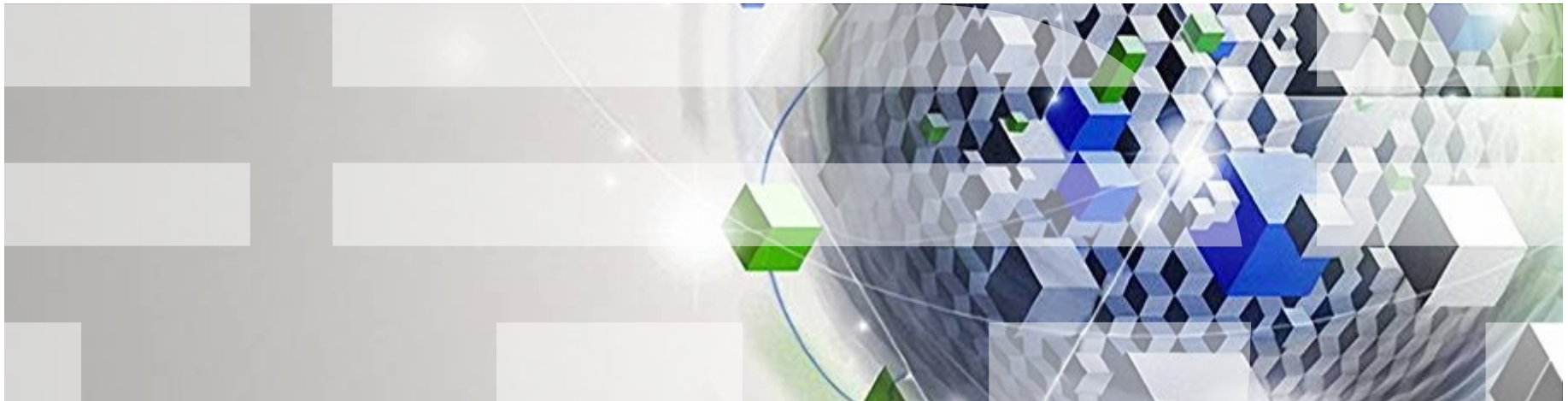


IBM i Partition Mobility

Jeff Blight (jb@uk.ibm.com)
Power CTSS



Agenda

What we will talk about today:

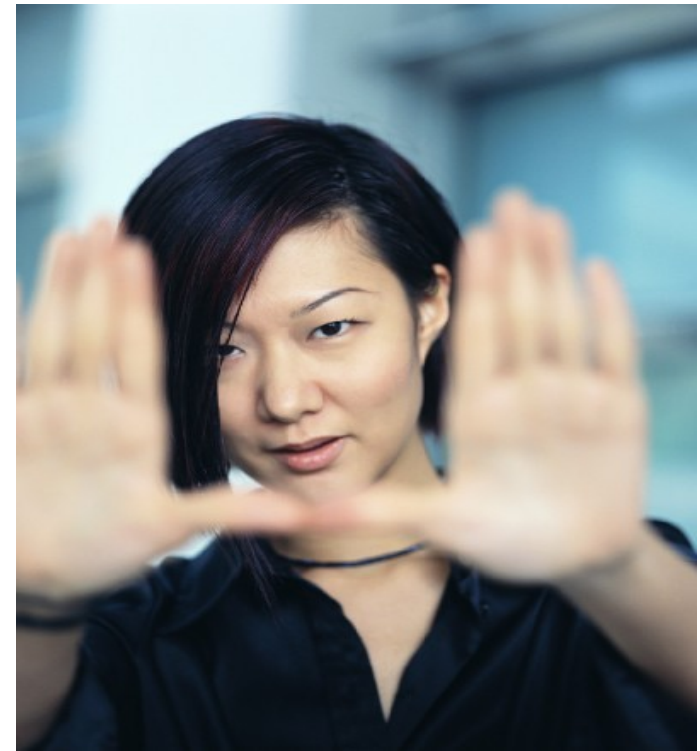
1 Partition Mobility

2 What implications are there on IBM i

3 Allowing or preventing a Live Partition Migration on IBM i

4 Post Live Partition Migration considerations on IBM i

5 Implications for PASE based AIX applications



Partition Mobility on IBM i

- With IBM v7.1 TR4 IBM i started to support the capability to migrate partitions between two systems, referred to as the “Source System” and the “Destination System”
- IBM i partitions can be migrated providing they are in any of the following states:
 - **Active Partition Mobility:** Active Partition Mobility is the actual movement of a running partition from one physical machine to another without disrupting the operation of the operating system and applications running in that partition.
 - **Inactive Partition Mobility:** Inactive Partition Mobility transfers a partition that is “powered off” (not running) from one system to another.
 - **Suspended Partition Mobility:** A partition can be suspended and later resumed. Suspended Partition Mobility transfers a partition that is suspended from one system to another. It may then be resumed on the target system at a later time.

Partition Mobility Applicability / Benefits

- With IT organisation being required to provide improved service levels to their business with reduced planned outages, It security and resiliency are as more critical than ever before

- Resource balancing
 - e.g. move workload onto a system that has lighter workloads. Useful for performance management and energy management

- Reduce planned CEC outages for maintenance/upgrades
 - Migrate partitions between systems to provide continued availability of an IBM i partition users

- Impending CEC outages
 - As an option to keep a partition running if hardware warnings are received

Partition Mobility for IBM i - Minimum Requirements

- IBM 7.1 TR4 or above
- Power VM Enterprise Edition on both Source and Destination Systems
- Compatible Power 7 hardware
- POWER 7 Firmware 740.40 or 730.51 or above
- HMC v7 r7.5.0 or above
- VIOS 2.2 1.4 or above on both systems

Partition Mobility for IBM i - Minimum Setup Requirements

- All resources for the partition must not have physical I/O adapters assigned

 - The Source and Destination systems must have
 - the same LMB (Logical Memory Block) size
 - VIO Servers must have visibility to the disks and must be set a reserve policy of no_reserve
 - VIO Servers providing Mover capabilities
 - Time of Day should be similar on each system (could use dedicated VIOS to sync clocks)
 - The same VLAN's defined and available

 - Destination System :
 - No partition with the same name as the one which is to be Migrated
 - Cannot be running on battery power
 - Must have sufficient resources (e.g. CPU & Memory) available

 - Dual Virtual I/O Server and multipath I/O
 - only if the destination system is configured with two Virtual I/O Servers that can provide the same multipath setup
- * Important Planning Note:** All user-defined virtual devices in **VIOServer** must have a Virtual Slot number higher than 10. This will be enforced by the HMC code.

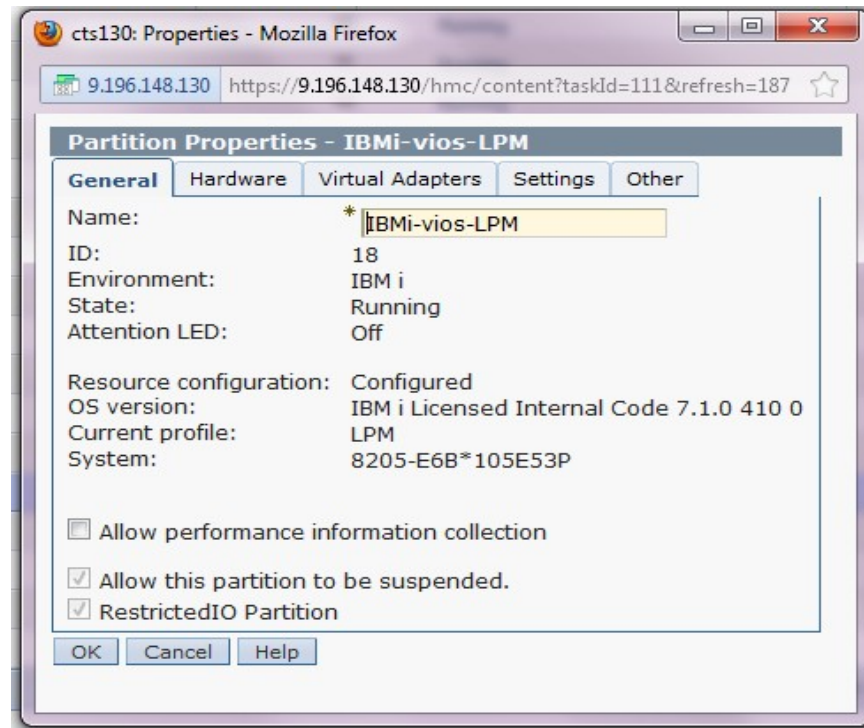
Partition Mobility – Configuration Requirements

