected. NVRAM (contains the boot list) not carried over from the old p5 to the new p6.

VIOS health checks.

❑ Before starting LPARs. Performed health checks on VIOS. General health. Looking anomalies, such as devices in *Defined* state, permanent hardware errors in error log, etc.

VIOS checks	Description
lsconf	Ensure processor shows POWER6
ioslevel	Confirm VIOS level
cfgdev	Check for any missing device filesets
lsmap -all	Check VTD mapping
lsmap -all -net	Check SEA configuration
lsdev -virtual	Check Virtual devices are *Available*
lsdev -type disk	Check disk devices are *Available*
lsdev -type adapter	Check adapters are *Available*
entstat -all	Check SEA status and priority
errlog	Review errlog for any critical errors
lsdev -dev fscsiX -attr	Review device attributes
lsdev -dev hdiskX -attr	Review disk device attributes
lspv	Check disk pvids
pcmpath query adapter	Check SDDPCM adapter status
pcmpath query device	Check SDDPCM disk device status and

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VIOS health checks – continued.

`pcmpath query adapter`	Check SDDPCM adapter status
`pcmpath query device`	Check SDDPCM disk device status and LUNIDs
`pcmpath query wwpn`	Check FC adapter WWPNs known to SDDPCM
`pcmpath query version`	Check SDDPCM level
`lspath`	Check all disk paths are enabled
`netstat -nr`	Check default gateway

Booting the LPARs.

❑ Once both VIOS activated OK. Start AIX LPAR. Boot into SMS. Review boot list. Verified correct rootvg disk in list. It was. The LPAR booted as normal.

AIX Health Checks.

❑ Health checks on AIX LPAR. Verified operating as expected. Reset boot list:

```
# bootlist –m normal hdisk0 blv=bos_hd5 hdisk1 blv=bos_hd5
```

❑ Pay particular attention if you use multibos on your AIX systems. May have two BLVs. Choose correct disk partition to boot from (e.g. part=2 or part=4); otherwise, could boot from older image. Recommend you remove multibos instances (multibos –R) prior to upgrade; avoid confusion.

```
PowerPC Firmware
Version EH340_039
SMS 1.7 (c) Copyright IBM Corp. 2000,2008 All rights reserved.
--------------------------------------------------------------------
Select Device
Device Current Device
Number Position Name
1. - SCSI 136 GB Harddisk, part=2 (AIX 5.3.0)
( loc=U9119.FHA.8369B40-V22-C46-T1-L8100000000000000 )
2. - SCSI 136 GB Harddisk, part=4 (AIX 5.3.0)
( loc=U9119.FHA.8369B40-V22-C46-T1-L8100000000000000 )
```

AIX Health Checks – cont.

AIX Checks	Description
lsconf	Ensure processor shows POWER6
cfgmgr	Check for any missing device filesets
lsdev -C | grep Defined lsdev -Cc adapter lsdev -Cc disk	Check devices are in the correct state
lparstat -i	Verify LPAR config
oslevel -s	Verify AIX SP level
oslevel -r	Verify AIX TL.
bootlist -m normal -o	Check bootlist settings. Expect output similar to: - For mirrored rootvg (including the VIOS): # bootlist -m normal -o hdisk0 blv=bos_hd5 hdisk4 blv=bos_hd5 - For SAN boot rootvg: # bootlist -m normal -o hdisk0 blv=bos_hd5 hdisk0 blv=bos_hd5

AIX Health Checks – cont.

Command	Description

`instfix -i |grep AIX`
`instfix -i |grep SP`
`instfix -icqk 53-07-050831_SP | grep ":-:"`
`instfix -icqk 5300-07_AIX_ML |grep ":-:"`
	Detects any missing AIX TL or SP filesets

`lsvg -l rootvg |grep stale`	Check for 'stale' partitions in rootvg

`df`
`mount`
`lsvg | lsvg -il | grep close`
	Check all necessary file systems are mounted.

`df /var`	Check for full /var
`df /tmp`	Check for full /tmp
`sysdumpdev -l`	Check for proper system dump config
`lsattr -El mem0`	Ensure proper memory configuration
`emgr -l`	Check 'efix' inventory if any
`lppchk -v -m3`	Verify installed filesets
`lppchk -c -m3`	Sum check installed filesets

AIX Health Checks – cont.

Command	Description
`lsps -a`	Verify paging space
`smtctl`	Verify smt on/off all the nodes
`lssrc -ls xntpd | grep "Reference Id"`	Check ntp on the nodes
`vmo -a`	Check all vmo settings
`no -a`	Check all network options settings
`netstat -nr`	Check route table
`lspath`	Check all paths are enabled
`errpt`	Check for any permanent hardware errors or other critical errors
`tail -100 /var/log/syslog`	Check for any critical errors
`alog -of /var/adm/ras/conslog`	Review errors in the console log.
`cat /etc/qconfig` `lpstat`	Check print queues are defined and enabled.
`lssrc -a`	Review *active* and *inoperative* subsystems.
`pstat -a | grep aio` `lsattr -El aio0`	Verify AIO is configured.

More Checks.

