

Live Partition Mobility (LPM)



Where to find Live Partition Mobility Information

What's New in LPM – updated each release of firmware

Find the latest feature here – even before Redbook is updated

http://www-01.ibm.com/support/knowledgecenter/POWER8/p8hc3/p8hc3_whatsnew.htm?cp=POWER8%2F1-8-1-3-7-0

IBM PowerVM Live Partition Mobility Redbook

<http://www.redbooks.ibm.com/abstracts/sg247460.html>

IBM PowerVM Live Partition Mobility

An IBM Redbooks publication

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(based on 1 review)

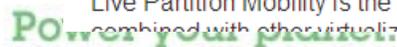
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Abstract

Live Partition Mobility is the next step in the IBMs Power Systems™ virtualization continuum. It can be combined with other virtualization technologies, such as logical partitions, Live Workload Partitions

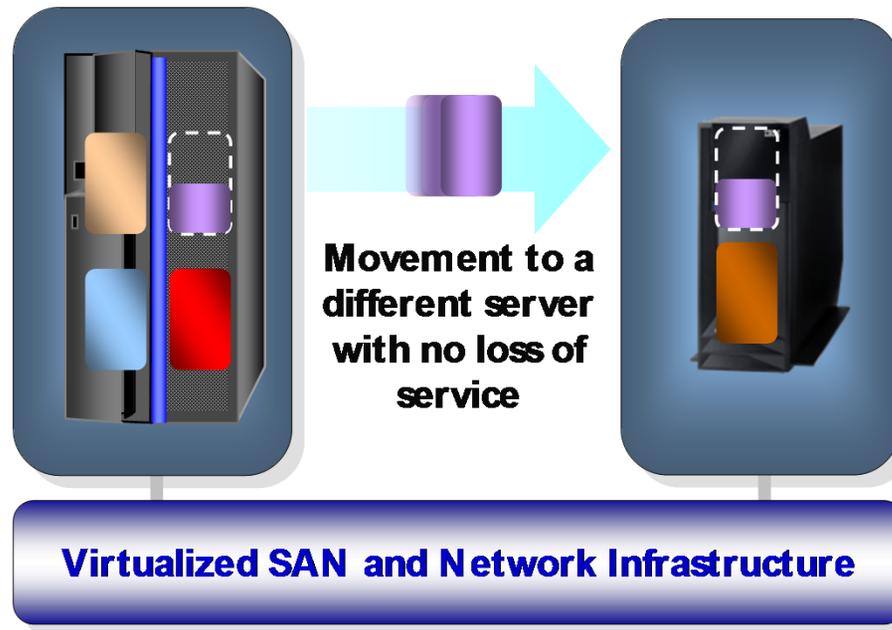
Author(s)

[Scott Vetter](#)



Live Partition Mobility

- ***Move a running partition from one POWER6/POWER7/POWER8 server to another with no application downtime***



- Reduce planned downtime by moving workloads to another server during system maintenance

- Rebalance processing power across servers when and where you need it

Partition Mobility: Active and Inactive LPARs

Active Partition Mobility

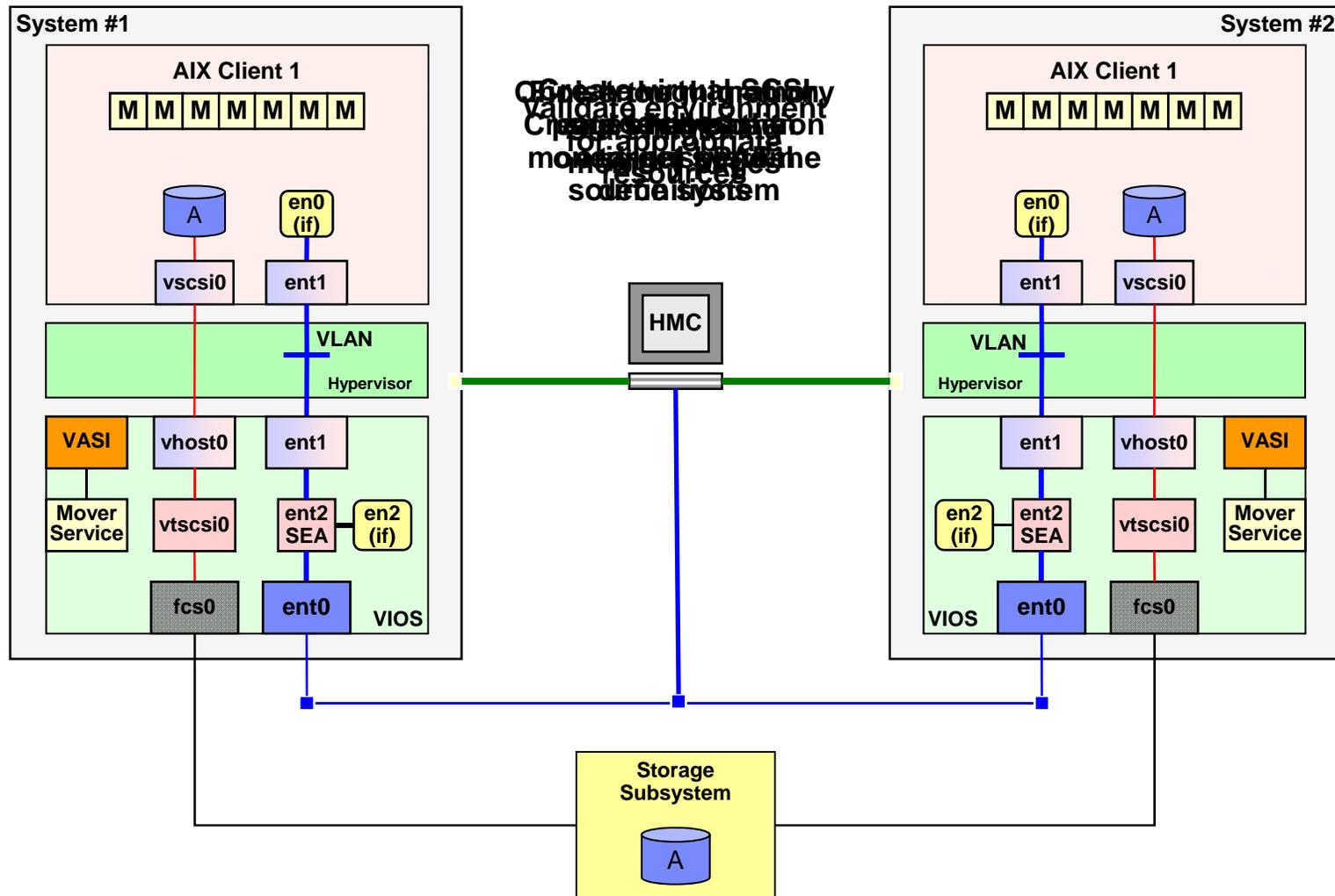
- Active Partition Migration is the actual movement of a running LPAR from one physical machine to another without disrupting the operation of the OS and applications running in that LPAR.
- Applicability
 - Workload consolidation (e.g. many to one)
 - Workload balancing (e.g. move to larger system)
 - Planned CEC outages for maintenance/upgrades
 - Impending CEC outages (e.g. hardware warning received)