- The logical partition must have all disks backed by physical volumes.
- The logical partition must not be assigned a virtual SCSI optical or tape device.
- The logical partition cannot be activated with a partition profile which has a virtual SCSI server adapter.
- The logical partition cannot be activated with a partition profile which has a virtual SCSI client adapter that is hosted by another IBM i logical partition.
- No virtual SCSI server adapters can be dynamically added to the logical partition.
- No virtual SCSI client adapters that are hosted by another IBM i logical partition can be dynamically added to the logical partition being moved.
- An IBM i logical partition cannot be moved if it has a varied on NPIV attached tape device.
- For NPIV, you must zone both Worldwide Port Names (WWPNs) associated with a virtual fibre channel adapter.
- The logical partition must not be an alternative error logging partition.
- The logical partition cannot collect physical I/O statistics.
- The logical partition must not be an alternative error logging partition.
- The logical partition must not have a Barrier Synchronization Register (BSR).
- The logical partition must not have huge memory pages.

Partition Mobility – Setting a new partition to support mobility

User enabled the setting at create partition

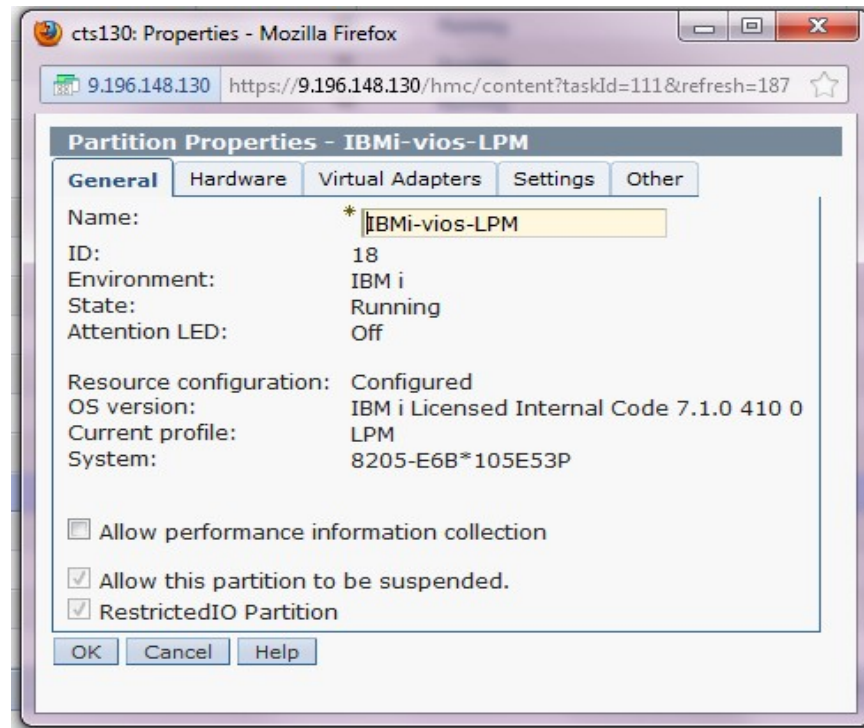
- At create partition,
 - Checkbox in GUI and optional in parameter in CLI termed 'RestrictedIO partition'.
 - Defaults to NOT support partition mobility
 - No restrictions/changes in create/add profile and modify profile.



Partition Mobility – Changing an existing partition to support mobility

User enabled of the setting on existing partition

- On in-active partitions only
 - HMC validates if the partition is capable of being a “RestrictedIO Partiton” when the profile update is attempted to be saved.
 - Validation will fail if this profile does not met the configuration requirements



Partition Mobility

Partition

Virtual Disk

Mapped through VIO Server to a LUN

Virtual Ethernet

Mapped through SEA in VIO Server

Hypervisor

vSCSI

Virtual Ethernet

Support for migration

VIO Server

Provides the Virtual I/O

VASI interface to Hypervisor

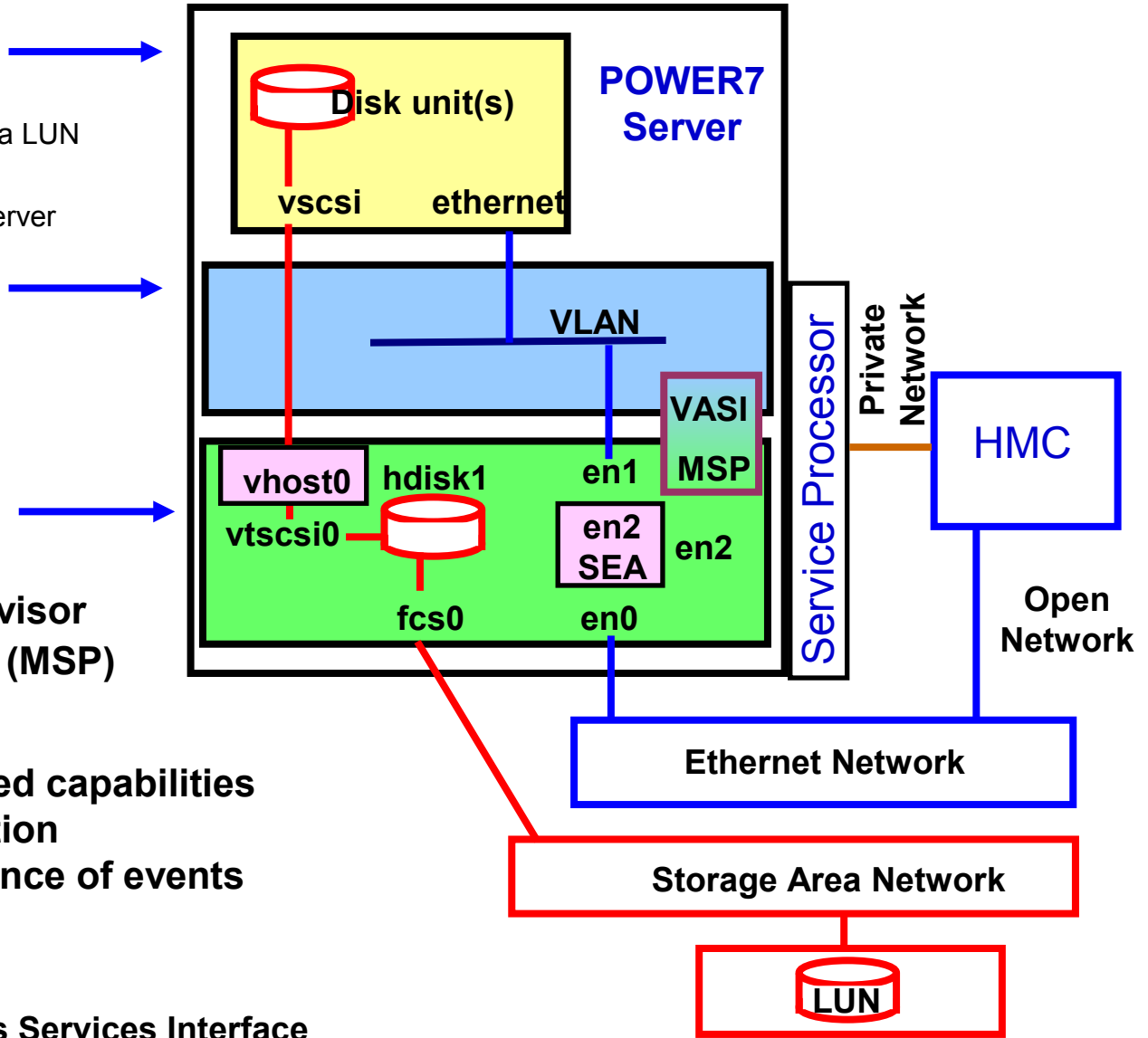
Mover Service Partition (MSP)