❑ Use the *Isconf* command. Quickly confirm the LPARs now running on POWER6.

❑ "System Model" changed, 9119-595 to 9119-FHA, processor type and speed.

```
System Model: IBM,9119-595
Machine Serial Number: XXXXXXX
Processor Type: PowerPC_POWER5
Number Of Processors: 4
Processor Clock Speed: 2302 MHz
CPU Type: 64-bit
Kernel Type: 64-bit
LPAR Info: 6 bxaix03
Memory Size: 2048 MB
Good Memory Size: 2048 MB
Platform Firmware level: SF240_338
Firmware Version: IBM,SF240_338
```

```
System Model: IBM,9119-FHA
Machine Serial Number: XXXXXXX
Processor Type: PowerPC_POWER6
Number Of Processors: 4
Processor Clock Speed: 5000 MHz
CPU Type: 64-bit
Kernel Type: 64-bit
LPAR Info: 6 bxaix03
Memory Size: 2048 MB
Good Memory Size: 2048 MB
Platform Firmware level: EH340_039
Firmware Version: IBM,EH340_039
```

VIOS failover verification.

❏ Satisfied each VIOS was in good shape.

❏ VIOC LPARs running fine.

❏ Performed VIOS failover tests.

❏ Ensure redundancy of dual VIOS had not been compromised as a result of the upgrade.

❏ Some of the tests included:

• Shutdown one VIOS, ensure all client LPARs not impacted e.g. SEA failover, IP connectivity OK, loss of path (and/or mirror), disk traffic OK.

• Restart VIOS, ensure fallback OK e.g. SEA fallback, IP connectivity OK, path recovery (and/or re-sync mirror), disk traffic OK.

• Ensure any LPAR with mirrored rootvg (re)synced before and after each VIOS shutdown/restart.

• Repeat the same verification procedures for the second VIOS.

• Disconnect FC and network cable (one at a time) to ensure that disk and network I/O on VIOCs not impacted.

Plan B

❏ If booting from disk had been unsuccessful, for whatever reason.

❏ Instigate Plan B.

❏ Involve restoring VIOS and LPARs from a mksysb using NIM.

❏ NIM master was located on a different 595 each time.

❏ Tested method on subsequent POWER6 upgrade. Worked equally well as just booting.

❏ Requires more time.

❏ No reconfiguration (apart from the boot list)

❏ Good idea to create a new SPOT on your NIM master for each VIOS.

❏ Create the SPOT from a mksysb of the VIOS (as shown below).

```
                    Define a Resource

 Type or select values in entry fields.
 Press Enter AFTER making all desired changes.


                                              [Entry Fields]
 * Resource Name                             [hvio3-spot]
 * Resource Type                              spot
 * Server of Resource                        [master]          +
 * Source of Install Images                  [hvio3-mksysb]    +
 * Location of Resource                      [/export/nim/spot] /
 ...
```

Plan B – cont.

❑ Change "Remain NIM client after install?" to no when configuring the VIOS NIM client

❑ BOS installation.

❑ Prevent IP address being configured on physical network adapter used for the install.

❑ If IP accidentally configured on this physical interface and it was part of a SEA.

❑ May fail to configure as the physical device is already in use.

```
      Install the Base Operating System on Standalone Clients

Type or select values in entry fields.
Press Enter AFTER making all desired changes.

                                                [Entry Fields]
* Installation Target                           hvio3
* Installation TYPE                             mksysb
* SPOT                                          hvio3-spot
  LPP_SOURCE                                    []                  +
  MKSYSB                                        hvio3-mksysb
  BOSINST_DATA to use during installation       []                  +
  IMAGE_DATA to use during installation         []                  +
  RESOLV_CONF to use for network configuration  []                  +
  Customization SCRIPT to run after installation []                 +
  Customization FB Script to run at first reboot []                 +
    ACCEPT new license agreements?              [yes]               +
  Remain NIM client after install?              [no]                +
...
```

Post Upgrade.

❑ Re-integrated HACMP nodes back into cluster

❑ Performed failover and fallback tests.

❑ No issues were discovered.

❑ A few post-upgrade tasks to perform:

- Backing the up LPAR profile data, again!
- Performing a backup of the HMC.
- Taking a mksysb of each VIOS and all the AIX LPARs.
- Reviewing any 'open' hardware events on the HMC.

Summary.

❑ Initially concerned with the approach for this upgrade.

❑ Unscathed.

❑ Specific cases. MES upgrade and booting LPARs from disk.

❑ Certainly an option worth considering.

❑ Particularly if LPARs are all VIO clients & don't use any physical devices of any kind.

❑ There are no guarantees.

❑ Choose carefully and test thoroughly in your environment*.

❑ mksysb clone is the supported way to migrate.

❑ Downside. mksysb restore will require more time.

❑ Down-time required for the restore may not be palatable in some cases i.e. no HA.

❑ Based on my experience, both methods achieved the same satisfactory result.

*We were able to do some tests with lab equipment to *simulate* the upgrade.
Not everyone has the resources to do this!

References.

❑ Upgrading from POWER5 to POWER6.

http://www.ibm.com/developerworks/aix/library/au-upgrade_power6