Inactive Partition Mobility

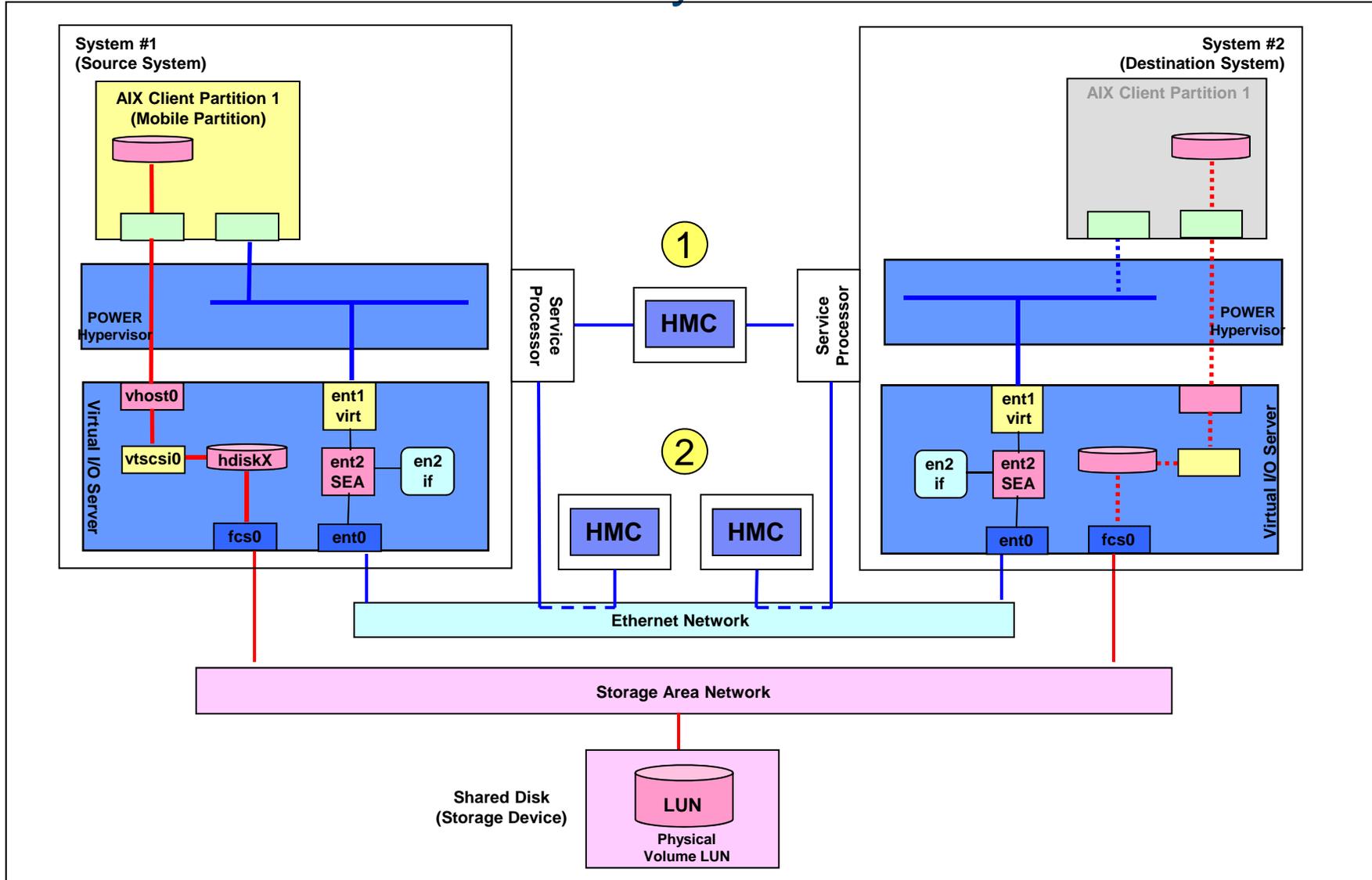
- Inactive Partition Migration transfers a partition that is logically 'powered off' (not running) from one system to another.

***Partition Mobility supported on POWER6™ ,POWER7™
and Power8 with AIX 5.3, AIX 6.1, AIX 7.1 and Linux and
System i***

Live Partition Mobility



Live Partition Mobility – Control Points



Live Partition Mobility Minimum Requirements

- Multiple POWER6 or POWER7 or Power8 systems
- PowerVM Enterprise Edition activations on systems
- System Firmware Recommended Min E*340_039 for POWER6
- All Power7 and Power8 firmware releases supported
- HMC Version 7 Releases 3.2, 3.3, 3.4 (for remote HMC support), 3.5, 7.1
- VIO Server
 - V1.5.2.1-FP-11.1 for POWER6
 - V2.1.2.11-FP-22.1 for POWER7
- Integrated Virtualization Manager if there is no HMC
- Shared SAN between servers
- Supported client operating systems
 - Minimum AIX V5.3 TL7 SP1 or AIX V6.1 SP1 for POWER6
 - Minimum AIX V5.3 TL9 SP7 or AIX V6.1 TL2 SP8 for POWER7
 - Minimum SuSE Linux for Power V10 SP1
 - Minimum RedHat Linux for Power Version 5.1 (RHSA-2007:0993-13)
 - Moving LPAR can only contain virtual resources
 - Virtual SCSI
 - Virtual Fibre Channel
 - Virtual Ethernet
 - Default virtual serial adapters

From “What’s New” website - Firmware support matrix for partition mobility

Table 1. Firmware level

Migrating from firmware level	350_xxx, or later	P7 730_xxx	P7 740_xxx	P7 760_xxx	P7 763_xxx	P7 770_xxx	P7 773_xxx	P7 780_xxx	P7 783_xxx	P8 810_xxx	P8 820_xxx
350_xxx, or later	Mobile	Mobile	Mobile	Mobile	Mobile	Mobile	Mobile	Mobile	Mobile	Mobile	Mobile
P7 730_xxx	Mobile	Mobile	Mobile	Mobile	Mobile	Mobile	Mobile	Mobile	Mobile	Mobile	Mobile
P7 740_xxx	Mobile	Mobile	Mobile	Mobile	Mobile	Mobile	Mobile	Mobile	Mobile	Mobile	Mobile
P7 760_xxx	Mobile	Mobile	Mobile	Mobile	Mobile	Mobile	Mobile	Mobile	Mobile	Mobile	Mobile
P7 763_xxx	Mobile	Mobile	Mobile	Mobile	Mobile	Mobile	Mobile	Mobile	Mobile	Mobile	Mobile
P7 770_xxx	Mobile	Mobile	Mobile	Mobile	Mobile	Mobile	Mobile	Mobile	Mobile	Mobile	Mobile
P7 773_xxx	Mobile	Mobile	Mobile	Mobile	Mobile	Mobile	Mobile	Mobile	Mobile	Mobile	Mobile
P7 780_xxx	Mobile	Mobile	Mobile	Mobile	Mobile	Mobile	Mobile	Mobile	Mobile	Mobile	Mobile
P7 783_xxx	Mobile	Mobile	Mobile	Mobile	Mobile	Mobile	Mobile	Mobile	Mobile	Mobile	Mobile
P8 810_xxx	Mobile	Mobile	Mobile	Mobile	Mobile	Mobile	Mobile	Mobile	Mobile	Mobile	Mobile
P8 820_xxx	Mobile	Mobile	Mobile	Mobile	Mobile	Mobile	Mobile	Mobile	Mobile	Mobile	Mobile

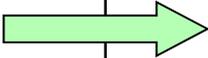
© Rectangular Snip

Managed System (host) Requirements



PowerVM™ Editions



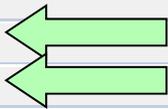
	Express	Standard	Enterprise
Maximum LPARs	1+2 / Server	10 / Core	10 / Core
Management	IVM	IVM, HMC	IVM, HMC
Virtual I/O Server	✓	✓	✓
Shared Dedicated Capacity	✓	✓	✓
NPIV	✓	✓	✓
Multiple Shared Processor Pools		✓	✓
Active Memory Sharing			✓
Live Partition Mobility			 ✓

PowerVM Enterprise Edition

Managed System (host) - Properties

Capabilities Advanced

Capability	Value
Active Memory Sharing Capable	True
IBM i Capable	True
5250 Application Capable	False
CoD Capable	True
Processor Capable	True
Memory Capable	False
Micro-partitioning Capable	True
Virtual I/O Server Capable	True
Logical Host Channel Adapter Capability	True
Logical Host Ethernet Adapter Capability	True
Huge Page Capable	True
Barrier Synchronization Register (BSR) Capable	True
Service Processor Failover Capable	True
Shared Ethernet Adapter Failover Capable	True
Redundant Error Path Reporting Capable	True
GX Plus Capable	True
Hardware Discovery Capable	True
Active Partition Mobility Capable	True
Inactive Partition Mobility Capable	True