HMC

Configuration of required capabilities

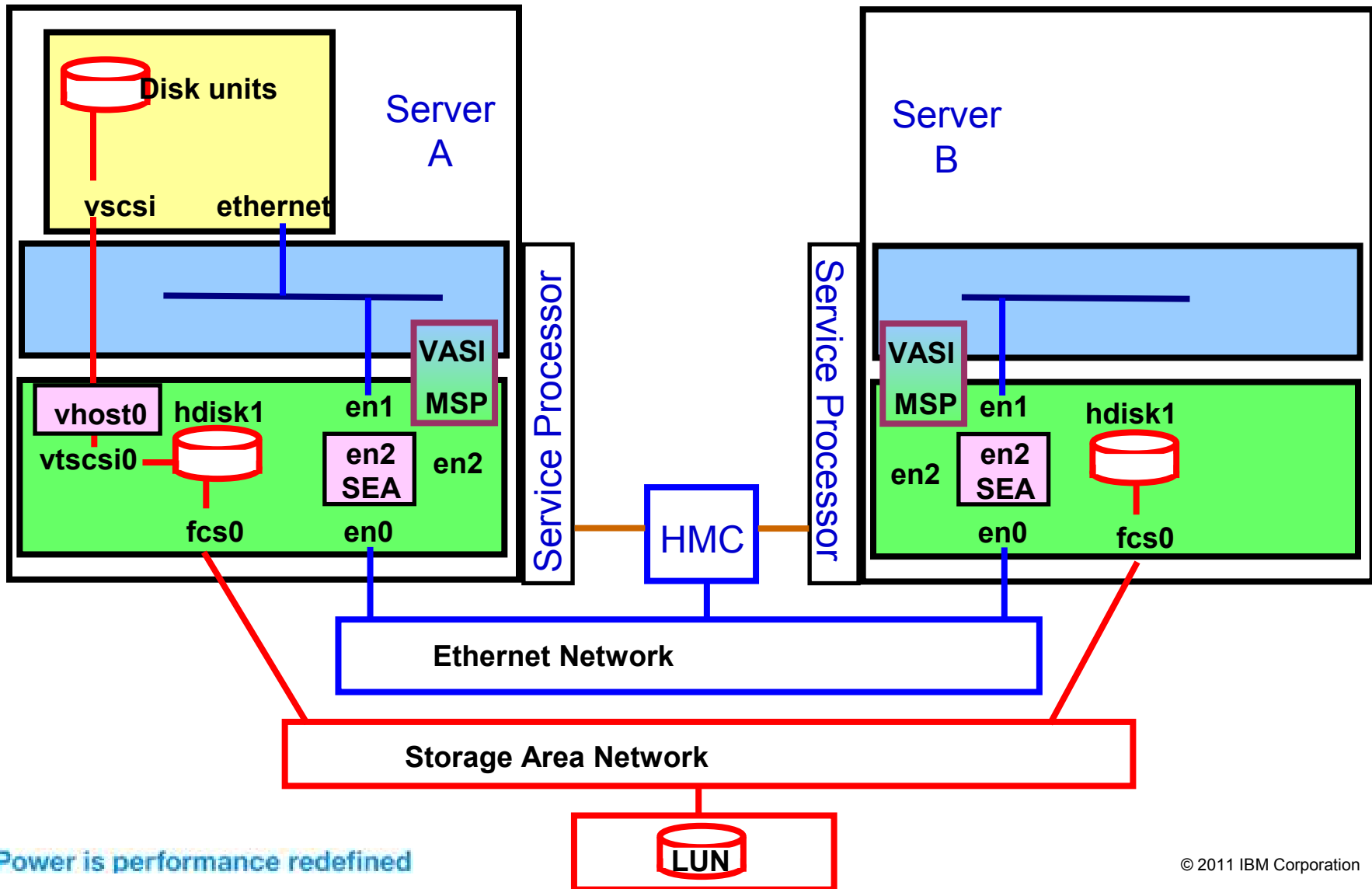
Validation of configuration

Orchestrates the sequence of events



VASI = Virtual Asynchronous Services Interface

Partition Mobility – Summary



Partition Mobility – Validating

- A new set of tasks are available for partitions that support mobility, as we can see below the task allow a user to migrate a partition or validate partitions readiness to be migrated

Systems Management > Servers > Server-8205-E6B-SN105E53P

Select	Name	ID	Status	Processing Units	Memory (GB)	Active Profile	Environment	Reference Code
<input type="checkbox"/>	AD61-cts180	16	Not Activated		0.1	1.25 default	ADX or Linux	00000000
<input type="checkbox"/>	AD71-cts181	17	Not Activated		0.1	1.25 default	ADX or Linux	00000000
<input type="checkbox"/>	ADXdemo-201	7	Running		0.2	2 AMS	ADX or Linux	
<input type="checkbox"/>	ADXdemo-202	8	Running		0.2	2 AMS	ADX or Linux	
<input type="checkbox"/>	ADXdemo-210	14	Running		0.4	2 AMS	ADX or Linux	
<input type="checkbox"/>	ADX-ha61a-206	10	Not Activated		0.2	2 default	ADX or Linux	00000000
<input type="checkbox"/>	ADX-ha61b-207	11	Running		0.2	2 default	ADX or Linux	
<input type="checkbox"/>	ADX-ha71a-208	12	Running		0.2	3 default	ADX or Linux	
<input type="checkbox"/>	ADX-ha71b-209	13	Running		0.2	3 default	ADX or Linux	
<input type="checkbox"/>	Dir63-152	15	Running		0.4	6 default	ADX or Linux	
<input type="checkbox"/>	IBMI-6	5	Not Activated		0.1	4 default	IBM i	00000000
<input type="checkbox"/>	IBMI-7	4	Not Activated		0.1	4 default	IBM i	00000000
<input type="checkbox"/>	IBMI-vios	6	Running		0.1	4 default	IBM i	00000000
<input checked="" type="checkbox"/>	IBMI-vios-LPM	18	Running		0.1	4 LPM	IBM i	00000000
<input type="checkbox"/>	p7vios3-171	2	Running		0.4	4 default	Virtual I/O Server	
<input type="checkbox"/>	p7vios4-ssp-172				0.4	4 default	Virtual I/O Server	
<input type="checkbox"/>	p7vios5-173				0.2	4 default	Virtual I/O Server	
<input type="checkbox"/>	tcr-cts200				0.2	6 AMS	ADX or Linux	

Context menu for IBMI-vios-LPM:

- Properties
- Change Default Profile
- Operations
 - Restart
 - Shut Down
 - Deactivate Attention LED
 - Schedule Operations
 - Migrate
 - Validate
 - Recover
- Configuration
- Hardware Information
- Dynamic Logical Partitioning
- Serviceability

Tasks: IBMI-vios-LPM

- Properties
- Change Default Profile
- Operations
- Configuration
- Hardware Information
- Dynamic Logical Partitioning
- Serviceability

Partition Mobility – Validating

- The Validation dialogue, requires you to select the Destination System then simply click on the 'Validate' button. This will validate both systems to ensure that a partiton can be migrated between systems

The screenshot shows the IBM i Systems Management console. A dialog box titled "Partition Migration Validation - Server-8205-E6B-SN105E53P - IBMi-vios-LPM" is open. The dialog contains the following fields and options:

- Source system: Server-8205-E6B-SN105E53P
- Migrating partition: IBMi-vios-LPM
- Remote HMC: [Empty field]
- Remote User: [Empty field]
- Destination system: Server-8231-E2B-SN06767FP (with a "Refresh Destination System" button)
- Destination profile name: [Empty field]
- Destination shared processor pool: [Dropdown menu]
- Source mover service partition: [Empty field] (with an "MSP Pairing..." button)
- Destination mover service partition: [Empty field]
- Wait time (in min): 5
- Override virtual network errors when possible:
- Override virtual storage errors when possible:
- Virtual Storage assignments: [Table with columns: Select, Source Slot ID, Slot Type, Destination VIOS]

At the bottom of the dialog are buttons: "View VLAN Settings...", "Validate", "Migrate", "Cancel", and "Help".

The background shows a table of servers with columns: Select, Name, ID, Status, Processing Units, Memory (GB), Active Profile, Environment, and Reference Code. The server "IBMi-vios-LPM" is selected.

Partition Mobility – validation (HMC)

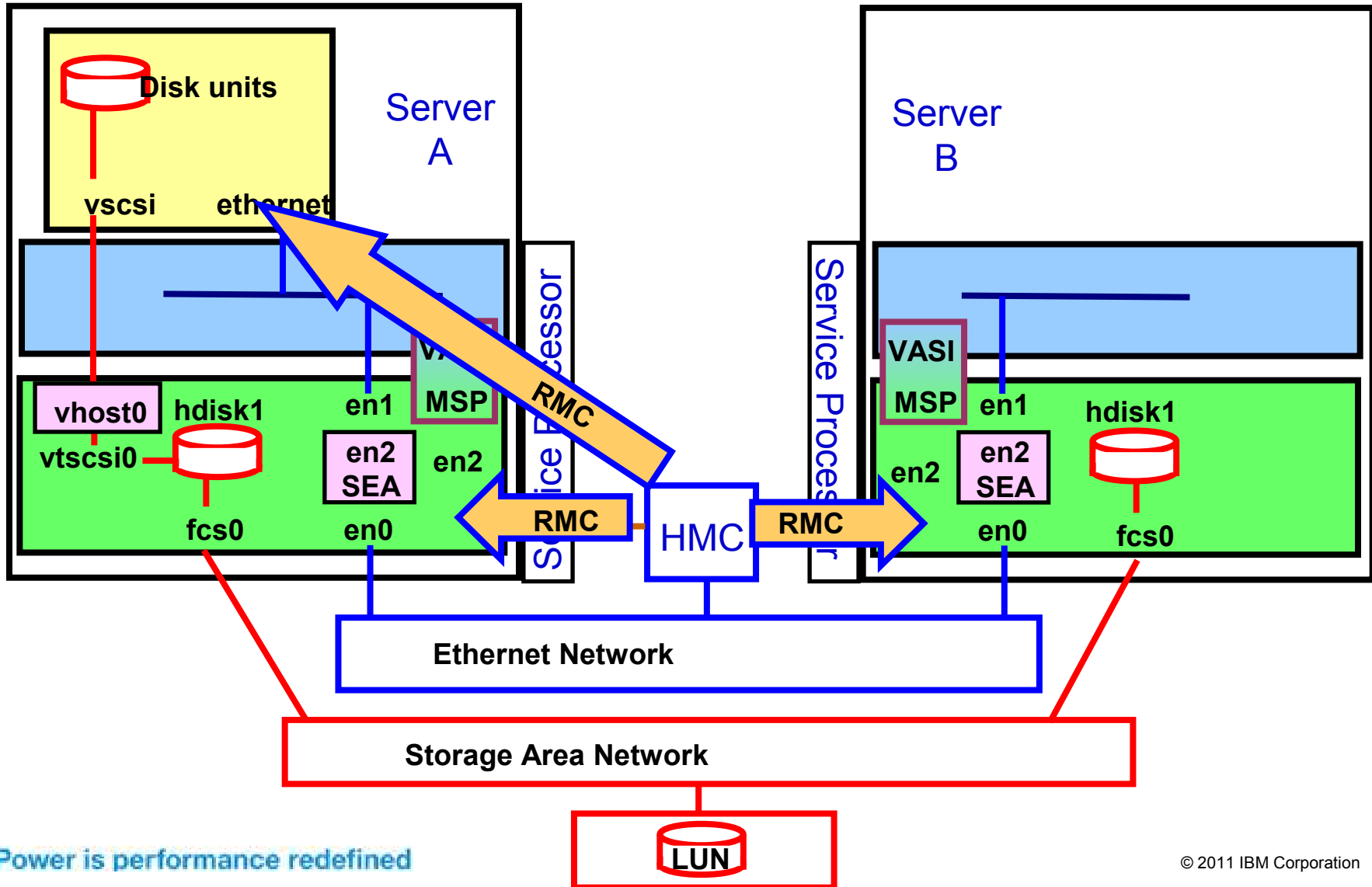
HMC high level steps

Explicit HMC user interfaces are available for validation only.

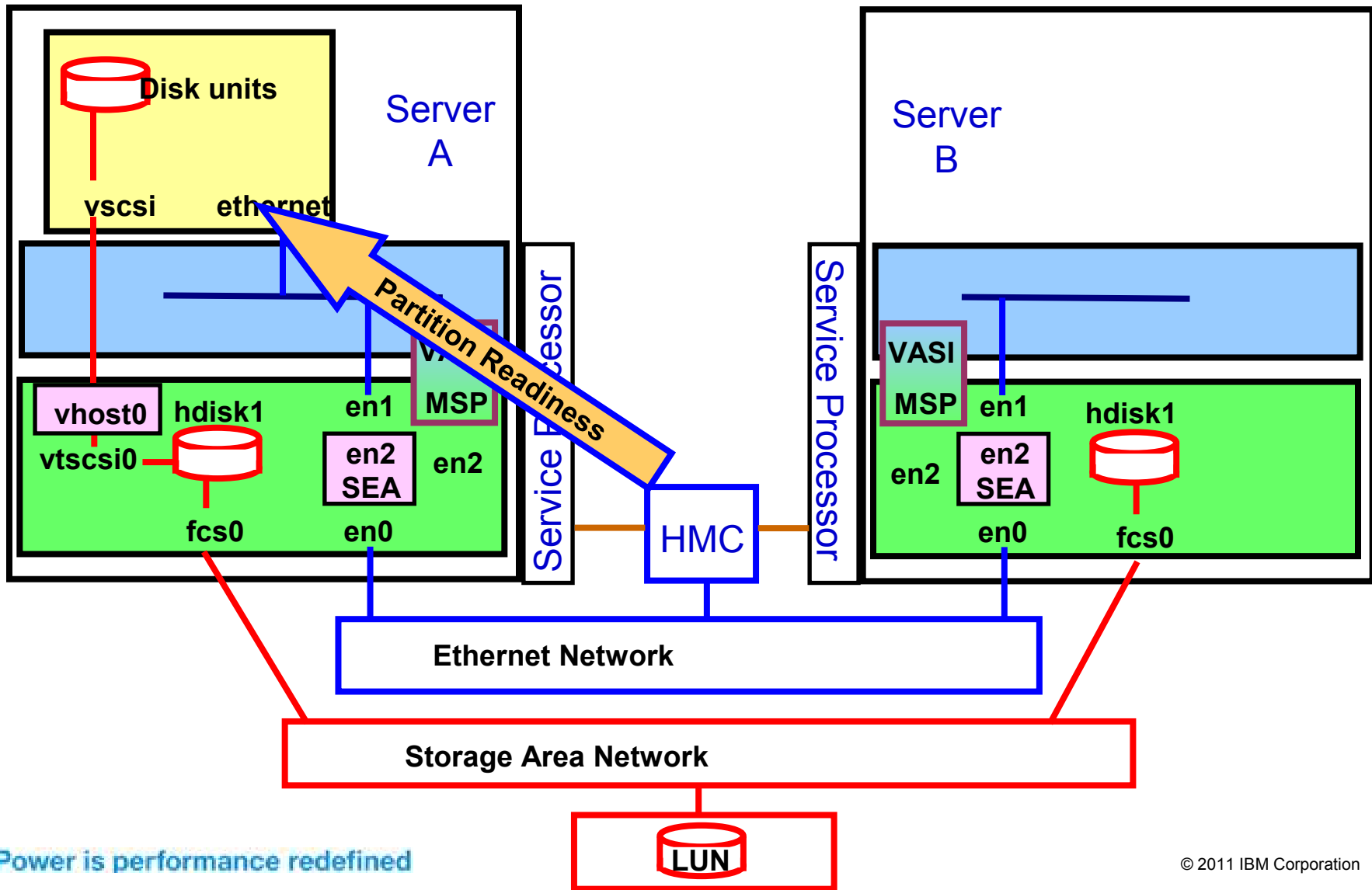
- *Validation is also part of actual migration operation.*

- Checks the Remote Monitoring and Control (RMC) connections to both VIO Servers
- Checks the RMC connection to the partition to be Migrated
- Checks the LMB sizes on Both Systems
- Checks the Partition to be Migrated :
 - No physical adapters defined as “required” in the LPAR
 - The LPAR uses only external LUNs
 - The LPAR supports active migration (OS support)
 - The LPAR is NOT a Mover Service Partition
 - The LPAR is NOT using Barrier Synchronisation Registers
 - The LPAR is NOT using Huge Pages
 - The LPAR state is active/running
 - The LPAR is NOT in a Partition workload Group
 - The LPAR MAC address is unique (across both servers)
 - The LPAR has a name which is NOT in use on the Target System