Live Partition Capability Status - HMC

Server-Power7-750

General
Processors
Memory
I/O
Migration
Power-On Parameters
Capabilities
Advanced

Migration Capabilities

Type	Capable	Number of Supported Migrations	Number of Migrations in progress
Inactive	True	4	0
Active	True	8	0

Migration Policies

Inactive profile migration policy Partition Configuratio ▼

Partition Configuration ▼

OK
Cancel
Help

From “What’s New website” – Concurrent Migrations

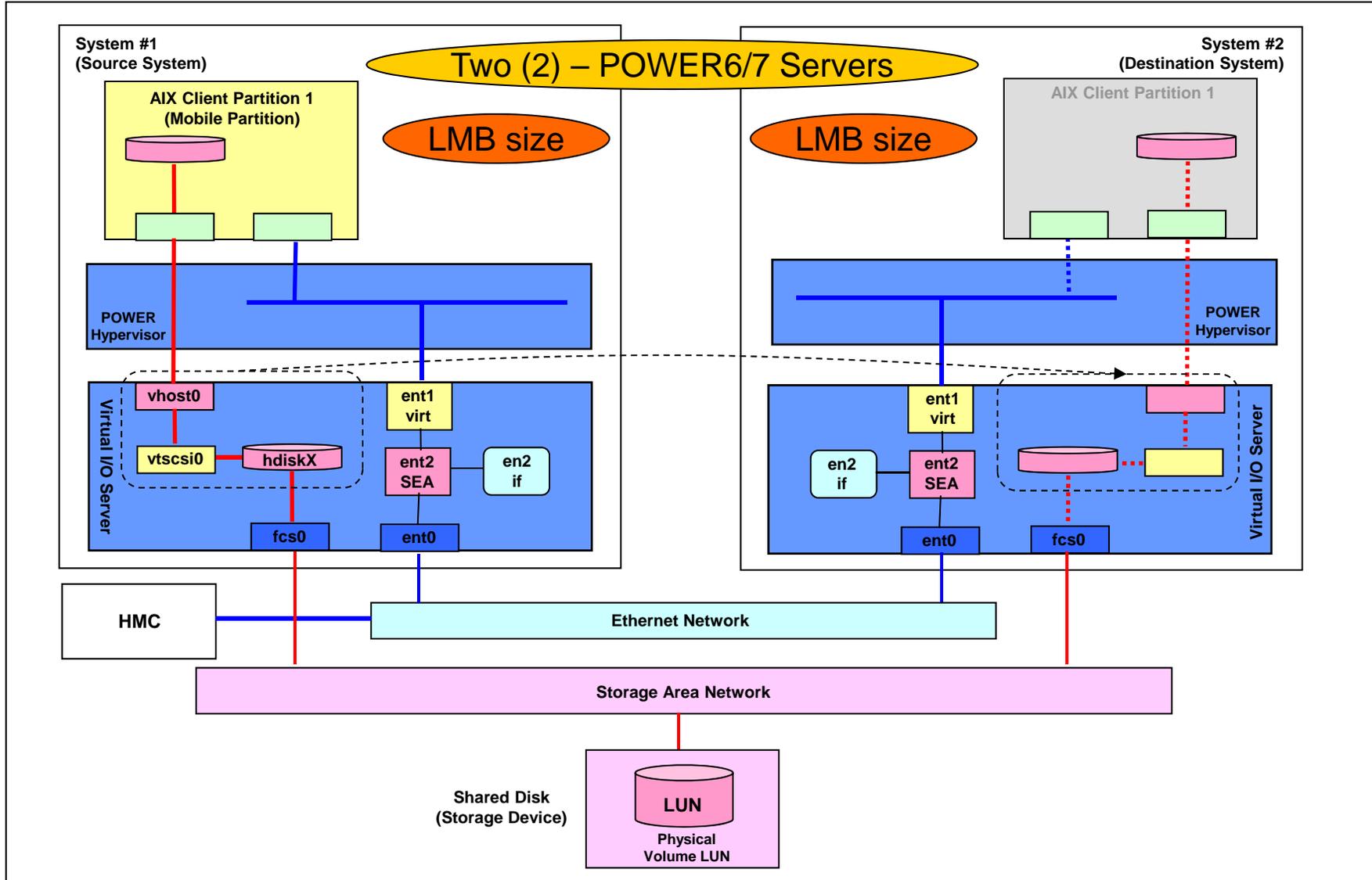
Table 2. Concurrent migrations

Concurrent migrations per system	Firmware level	HMC level	VMControl	VIOS level	Maximum concurrent migrations per VIOS
4	All	All	All	All	4
8	All	Version 7 Release 7.4.0, Service Pack 1, with mandatory fix MH01302, or later	VMControl Version 1.1.2, or later	Version 2.2.0.11, Fix Pack 24, Service Pack 1, or later	4
16	Level 7.6, or later	Version 7 Release 7.6.0, or later	VMControl V2.4.2	Version 2.2.2.0, or later	8

Restrictions:

- Firmware levels 7.2 and 7.3 are restricted to eight concurrent migrations.
- With a 1 GB network adapter, up to four concurrent migrations are supported. From VIOS Version 2.2.2.0 or later, you must have a 10 GB network adapter to support eight concurrent migrations.
- From VIOS Version 2.2.2.0, or later, you must have more than one pair of VIOS partitions to support more than eight concurrent mobility operations.
- The Suspend/Resume feature for logical partitions is not supported on POWER8™ processor-based servers.
- Systems that are managed by the Integrated Virtualization Manager (IVM) support up to 8 concurrent migrations.
- To support the migration of up to 16 active or suspended mobile partitions from the source server to a single or multiple destination servers, the source server must have at least two VIOS partitions that are configured as mover service partitions. Each mover service partition must support up to 8 concurrent partition migration operations. If all 16 partitions are to be migrated to the same destination server, then the destination server must have at least two mover service partitions configured, and each mover service partition must support up to 8 concurrent partition migration operations.

Logical Memory Block (LMB) Size



Logical Memory Block (Memory Region Size)

Managed System - Properties

General Processors **Memory** I/O Migration Power-On Parameters Capabilities Advanced

Details of the managed system's memory are listed below.

Available:	118.50 GB (121344 MB)
Assigned to partitions:	8.00 GB (8192 MB)
Reserved:	1.50 GB (1536 MB)
Configurable:	128.00 GB (131072 MB)
Installed:	128.00 GB (131072 MB)
Memory region size:	0.25 GB (256 MB) ←
Active memory sharing support:	Yes

MUST match on Source / Destination Power Servers

Logical Memory Block (Memory Region Size)

The screenshot shows the IBM Advanced System Management (ASM) web interface in Internet Explorer. The browser title is "DBHMC1: Advanced System Management - Windows Internet Explorer provided by IBM". The URL is "https://9.5.167.120/hmc/content?taskId=4119&refresh=7036". The page header includes the IBM logo, "Advanced System Management", and copyright information: "Copyright © 2002, 2011 IBM Corporation. All rights reserved." The user is logged in as "admin" (User ID: admin) on "Server-Power7-750" (AL730_049). The main content area is titled "Logical Memory Block Size" and features a "Setting:" dropdown menu currently set to "256 MB". A "Save" button is visible below the dropdown. The left sidebar contains a navigation menu with options like "Expand all menus", "Collapse all menus", "Power/Restart Control", "System Service Aids", "System Information", "System Configuration", "Network Services", "Performance Setup", "Logical Memory Block Size", "System Memory Page Setup", "On Demand Utilities", "Concurrent Maintenance", and "Login Profile". The Windows taskbar at the bottom shows the start button, several open applications, and system tray icons including a 98% battery level and the date "Wednesday 5/2/2012 5:48 PM".