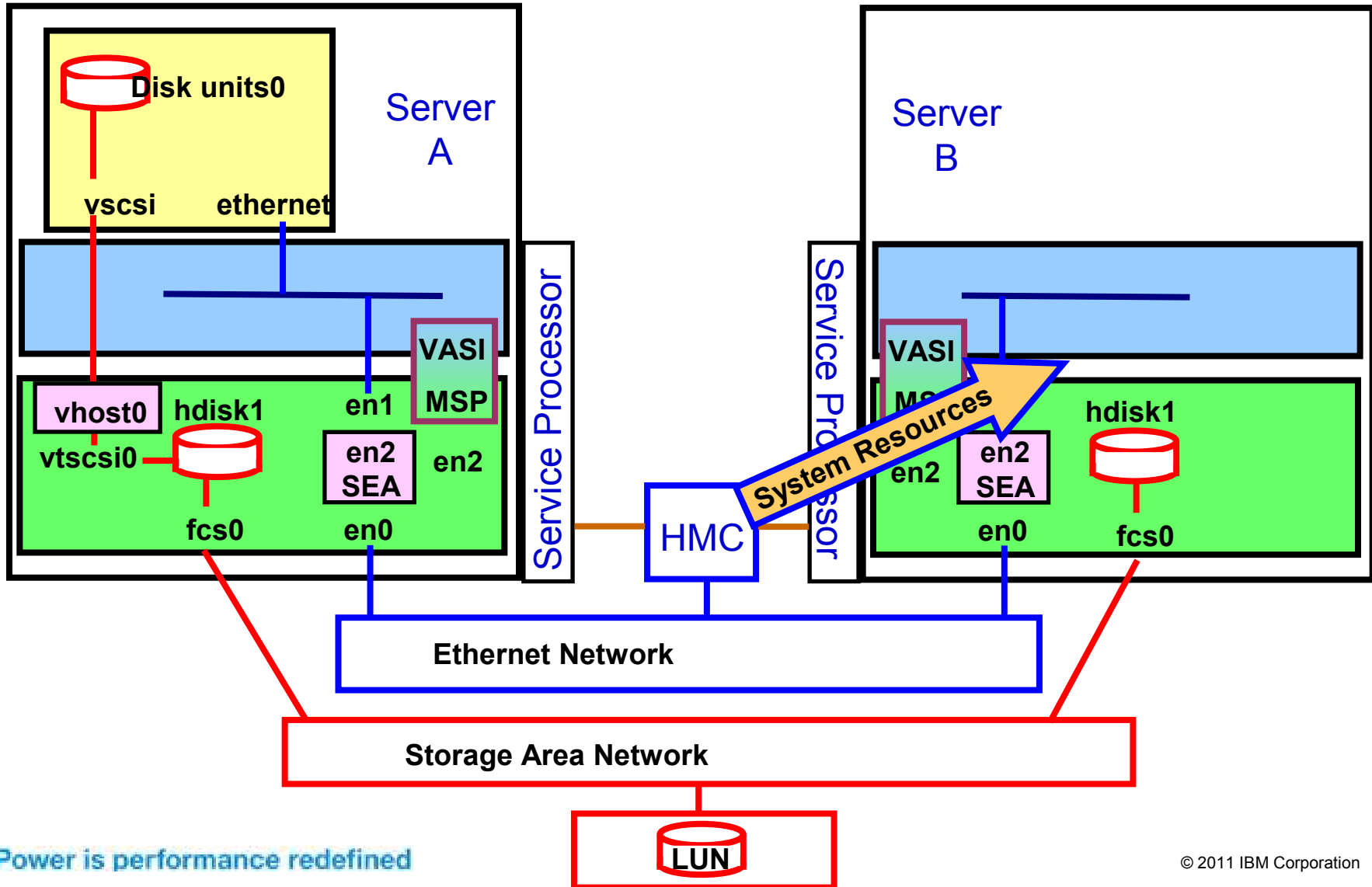
Partition Mobility – Validation RMC connections