LMB Modification Requires Reboot of Managed System

Virtual I/O Server (VIOS) Requirements



Mover Service Partition (MSP)

- Required for ACTIVE Partition Mobility only
- Provides VIO Server functions:
 - Asynchronously extracts, transports, installs partition state during migrations
- MSP must contain a single VASI virtual device
 - Virtual asynchronous services interface (VASI)
 - Provides communication between Hypervisors to gain access to partition state

VIOS – MSP Flag set “ON” (Active Migration)

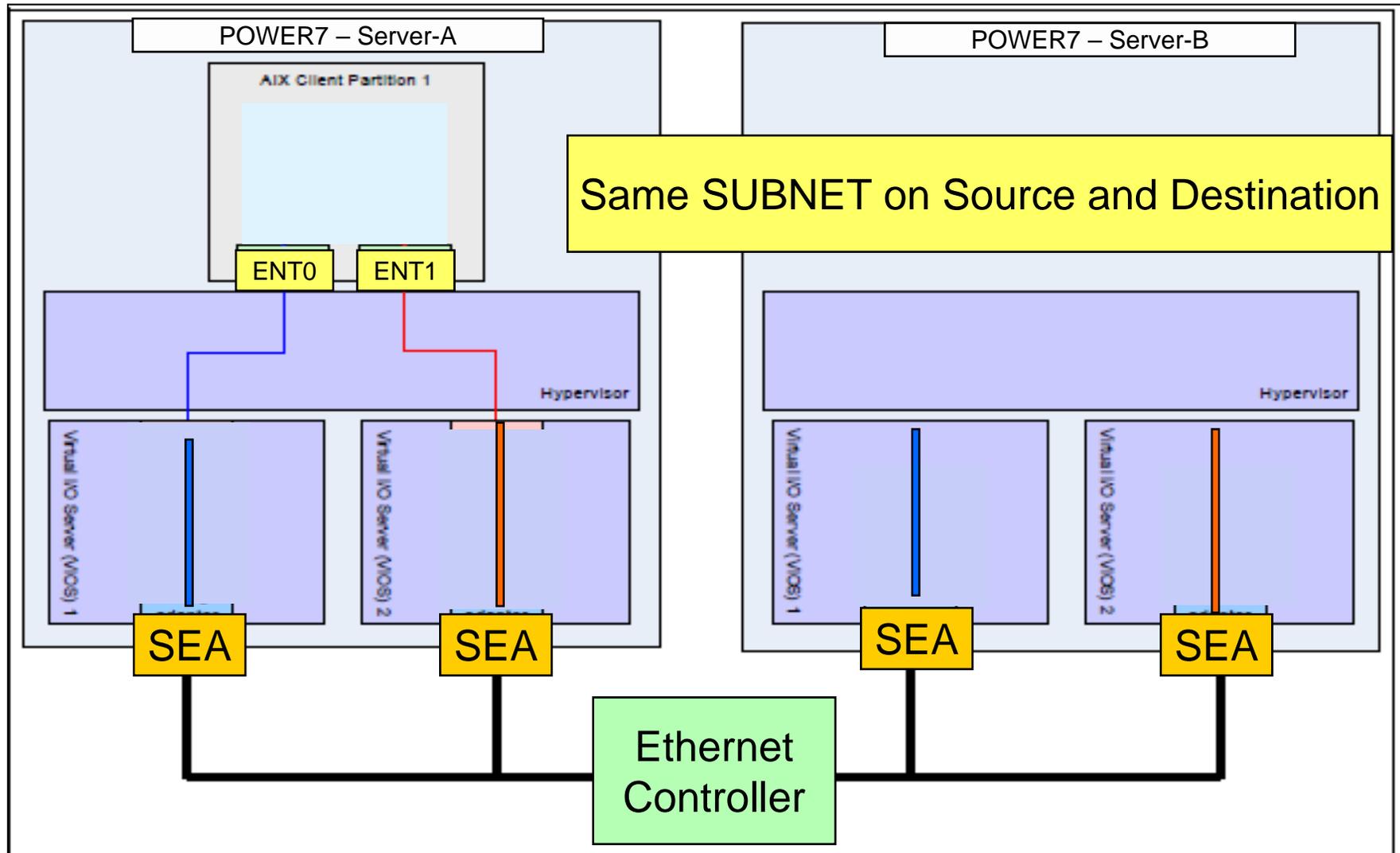
Source Server

The screenshot shows the DBHMC1 interface for a source server. In the 'Systems Management' tree, 'Server-Power7-750' is selected. A table lists partitions: 'stg-p7-aix1' (unchecked) and 'vios1_Do_Not_Remove' (checked). A 'Partition Properties' dialog is open for 'vios1_Do_Not_Remove'. The 'General' tab shows: Name: *vios1_Do_Not_Remove, ID: 2, Environment: Virtual I/O Server, State: Running, Attention LED: Off, Resource configuration: Configured, OS version: AIX 6.1 6100-07-01-1141, Current profile: default, System: 8233-E8B*10106FP. The 'Mover service partition' checkbox is checked and highlighted with an orange arrow.

Destination Server

The screenshot shows the DBHMC1 interface for a destination server. In the 'Systems Management' tree, 'Server-Power6-520' is selected. A table lists partitions: 'stg_p6_vios1_Do_Not_Remove' (checked) and 'stg_p6_vios2_Do_Not_Remove' (unchecked). A 'Partition Properties' dialog is open for 'stg_p6_vios1_Do_Not_Remove'. The 'General' tab shows: Name: *stg_p6_vios1_Do_Not_Re, ID: 1, Environment: Virtual I/O Server, State: Running, Attention LED: Off, Resource configuration: Configured, OS version: AIX 6.1 6100-07-01-1141, Current profile: default, System: 8203-E4A*066EE62. The 'Mover service partition' checkbox is checked and highlighted with an orange arrow.

Live Partition Mobility (LPM) - Networking



Virtual Machine (LPAR) Requirements



Processor Architecture Compatibility

Virtual Machine – Manage Profile

Detailed below are the current processing settings for this partition profile.

Processing mode

Dedicated
 Shared

Processing units

Total managed system processing units : 12.00
Minimum processing units :
Desired processing units :
Maximum processing units :
Shared processor pool:

Virtual processors

Minimum processing units required for each virtual processor : 0.10
Minimum virtual processors :

Mode Supported by Destination Host

Sharing mode

Uncapped

Weight: Processor compatibility mode:

default
POWER6
POWER6+
POWER7
POWER6

OK Cancel Help

Virtual Client I/O & Services

DBHMC1: Hardware Management Console Workplace (V7R7.4.0.0) - Windows Internet Explorer provided by IBM

https://9.5.167.120/hmc/connects/mainuiFrameset.jsp

Hardware Management Console

Properties | Properties hscroot | Help | Logoff

Systems Management > Servers > Server-Power7-750

Select	Name	ID	Status	Proce... Units	Memor...	Act... Pro...	Environment	Refe
<input type="checkbox"/>	stg-p7-aix1	1	Running	0.5	2,048	default	AIX or Linux	
<input type="checkbox"/>	vios1_Do_Not_Remove	2	Running	1	2,048	default	Virtual I/O Server	
<input checked="" type="checkbox"/>	stg_p7_nimserver_Do_Not_Remove	3	Running	1	2,048	default	AIX or Linux	

DBHMC1: Properties - Windows Internet Explorer provided by IBM

https://9.5.167.120/hmc/wcd/T518bd

Partition Properties - stg_p7_nimserver_Do_Not_Remove

General | **Hardware** | Virtual Adapters | Settings | Other

Processors | Memory | **I/O** ←

The table below details the current I/O usage for this partition. Select slot to view the properties of each device.