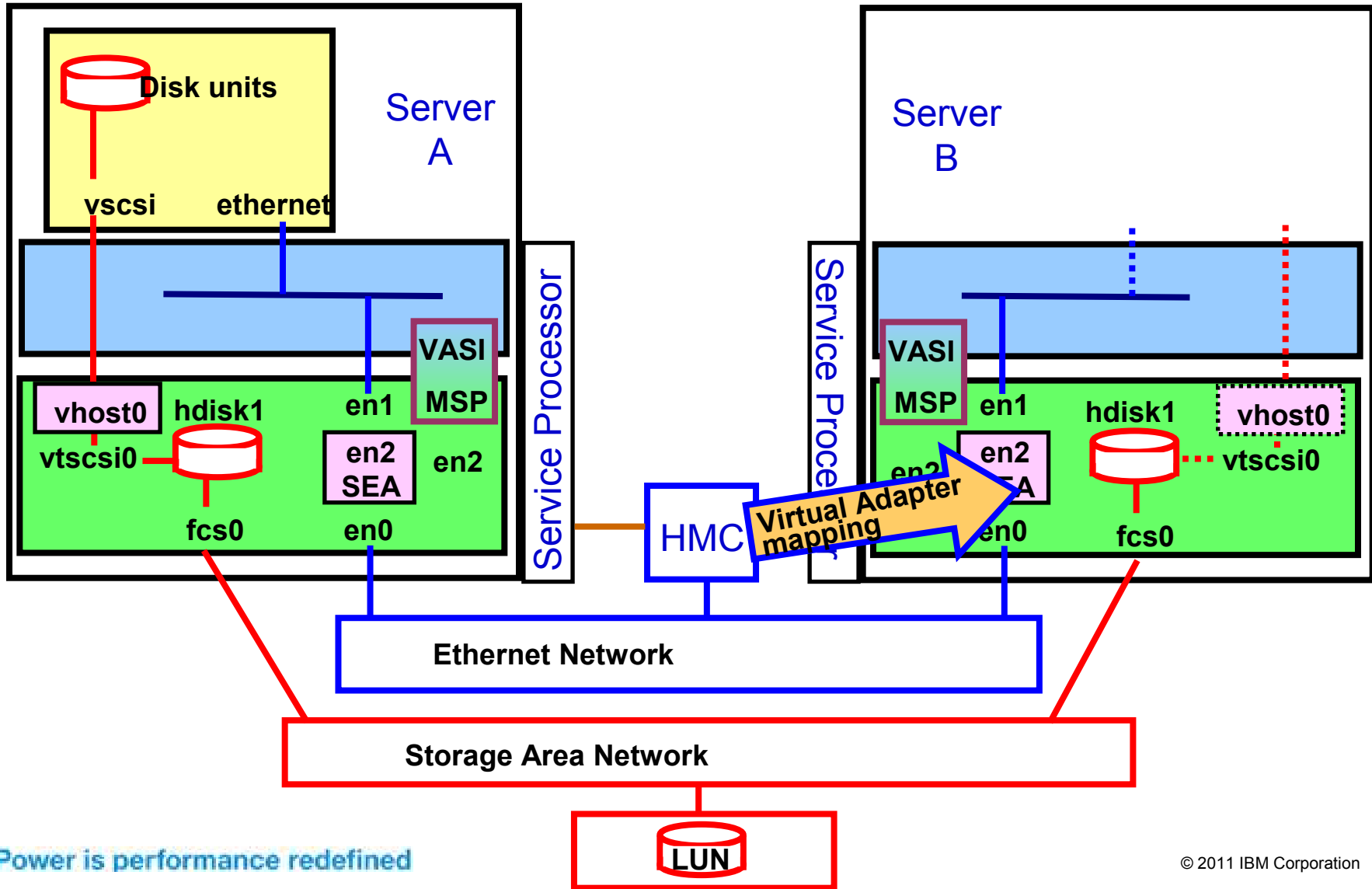
Partition Mobility – Validation



Partition Mobility – Validation



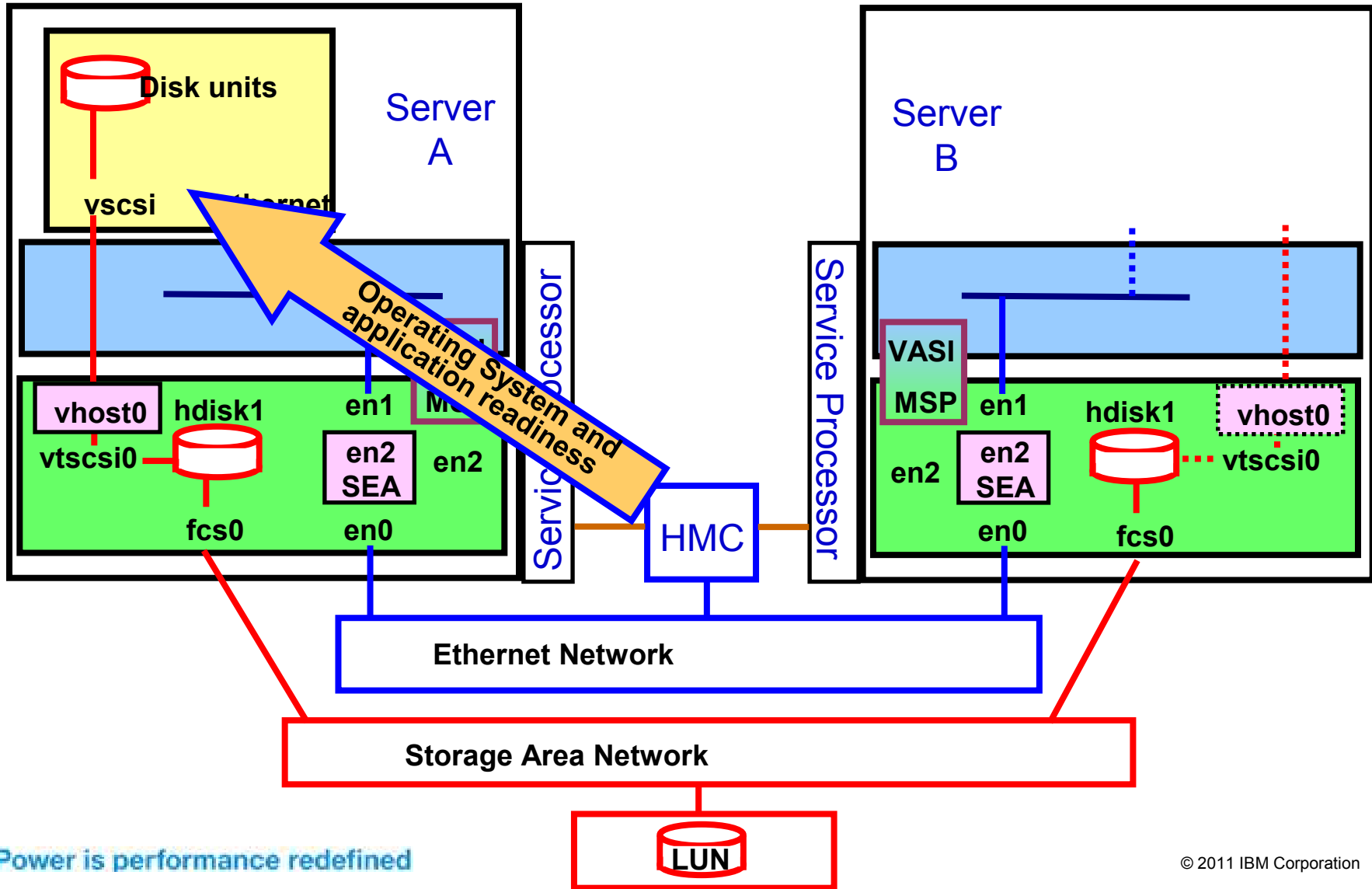
Partition Mobility – Validation



Partition Mobility – Validation

- Checks the target system has the required resources
 - Processor, Memory, Virtual Slots
 - SEA with matching VLAN(s) to support the migrated partition
 - Same disk UDID (universal Device ID) available

Partition Mobility – Validation



Partition Mobility – Validation

- State Information
 - Processor configuration – dedicated/shared, count and entitlement
 - Memory configuration - Minimum/maximum/desired
 - Virtual Adapter configuration
- State Information from the Source System Hypervisor
 - Partition's memory, hardware page table (HPT), Processor state
 - Virtual adapter state, non-volatile RAM (NVRAM), The time of day (ToD)
 - Partition configuration, state of each resource
- Source system MSP collect this through the VASI
- MSP transfers this information to the target MSP
- State information is then available to the new partition shell

Note : The State Information represents the LPAR's **current** characteristics (it is NOT based on any of the LPAR profiles). The existing profile will be modified with the new Virtual Device mappings

Partition Mobility – Validation

- After the validation has completed, the dialog information is updated to include information on how the migration would occur

Systems Management > Servers > Server-8205-E6B-SN105E3P

Select	Name	ID	Status	Processing Units	Memory (GB)	Active Profile	Environment	Reference Code
<input type="checkbox"/>	ADX61-cts180	16	Not Activated		0.1	1.25 default	ADX or Linux	00000000
<input type="checkbox"/>	ADX71-cts181	17	Not Activated		0.1	1.25 default	ADX or Linux	00000000
<input type="checkbox"/>	ADXdemo-201				0.2	2 AMS	ADX or Linux	00000000
<input type="checkbox"/>	ADXdemo-202				0.2	2 AMS	ADX or Linux	00000000
<input type="checkbox"/>	ADXdemo-210				0.4	2 AMS	ADX or Linux	00000000
<input type="checkbox"/>	ADX-ha61a-206				0.2	2 default	ADX or Linux	00000000
<input type="checkbox"/>	ADX-ha61b-207				0.2	2 default	ADX or Linux	
<input type="checkbox"/>	ADX-ha71a-208				0.2	3 default	ADX or Linux	
<input type="checkbox"/>	ADX-ha71b-209				0.2	3 default	ADX or Linux	
<input type="checkbox"/>	Dir63-152				0.4	8 default	ADX or Linux	
<input type="checkbox"/>	IBMi-6				0.1	4 default	IBM i	00000000
<input type="checkbox"/>	IBMi-7				0.1	4 default	IBM i	00000000
<input type="checkbox"/>	IBMi-vios				0.1	4 default	IBM i	00000000
<input checked="" type="checkbox"/>	IBMi-vios-LPM				0.1	4 LPM	IBM i	00000000
<input type="checkbox"/>	p7vios3-171				0.4	4 default	Virtual I/O Server	
<input type="checkbox"/>	p7vios4-ssp-172				0.4	4 default	Virtual I/O Server	
<input type="checkbox"/>	p7vios5-173				0.2	4 default	Virtual I/O Server	
<input type="checkbox"/>	tcr-cts200				0.2	6 AMS	ADX or Linux	

cts130: Validate - Mozilla Firefox

9.196.148.130 https://9.196.148.130/hmc/content?taskId=263&refresh=479

Partition Migration Validation - Server-8205-E6B-SN105E3P - IBMi-vios-LPM

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-8205-E6B-SN105E3P
 Migrating partition: IBMi-vios-LPM
 Remote HMC:
 Remote User:
 Destination system: Server-8231-E2B-SN06767FP
 Destination profile name: LPM
 Destination shared processor pool: DefaultPool (0)
 Source mover service partition: p7vios4-ssp-172
 Destination mover service partition: p7vios1-169
 Wait time (in min): 5
 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"/>	18	SCSI	p7vios1-169
<input checked="" type="checkbox"/>	18	SCSI	p7vios2-ssp-170

Tasks: IBMi-vios-LPM

Properties
 Change Default Profile
 Operations

Configuration
 Hardware Information

Dynamic Logical Partitioning
 Serviceability

Partition Mobility – Migration

- After you have validated you can have the option to begin a migration process

Systems Management > Servers > Server-8205-E6B-SN105E53P

Select	Name	ID	Status	Processing Units	Memory (GB)	Active Profile	Environment	Reference Code
<input type="checkbox"/>	ADX61-cts180	16	Not Activated		0.1	1.25 default	ADX or Linux	00000000
<input type="checkbox"/>	ADX71-cts181	17	Not Activated		0.1	1.25 default	ADX or Linux	00000000
<input type="checkbox"/>	ADXdemo-201				0.2	2 AMS	ADX or Linux	00000000
<input type="checkbox"/>	ADXdemo-202				0.2	2 AMS	ADX or Linux	00000000
<input type="checkbox"/>	ADXdemo-210				0.4	2 AMS	ADX or Linux	00000000
<input type="checkbox"/>	ADX-ha61a-206				0.2	2 default	ADX or Linux	00000000
<input type="checkbox"/>	ADX-ha61b-207				0.2	2 default	ADX or Linux	
<input type="checkbox"/>	ADX-ha71a-208				0.2	3 default	ADX or Linux	
<input type="checkbox"/>	ADX-ha71b-209				0.2	3 default	ADX or Linux	
<input type="checkbox"/>	Dir63-152				0.4	8 default	ADX or Linux	
<input type="checkbox"/>	IBMi-6				0.1	4 default	IBM i	00000000
<input type="checkbox"/>	IBMi-7				0.1	4 default	IBM i	00000000
<input type="checkbox"/>	IBMi-vios				0.1	4 default	IBM i	00000000
<input checked="" type="checkbox"/>	IBMi-vios-LPM				0.1	4 LPM	IBM i	00000000
<input type="checkbox"/>	p7vios3-171				0.4	4 default	Virtual I/O Server	
<input type="checkbox"/>	p7vios4-ssp-172				0.4	4 default	Virtual I/O Server	
<input type="checkbox"/>	p7vios5-173				0.2	4 default	Virtual I/O Server	
<input type="checkbox"/>	tcr-cts200				0.2	6 AMS	ADX or Linux	

cts130: Validate - Mozilla Firefox

9.196.148.130 https://9.196.148.130/hmc/content?taskId=263&refresh=479

Partition Migration Validation - Server-8205-E6B-SN105E53P - IBMi-vios-LPM

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-8205-E6B-SN105E53P
 Migrating partition: IBMi-vios-LPM
 Remote HMC:
 Remote User:
 Destination system: Server-8231-E2B-SN06767FP
 Destination profile name: LPM
 Destination shared processor pool: DefaultPool (0)
 Source mover service partition: p7vios4-ssp-172
 Destination mover service partition: p7vios1-169
 Wait time (in min): 5
 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"/>	18	SCSI	p7vios1-169
<input checked="" type="checkbox"/>	18	SCSI	p7vios2-ssp-170

Tasks: IBMi-vios-LPM

Properties
 Change Default Profile
 Operations

Configuration
 Hardware Information

Dynamic Logical Partitioning
 Serviceability

Partition Mobility – Migration

- Alternatively you can select a migration from the partition tasks and you will be taken through a set of screens to set up the migration parameters