Slot	Description	Added	Bus	Pool ID
Total: 0 Filtered: 0				

I/O Pools...

DBHMC1: Properties - Windows Internet Explorer provided by IBM

https://9.5.167.120/hmc/wcd/T518a8

Partition Properties - stg_p7_nimserver_Do_Not_Remove

General | Hardware | Virtual Adapters | **Settings** | Other

Boot

Boot Mode: Normal
Keylock position: Normal
Automatically start with managed system: Disabled

Service and support ←

Connection monitoring: Enabled
Service partition: Disabled
Redundant error path reporting: Disabled
Time reference: Disabled

No Physical I/O

Virtual Machine Services

start | 10:27:5... | Richard ... | 3 Wind... | pVN12.p... | capture | Inter... | Microsof... | 98% | 6:35 PM Wednesday 5/2/2012

Virtual Client – Networking

Destination host must support Client VLAN

The screenshot displays the IBM Systems Management console for a Server-Power7-750. A table lists running virtual machines, with 'stg_p7_nimserver_Do_Not_Remove' selected. Below, the 'Virtual Adapters' tab shows a list of adapters, with adapter ID 20 highlighted. A red arrow points to this adapter. To the right, the 'Properties - Windows Inter...' dialog shows the 'General' tab for adapter ID 20, with 'Virtual ethernet adapter' selected and 'VLAN ID: 1' highlighted by a red arrow.

Select	Name	ID	Status	Proce... Units	Memor...	Act... Pro...	Environment	Refe
<input type="checkbox"/>	stg-p7-aix1	1	Running	0.5	2,048	default	AIX or Linux	
<input type="checkbox"/>	vios1_Do_Not_Remove	2	Running	1	2,048	default	Virtual I/O Server	
<input checked="" type="checkbox"/>	stg_p7_nimserver_Do_Not_Remove	3	Running	1	2,048	default	AIX or Linux	

Select	Type	Adapt...	Serve...	Partn...	Requi...
<input type="checkbox"/>	Ethernet	20	N/A		No
<input type="checkbox"/>	Client Fibre Channel	55	vios2_Do_Not_Remove(4)	55	No
<input type="checkbox"/>	Client Fibre Channel	56	vios1_Do_Not_Remove(2)	56	No
<input type="checkbox"/>	Server Serial	0	Any Partition		Any Partition Slot Yes
<input type="checkbox"/>	Server Serial	1	Any Partition		Any Partition Slot Yes

Property	Value
Virtual ethernet adapter	
Adapter ID:	20
Virtual switch:	ETHERNET0
VLAN ID:	1
Required:	False
IEEE 802.1q compatible:	False
Additional VLAN IDs:	
Access external network:	False
Trunk priority:	1

NPIV Provisioned Storage

Each WWPN pair Must be zoned to same LUN

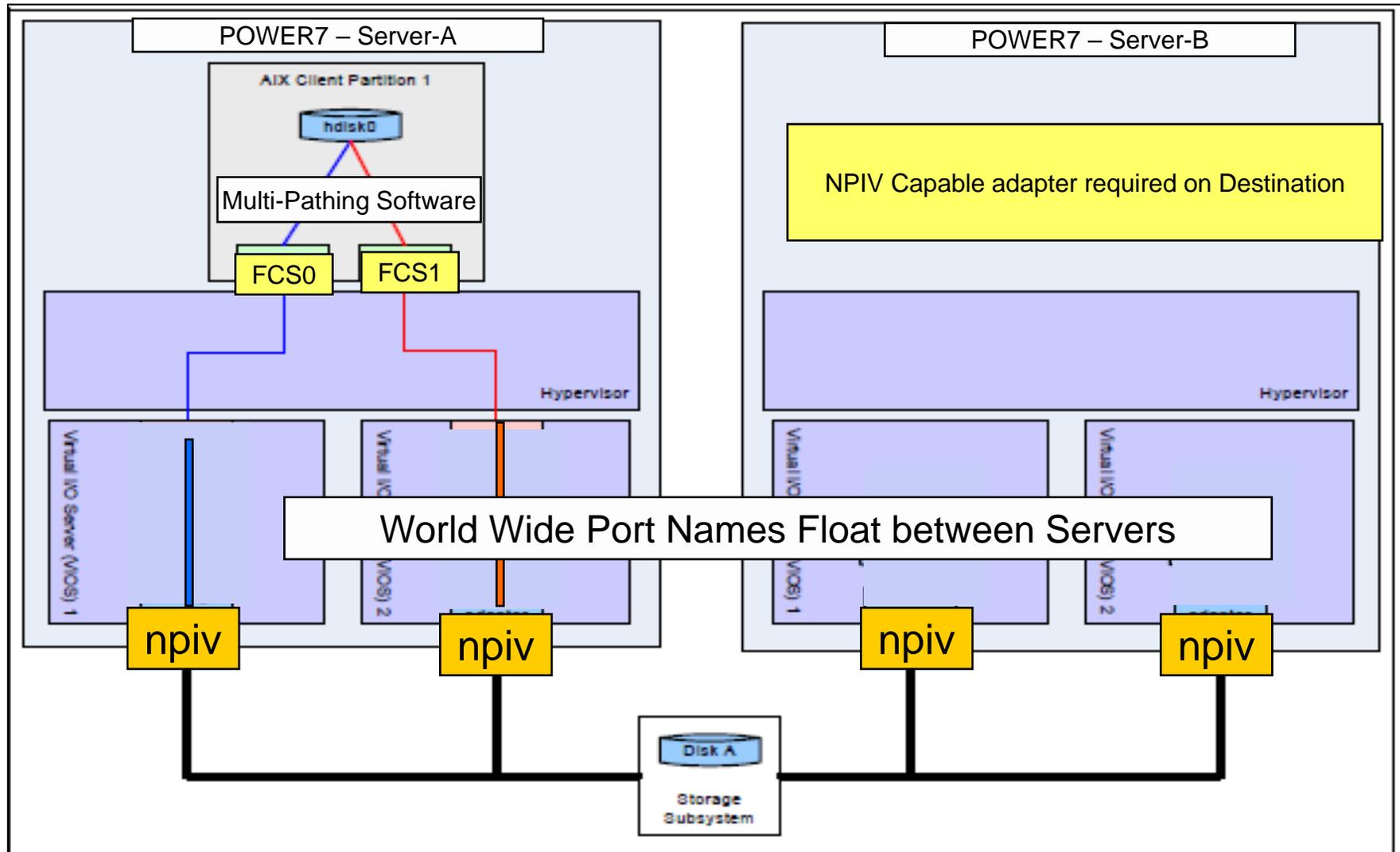
The screenshot displays the IBM DBHMC1 management console. At the top, a navigation pane shows 'Systems Management > Servers > Server-Power7-750'. A table lists three partitions: 'stg-p7-aix1', 'vios1_Do_Not_Remove', and 'stg_p7_nimserver_Do_Not_Remove'. The 'stg_p7_nimserver_Do_Not_Remove' partition is selected. Below this, the 'Partition Properties' window is open, showing the 'Virtual Adapters' tab. A red arrow points to the 'Actions' menu, which is open, showing 'Login Logout Fibre Channel' as an option. To the right, a 'Login Logout Fibre Channel' dialog box is displayed, showing a table of WWPNs and their corresponding LUNs. A green arrow points from the 'Login Logout Fibre Channel' option in the 'Actions' menu to the dialog box. A yellow arrow points from the dialog box back to the 'Virtual Adapters' table. The dialog box table is as follows:

Slot Nu...	WWPN	WWPN...	Logged...	WWPN...
55	c0507602a0160004		2	
55	c0507602a0160005		2	
56	c0507602a0160002		2	
56	c0507602a0160003		2	

The 'Virtual Adapters' table in the background is also shown below:

Select	Type	Adapt...	Serve...	Partn...	Requi...
<input type="checkbox"/>	Ethernet	20	N/A		N/A
<input checked="" type="checkbox"/>	Client Fibre Channel	55	vios2_Do_Not_Remove(4)	55	No
<input type="checkbox"/>	Client Fibre Channel	56	vios1_Do_Not_Remove(2)	56	No
<input type="checkbox"/>	Server Serial	0	Any Partition		Any Partition Slot
<input type="checkbox"/>	Server Serial	1	Any Partition		Any Partition Slot

Live Partition Mobility (LPM) - NPIV



Set SCSI Reserve Policy on Storage

- Set the `reserve_policy` disk attribute to `no_reserve` to allow

LPM

- Example VIOS CLI commands for VSCSI:

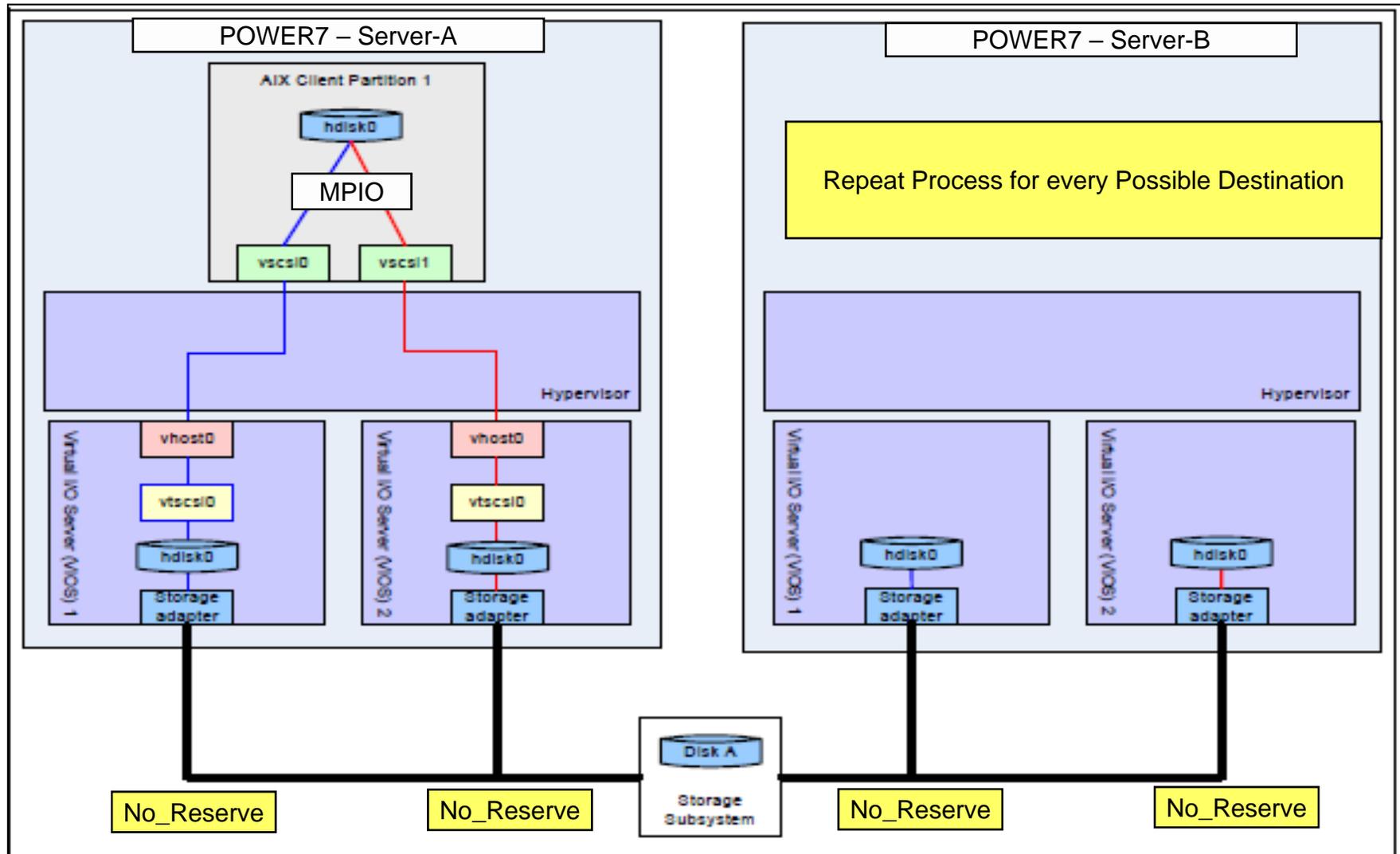
```
$ chdev -dev hdisk# -attr reserve_policy=no_reserve
```

Verify setting is correct:

```
$ lsdev -dev hdisk# -attr | grep policy
reserve_policy no_reserve Reserve Policy True
```

- Once both VIOS partitions can access the same disk, you can verify that the PVID for the disk is the same on both VIOS partitions
 - List PVID for disks with the `lspv` command
- Equivalent AIX commands on client when using NPIV storage:
 - Set: `chdev -l hdisk# -a reserve_policy=no_reserve`
 - View: `lsattr -El disk#`

Live Partition Mobility (LPM) - VSCSI



Virtual Client – Memory Restrictions

General Processors **Memory** I/O Virtual Adapters Power Controlling Settings HCA Logical Host Ethernet Adapters (LHEA)

Detailed below are the current memory settings for this partition profile.

Dedicated Memory
Installed memory (MB): 131072
Current memory available for partition usage (MB) : 129536

Minimum memory : GB MB
Desired memory : GB MB
Maximum memory : GB MB

Specify the Barrier Synchronization Register (BSR) for this profile
Available BSR arrays:
BSR arrays for this profile:

Huge Page Memory
Page size (in GB) : 16
Configurable pages : 0
Minimum pages :
Desired pages :
Maximum pages :

Active Memory Expansion
 Active memory expansion factor (1.00 - 10.00)

Inactive Mobility ONLY

Virtual Client – Shared Processor Pool

General Processors Memory I/O Virtual Adapters Power Controlling Settings HCA Logical Host Ethernet Adapters (LHEA)

Detailed below are the current processing settings for this partition profile.

Processing mode

Dedicated
 Shared

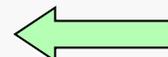
Processing units

Total managed system processing units : 12.00

Minimum processing units :

Desired processing units :

Maximum processing units :

Shared processor pool:  

Desired virtual processors :
Maximum virtual processors :

Sharing mode

Uncapped Weight : 

Processor compatibility mode: 

MSP configuration not required on Destination host

Processor & Memory Availability

Destination host must have processor / memory Resources

The screenshot displays the IBM DBHMC1 Hardware Management Console Workplace interface. At the top, a text box states: "Destination host must have processor / memory Resources". Below this, a table lists server components:

Select	Name	ID	Status	Proce... Units	Memor...	Act... Pro...	Environment	Refer
<input type="checkbox"/>	stg_p6_vios1_Do_Not_Remove	1	Running	0.5	2,048	default	Virtual I/O Server	
<input type="checkbox"/>	stg_p6_vios2_Do_Not_Remove	2	Running	1	2,048	default	Virtual I/O Server	

Two pop-up windows are shown. The left window displays the "Processors" tab for "Server-Power6-520":

- Available: 2.00
- Assigned to partitions: 2.00
- Configurable: 4.00
- Installed: 4.00
- Multiple shared processor pools support: Yes

The right window displays the "Memory" tab for "Server-Power6-520":

- Available: 27.25 GB (27904 MB)
- Assigned to partitions: 4.00 GB (4096 MB)
- Reserved: 0.75 GB (768 MB)
- Configurable: 32.00 GB (32768 MB)
- Installed: 32.00 GB (32768 MB)
- Memory region size: 0.25 GB (256 MB)
- Active memory sharing support: Yes

Yellow and green arrows point from the main console to these pop-up windows. The Windows taskbar at the bottom shows the system time as 6:07 PM on Wednesday, 5/2/2012, with a battery level of 98%.

Live Partition Mobility - Migration



DBHMC1: Hardware Management Console Workplace (V7R7.4.0.0) - Windows Internet Explorer provided by IBM

https://9.5.167.120/hmc/connects/mainUIFrameset.jsp

Hardware Management Console

Properties hscroot | Help | Logoff

Systems Management > Servers > Server-Power7-750

Select	Name	ID	Status	Proce... Units	Memor... ^	Act... Pro...	Environment	Refe
<input type="checkbox"/>	stg-p7-aix1	1	Running	0.5	2,048	default	AIX or Linux	
<input type="checkbox"/>	vios1_Do_Not_Remove	2	Running	1	2,048	default	Virtual I/O Server	
<input checked="" type="checkbox"/>	stg_p7_nimserver_Do_Not_Remove	3	Running	1	2,048	default	AIX or Linux	
<input type="checkbox"/>	vios	4	Running	1	2,048	default	Virtual I/O Server	

DBHMC1: Properties - Windows Internet Explorer provided by IBM

https://9.5.167.120/hmc/wcd/T52900

Login Logout Fibre Channel - stg_p7_nimserver_Do_Not_Remove

Displays WWPN status for virtual fibre channel client adapters

Slot Num...	WWPN	WWPN St...	Logged-I...	WWPN St...
55	c0507602a0160004		2	
55	c0507602a0160005		2	
56	c0507602a0160002		2	
56	c0507602a0160003		2	

Login Logout Cancel Help

Tasks: stg_p7_nimserver_Do_Not_Remove

Properties
Change Default Properties
Operations

Status: Attentions and Events

Internet 100%

https://9.5.167.120/hmc/bonsai/action/T528df?treeFunc=treeSel%281%29×tamp=137368c567a#BonsaiTasksPa

start 4:27:57... Re: City... Complet... SCOPE ... Microsof... 9.5.167... Inte... 100% 12:29 PM Thursday 5/10/2012

```
# fcstat fcs0 |pg
```

```
FIBRE CHANNEL STATISTICS REPORT: fcs0
```

```
Device Type: Virtual Fibre Channel Client Adapter (adapter/vdevice/IBM,vfc-client)
```

```
Serial Number: UNKNOWN
```

```
Option ROM Version: UNKNOWN
```

```
ZA: UNKNOWN
```

```
World Wide Node Name: 0xC0507602A0160004
```

```
World Wide Port Name: 0xC0507602A0160004
```

```
# fcstat fcs1 |pg
```

```
FIBRE CHANNEL STATISTICS REPORT: fcs1
```

```
Device Type: Virtual Fibre Channel Client Adapter (adapter/vdevice/IBM,vfc-client)
```

```
Serial Number: UNKNOWN
```

```
Option ROM Version: UNKNOWN
```

```
ZA: UNKNOWN
```

```
World Wide Node Name: 0xC0507602A0160002
```

```
World Wide Port Name: 0xC0507602A0160002
```

```
# lscfg -vl fcs0
fcs0          U8233.E8B.10106FP-V3-C55-T1  Virtual Fibre Channel Client Ada
pter

Network Address.....C0507602A0160004
ROS Level and ID.....
Device Specific.(Z0).....
Device Specific.(Z1).....
Device Specific.(Z2).....
Device Specific.(Z3).....
Device Specific.(Z4).....
Device Specific.(Z5).....
Device Specific.(Z6).....
Device Specific.(Z7).....
Device Specific.(Z8).....C0507602A0160004
Device Specific.(Z9).....
Hardware Location Code.....U8233.E8B.10106FP-V3-C55-T1
```

```
# lscfg -vl fcs1
fcs1          U8233.E8B.10106FP-V3-C56-T1  Virtual Fibre Channel Client Ada
pter

Network Address.....C0507602A0160002
ROS Level and ID.....
Device Specific.(Z0).....
Device Specific.(Z1).....
Device Specific.(Z2).....
Device Specific.(Z3).....
Device Specific.(Z4).....
Device Specific.(Z5).....
Device Specific.(Z6).....
Device Specific.(Z7).....
Device Specific.(Z8).....C0507602A0160002
Device Specific.(Z9).....
Hardware Location Code.....U8233.E8B.10106FP-V3-C56-T1
```

Initiating Live Partition Mobility

The screenshot shows the IBM Hardware Management Console (HMC) interface. The main window displays a table of servers under the heading 'Server-Power7-750'. The table has columns for 'Select', 'Name', 'ID', 'Status', 'Proce... Units', 'Memor...', 'Act... Pro...', 'Environment', and 'Ref'. The server 'stg_p7_nimserver_Do_Not_Remove' is selected, and a context menu is open over it. The menu includes options like 'Properties', 'Operations', 'Configuration', and 'Mobility'. The 'Mobility' sub-menu is expanded, showing 'Migrate' and 'Validate' options. A red arrow points to the 'Validate' option.

Select	Name	ID	Status	Proce... Units	Memor...	Act... Pro...	Environment	Ref
<input type="checkbox"/>	stg-p7-aix1	1	Running	0.5	2,048	default	AIX or Linux	
<input type="checkbox"/>	vios1_Do_Not_Remove	2	Running	1	2,048	default	Virtual I/O Server	
<input checked="" type="checkbox"/>	stg_p7_nimserver_Do_Not_Remove				1	2,048	default	AIX or Linux
<input type="checkbox"/>	vios2_Do_Not_Remove				1	2,048	default	Virtual I/O Server

Migration Activities

- Migrate
- Validate
- Recover

Live Partition Mobility - Validation

Partition Migration Validation - Server-Power7-750 - stg_p7_nimserver_Do_Not_Remove

Fill in the following information to set up a migration of the partition to a different managed system. Click Validate to ensure that all requirements are met for this migration. You cannot migrate until the migration set up has been verified.

Source system : Server-Power7-750
Migrating partition: stg_p7_nimserver_Do_Not_Remove
Remote HMC:
Remote User:
Destination system: Server-Power6-520
Destination profile name:
Destination shared processor pool:
Source mover service partition:
Destination mover service partition:
Wait time (in min):
Override virtual network errors when possible:
Override virtual storage errors when possible:
Virtual Storage assignments :

Select	Source Slot ID	Slot Type	Destination VIOS
--------	----------------	-----------	------------------

Live Partition Mobility - Validation

DBHMC1: Hardware Management Console Workplace (V7R7.4.0.0) - Windows Internet Explorer provided by IBM

https://9.5.167.120/hmc/connects/mainuiFrameset.jsp

Hardware Management Console

Validate hscroot | Help | Logoff

Systems Management > Servers > Server-Power7-750

Select	Name	ID	Status	Proce... Units	Memor... ^	Act... Pro...	Environment	Refe
<input type="checkbox"/>	stg-p7-aix1	1	Running	0.5	2,048	default	AIX or Linux	
<input type="checkbox"/>	vios1_Do_Not_Remove	2	Running	1	2,048	default	Virtual I/O Server	
<input checked="" type="checkbox"/>	stg_p7_nimserver_Do_Not_Remove	3	Running	1	2,048	default	AIX or Linux	
<input type="checkbox"/>	vios2_Do_Not_Remove	4	Running	1	2,048	default	Virtual I/O Server	

Max Page Size: 500 Total: 4 Filtered: 4 Selected: 1

DBHMC1: Validate - Windows Inter... Certificate Error

https://9.5.167.120/hmc/wd/T/

Please wait, performing validation

Internet 100%

Properties
Change Default Profile

Operations

Configuration
Manage Profiles
Manage Custom Groups
Save Current Configuration

Hardware Information

Dynamic Logical Partitioning

Possible Results

- Errors
- Warnings
- Migration Screen

Status: Attentions and Events

start | 11:00:51 | Richard Blei... | Window... | capture | Internet... | Microsoft Po... | 98% | 7:08 PM Wednesday 5/2/2012

Live Partition Mobility - Migrate

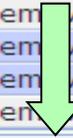
Partition Migration Validation - Server-Power7-750 - stg_p7_nimserver_Do_Not_Remove

Fill in the following information to set up a migration of the partition to a different managed system. Click Validate to ensure that all requirements are met for this migration. You cannot migrate until the migration set up has been verified.

Source system : Server-Power7-750
 Migrating partition: stg_p7_nimserver_Do_Not_Remove
 Remote HMC:
 Remote User:
 Destination system: Server-Power6-520 Refresh Destination System
 Destination profile name: default
 Destination shared processor pool: DefaultPool (0)
 Source mover service partition: vios1_Do_Not_Remove MSP Pairing...
 Destination mover service partition: stg_p6_vios2_Do_Not_Remove
 Wait time (in min):
 Override virtual network errors when possible:
 Override virtual storage errors when possible:

Virtual Storage assignments :

Select	Source Slot ID	Slot Type	Destination VIOS
<input type="checkbox"/>	56	Fibre	stg_p6_vios2_Do_Not_Remove
<input checked="" type="checkbox"/>	56	Fibre	stg_p6_vios1_Do_Not_Remove
<input checked="" type="checkbox"/>	55	Fibre	stg_p6_vios2_Do_Not_Remove
<input type="checkbox"/>	55	Fibre	stg_p6_vios1_Do_Not_Remove



Live Partition Mobility - Migrating

The screenshot shows the IBM DBHMC1 Hardware Management Console interface. The main window displays a table of partitions for 'Server-Power7-750'. One partition, 'stg_p7_nimserver_Do_Not_Remove', is in the 'Migrating - Running' state. A modal window titled 'Partition Migration Status : stg_p7_nimserver_Do_Not_Remove' is open, showing the migration progress at 78%.

Select	Name	ID	Status	Proce... Units	Memor...	Act... Pro...	Environment	Ref
<input type="checkbox"/>	stg-p7-aix1	1	Running	0.5	2,048	default	AIX or Linux	
<input type="checkbox"/>	vios1_Do_Not_Remove	2	Running	1	2,048	default	Virtual I/O Server	
<input checked="" type="checkbox"/>	stg_p7_nimserver_Do_Not_Remove	3	Migrating - Running	1	2,048	default	AIX or Linux	2005
<input type="checkbox"/>	vios2_Do_Not_Remove	4	Running	1	2,048	default	Virtual I/O Server	

Action	Status
Migration	Migration Starting

Progress (%): 78

Live Partition Mobility – Migration Completed

The screenshot displays the IBM Hardware Management Console (HMC) interface in a Windows Internet Explorer browser. The main window shows the 'Systems Management > Servers > Server-Power7-750' view. A table lists three partitions: 'stg-p7-aix1', 'vios1_Do_Not_Remove', and 'vios2_Do_Not_Remove', all with a status of 'Running'. An overlaid dialog box titled 'Partition Migration Status : stg_p7_nimserver_Do_Not_Remove' shows a 'Migration' action with a 'Success' status and a progress bar at 100%. The dialog also includes 'Stop...' and 'Close' buttons. The browser's address bar shows a URL with a 'Certificate Error' warning. The Windows taskbar at the bottom shows the system clock at 11:04:53 and the date as Wednesday, 5/2/2012.

Select	Name	ID	Status	Proce... Units	Memor...	Act... Pro...	Environment	Ref
<input type="checkbox"/>	stg-p7-aix1	1	Running	0.5	2,048	default	AIX or Linux	
<input type="checkbox"/>	vios1_Do_Not_Remove	2	Running	1	2,048	default	Virtual I/O Server	
<input type="checkbox"/>	vios2_Do_Not_Remove	4	Running	1	2,048	default	Virtual I/O Server	

Live Partition Mobility – Migration Completed

The screenshot displays the IBM Hardware Management Console (HMC) interface in a Windows Internet Explorer browser. The main window shows the 'Systems Management > Servers > Server-Power6-520' view. A table lists three partitions:

Select	Name	ID	Status	Proce... Units	Memor...	Act... Pro...	Environment	Refe
<input type="checkbox"/>	stg_p6_vios1_Do_Not_Remove	1	Running	0.5	2,048	default	Virtual I/O Server	
<input type="checkbox"/>	stg_p6_vios2_Do_Not_Remove	2	Running	1	2,048	default	Virtual I/O Server	
<input checked="" type="checkbox"/>	stg_p7_nimserver_Do_Not_Remove	3	Running	1	2,048	default	AIX or Linux	

An overlay window titled 'Partition Properties - stg_p7_nimserver_Do_Not_Remove' is open, showing the 'Virtual Adapters' tab. It includes a text box for 'Maximum virtual adapters' set to 100 and 'Number of virtual adapters' set to 5. Below this is a table of virtual adapters:

Select	Type	Adapte...	Server...	Partne...	Required
<input type="checkbox"/>	Ethernet	20	N/A	N/A	No
<input type="checkbox"/>	Client Fibre Channel	55	stg_p6_vios2_Do_Not_Remove(2)	55	No
<input type="checkbox"/>	Client Fibre Channel	56	stg_p6_vios1_Do_Not_Remove(1)	56	No
<input type="checkbox"/>	Server Serial	0	Any Partition	Any Partition Slot	Yes
<input type="checkbox"/>	Server Serial	1	Any Partition	Any Partition Slot	Yes

The Windows taskbar at the bottom shows the system time as 11:07:20, the user as Richard Blei..., and the date as Wednesday, 5/2/2012. The system tray indicates 98% battery and network connectivity.

```
# fcstat fcs0|pg
```

```
FIBRE CHANNEL STATISTICS REPORT: fcs0
```

```
Device Type: Virtual Fibre Channel Client Adapter (adapter/vdevice/IBM,vfc-client)
```

```
Serial Number: UNKNOWN
```

```
Option ROM Version: UNKNOWN
```

```
ZA: UNKNOWN
```

```
World Wide Node Name: 0xC0507602A0160005
```

```
World Wide Port Name: 0xC0507602A0160005
```

```
# fcstat fcs1|pg
```

```
FIBRE CHANNEL STATISTICS REPORT: fcs1
```

```
Device Type: Virtual Fibre Channel Client Adapter (adapter/vdevice/IBM,vfc-client)
```

```
Serial Number: UNKNOWN
```

```
Option ROM Version: UNKNOWN
```

```
ZA: UNKNOWN
```

```
World Wide Node Name: 0xC0507602A0160003
```

```
World Wide Port Name: 0xC0507602A0160003
```

```
# lscfg -vl fcs0
fcs0          U8233.E8B.10106FP-V3-C55-T1  Virtual Fibre Channel Client Ada
pter

Network Address.....C0507602A0160004
ROS Level and ID.....
Device Specific.(Z0).....
Device Specific.(Z1).....
Device Specific.(Z2).....
Device Specific.(Z3).....
Device Specific.(Z4).....
Device Specific.(Z5).....
Device Specific.(Z6).....
Device Specific.(Z7).....
Device Specific.(Z8).....C0507602A0160004
Device Specific.(Z9).....
Hardware Location Code.....U8233.E8B.10106FP-V3-C55-T1
```

```
# lscfg -vl fcs1
fcs1          U8233.E8B.10106FP-V3-C56-T1  Virtual Fibre Channel Client Ada
pter

Network Address.....C0507602A0160002
ROS Level and ID.....
Device Specific.(Z0).....
Device Specific.(Z1).....
Device Specific.(Z2).....
Device Specific.(Z3).....
Device Specific.(Z4).....
Device Specific.(Z5).....
Device Specific.(Z6).....
Device Specific.(Z7).....
Device Specific.(Z8).....C0507602A0160002
Device Specific.(Z9).....
Hardware Location Code.....U8233.E8B.10106FP-V3-C56-T1
```

End of Presentation