Systems Management > Servers > Server-8205-E6B-SN105E53P

Select	Name	ID	Status	Processing Units	Memory (GB)	Active Profile	Environment	Reference Code
<input type="checkbox"/>	ADX81-cts180	16	Not Activated		0.1	1.25	default	ADK or Linux
<input type="checkbox"/>	ADX71-cts181	17	Not Activated		0.1	1.25	default	ADK or Linux
<input type="checkbox"/>	ADXdemo-201						AMS	ADK or Linux
<input type="checkbox"/>	ADXdemo-202						AMS	ADK or Linux
<input type="checkbox"/>	ADXdemo-210						AMS	ADK or Linux
<input type="checkbox"/>	ADX-ha61a-206						default	ADK or Linux
<input type="checkbox"/>	ADX-ha61b-207						default	ADK or Linux
<input type="checkbox"/>	ADX-ha71a-208						default	ADK or Linux
<input type="checkbox"/>	ADX-ha71b-209						default	ADK or Linux
<input type="checkbox"/>	Dir63-152						default	ADK or Linux
<input type="checkbox"/>	IBMI-6						default	IBM i
<input type="checkbox"/>	IBMI-7						default	IBM i
<input type="checkbox"/>	IBMI-8						default	IBM i
<input type="checkbox"/>	IBMI-9						default	IBM i
<input type="checkbox"/>	IBMI-10						default	IBM i
<input type="checkbox"/>	IBMI-11						default	IBM i
<input type="checkbox"/>	IBMI-12						default	IBM i
<input type="checkbox"/>	IBMI-13						default	IBM i
<input type="checkbox"/>	IBMI-14						default	IBM i
<input type="checkbox"/>	IBMI-15						default	IBM i
<input type="checkbox"/>	IBMI-16						default	IBM i
<input type="checkbox"/>	IBMI-17						default	IBM i
<input type="checkbox"/>	IBMI-18						default	IBM i
<input type="checkbox"/>	IBMI-19						default	IBM i
<input type="checkbox"/>	IBMI-20						default	IBM i
<input type="checkbox"/>	IBMI-21						default	IBM i
<input type="checkbox"/>	IBMI-22						default	IBM i
<input type="checkbox"/>	IBMI-23						default	IBM i
<input type="checkbox"/>	IBMI-24						default	IBM i
<input type="checkbox"/>	IBMI-25						default	IBM i
<input type="checkbox"/>	IBMI-26						default	IBM i
<input type="checkbox"/>	IBMI-27						default	IBM i
<input type="checkbox"/>	IBMI-28						default	IBM i
<input type="checkbox"/>	IBMI-29						default	IBM i
<input type="checkbox"/>	IBMI-30						default	IBM i
<input type="checkbox"/>	IBMI-31						default	IBM i
<input type="checkbox"/>	IBMI-32						default	IBM i
<input type="checkbox"/>	IBMI-33						default	IBM i
<input type="checkbox"/>	IBMI-34						default	IBM i
<input type="checkbox"/>	IBMI-35						default	IBM i
<input type="checkbox"/>	IBMI-36						default	IBM i
<input type="checkbox"/>	IBMI-37						default	IBM i
<input type="checkbox"/>	IBMI-38						default	IBM i
<input type="checkbox"/>	IBMI-39						default	IBM i
<input type="checkbox"/>	IBMI-40						default	IBM i
<input type="checkbox"/>	IBMI-41						default	IBM i
<input type="checkbox"/>	IBMI-42						default	IBM i
<input type="checkbox"/>	IBMI-43						default	IBM i
<input type="checkbox"/>	IBMI-44						default	IBM i
<input type="checkbox"/>	IBMI-45						default	IBM i
<input type="checkbox"/>	IBMI-46						default	IBM i
<input type="checkbox"/>	IBMI-47						default	IBM i
<input type="checkbox"/>	IBMI-48						default	IBM i
<input type="checkbox"/>	IBMI-49						default	IBM i
<input type="checkbox"/>	IBMI-50						default	IBM i
<input type="checkbox"/>	IBMI-51						default	IBM i
<input type="checkbox"/>	IBMI-52						default	IBM i
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<input type="checkbox"/>	IBMI-56						default	IBM i
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<input type="checkbox"/>	IBMI-62						default	IBM i
<input type="checkbox"/>	IBMI-63						default	IBM i
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<input type="checkbox"/>	IBMI-67						default	IBM i
<input type="checkbox"/>	IBMI-68						default	IBM i
<input type="checkbox"/>	IBMI-69						default	IBM i
<input type="checkbox"/>	IBMI-70						default	IBM i
<input type="checkbox"/>	IBMI-71						default	IBM i
<input type="checkbox"/>	IBMI-72						default	IBM i
<input type="checkbox"/>	IBMI-73						default	IBM i
<input type="checkbox"/>	IBMI-74						default	IBM i
<input type="checkbox"/>	IBMI-75						default	IBM i
<input type="checkbox"/>	IBMI-76						default	IBM i
<input type="checkbox"/>	IBMI-77						default	IBM i
<input type="checkbox"/>	IBMI-78						default	IBM i
<input type="checkbox"/>	IBMI-79						default	IBM i
<input type="checkbox"/>	IBMI-80						default	IBM i
<input type="checkbox"/>	IBMI-81						default	IBM i
<input type="checkbox"/>	IBMI-82						default	IBM i
<input type="checkbox"/>	IBMI-83						default	IBM i
<input type="checkbox"/>	IBMI-84						default	IBM i
<input type="checkbox"/>	IBMI-85						default	IBM i
<input type="checkbox"/>	IBMI-86						default	IBM i
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<input type="checkbox"/>	IBMI-93						default	IBM i
<input type="checkbox"/>	IBMI-94						default	IBM i
<input type="checkbox"/>	IBMI-95						default	IBM i
<input type="checkbox"/>	IBMI-96						default	IBM i
<input type="checkbox"/>	IBMI-97						default	IBM i
<input type="checkbox"/>	IBMI-98						default	IBM i
<input type="checkbox"/>	IBMI-99						default	IBM i
<input type="checkbox"/>	IBMI-100						default	IBM i
<input type="checkbox"/>	IBMI-101						default	IBM i
<input type="checkbox"/>	IBMI-102						default	IBM i
<input type="checkbox"/>	IBMI-103						default	IBM i
<input type="checkbox"/>	IBMI-104						default	IBM i
<input type="checkbox"/>	IBMI-105						default	IBM i
<input type="checkbox"/>	IBMI-106						default	IBM i
<input type="checkbox"/>	IBMI-107						default	IBM i
<input type="checkbox"/>	IBMI-108						default	IBM i
<input type="checkbox"/>	IBMI-109						default	IBM i
<input type="checkbox"/>	IBMI-110						default	IBM i
<input type="checkbox"/>	IBMI-111						default	IBM i
<input type="checkbox"/>	IBMI-112						default	IBM i
<input type="checkbox"/>	IBMI-113						default	IBM i
<input type="checkbox"/>	IBMI-114						default	IBM i
<input type="checkbox"/>	IBMI-115						default	IBM i
<input type="checkbox"/>	IBMI-116						default	IBM i
<input type="checkbox"/>	IBMI-117						default	IBM i
<input type="checkbox"/>	IBMI-118						default	IBM i
<input type="checkbox"/>	IBMI-119						default	IBM i
<input type="checkbox"/>	IBMI-120						default	IBM i
<input type="checkbox"/>	IBMI-121						default	IBM i
<input type="checkbox"/>	IBMI-122						default	IBM i
<input type="checkbox"/>	IBMI-123						default	IBM i
<input type="checkbox"/>	IBMI-124						default	IBM i
<input type="checkbox"/>	IBMI-125						default	IBM i
<input type="checkbox"/>	IBMI-126						default	IBM i
<input type="checkbox"/>	IBMI-127						default	IBM i
<input type="checkbox"/>	IBMI-128						default	IBM i
<input type="checkbox"/>	IBMI-129						default	IBM i
<input type="checkbox"/>	IBMI-130						default	IBM i
<input type="checkbox"/>	IBMI-131						default	IBM i
<input type="checkbox"/>	IBMI-132						default	IBM i
<input type="checkbox"/>	IBMI-133						default	IBM i
<input type="checkbox"/>	IBMI-134						default	IBM i
<input type="checkbox"/>	IBMI-135						default	IBM i
<input type="checkbox"/>	IBMI-136						default	IBM i
<input type="checkbox"/>	IBMI-137						default	IBM i
<input type="checkbox"/>	IBMI-138						default	IBM i
<input type="checkbox"/>	IBMI-139						default	IBM i
<input type="checkbox"/>	IBMI-140						default	IBM i
<input type="checkbox"/>	IBMI-141						default	IBM i
<input type="checkbox"/>	IBMI-142						default	IBM i
<input type="checkbox"/>	IBMI-143						default	IBM i
<input type="checkbox"/>	IBMI-144						default	IBM i
<input type="checkbox"/>	IBMI-145						default	IBM i
<input type="checkbox"/>	IBMI-146						default	IBM i
<input type="checkbox"/>	IBMI-147						default	IBM i
<input type="checkbox"/>	IBMI-148						default	IBM i
<input type="checkbox"/>	IBMI-149						default	IBM i
<input type="checkbox"/>	IBMI-150						default	IBM i
<input type="checkbox"/>	IBMI-151						default	IBM i
<input type="checkbox"/>	IBMI-152						default	IBM i
<input type="checkbox"/>	IBMI-153						default	IBM i
<input type="checkbox"/>	IBMI-154						default	IBM i
<input type="checkbox"/>	IBMI-155						default	IBM i
<input type="checkbox"/>	IBMI-156						default	IBM i
<input type="checkbox"/>	IBMI-157						default	IBM i
<input type="checkbox"/>	IBMI-158						default	IBM i
<input type="checkbox"/>	IBMI-159						default	IBM i
<input type="checkbox"/>	IBMI-160						default	IBM i
<input type="checkbox"/>	IBMI-161						default	IBM i
<input type="checkbox"/>	IBMI-162						default	IBM i
<input type="checkbox"/>	IBMI-163						default	IBM i
<input type="checkbox"/>	IBMI-164						default	IBM i
<input type="checkbox"/>	IBMI-165						default	IBM i
<input type="checkbox"/>	IBMI-166						default	IBM i
<input type="checkbox"/>	IBMI-167						default	IBM i
<input type="checkbox"/>	IBMI-168						default	IBM i
<input type="checkbox"/>	IBMI-169						default	IBM i
<input type="checkbox"/>	IBMI-170						default	IBM i
<input type="checkbox"/>	IBMI-171						default	IBM i
<input type="checkbox"/>	IBMI-172						default	IBM i
<input type="checkbox"/>	IBMI-173						default	IBM i
<input type="checkbox"/>	IBMI-174						default	IBM i
<input type="checkbox"/>	IBMI-175						default	IBM i
<input type="checkbox"/>	IBMI-176						default	IBM i
<input type="checkbox"/>	IBMI-177						default	IBM i
<input type="checkbox"/>	IBMI-178						default	IBM i
<input type="checkbox"/>	IBMI-179						default	IBM i
<input type="checkbox"/>	IBMI-180						default	IBM i
<input type="checkbox"/>	IBMI-181						default	IBM i
<input type="checkbox"/>	IBMI-182						default	IBM i
<input type="checkbox"/>	IBMI-183						default	IBM i
<input type="checkbox"/>	IBMI-184						default	IBM i
<input type="checkbox"/>	IBMI-185						default	IBM i
<input type="checkbox"/>	IBMI-186						default	IBM i
<input type="checkbox"/>	IBMI-187						default	IBM i
<input type="checkbox"/>	IBMI-188						default	IBM i
<input type="checkbox"/>	IBMI-189						default	IBM i
<input type="checkbox"/>	IBMI-190						default	IBM i
<input type="checkbox"/>	IBMI-191						default	IBM i
<input type="checkbox"/>	IBMI-192						default	IBM i
<input type="checkbox"/>	IBMI-193						default	IBM i
<input type="checkbox"/>	IBMI-194						default	IBM i
<input type="checkbox"/>	IBMI-195						default	IBM i
<input type="checkbox"/>	IBMI-196						default	IBM i
<input type="checkbox"/>	IBMI-197						default	IBM i
<input type="checkbox"/>	IBMI-198						default	IBM i
<input type="checkbox"/>	IBMI-199						default	IBM i
<input type="checkbox"/>	IBMI-200						default	IBM i
<input type="checkbox"/>	IBMI-201						default	IBM i
<input type="checkbox"/>	IBMI-202						default	IBM i
<input type="checkbox"/>	IBMI-203						default	

Partition Mobility – Migration

- Alternatively you can select a migration from the partition tasks and you will be taken through a set of screens to set up the migration parameters

Systems Management > Servers > Server-8205-E6B-SN105E53P

Select	Name	ID	Status	Processing Units	Memory (GB)	Active Profile	Environment	Reference Code
<input type="checkbox"/>	ADX61-cts180	16	Not Activated		0.1	1.25 default	ADX or Linux	00000000
<input type="checkbox"/>	ADX71-cts181	17	Not Activated		0.1	1.25 default	ADX or Linux	00000000
<input type="checkbox"/>	ADXdemo-201				0.2	2 AMS	ADX or Linux	
<input type="checkbox"/>	ADXdemo-202				0.2	2 AMS	ADX or Linux	
<input type="checkbox"/>	ADXdemo-210				0.4	2 AMS	ADX or Linux	
<input type="checkbox"/>	ADX-ha61a-206				0.2	2 default	ADX or Linux	00000000
<input type="checkbox"/>	ADX-ha61b-207				0.2	2 default	ADX or Linux	
<input type="checkbox"/>	ADX-ha71a-208				0.2	3 default	ADX or Linux	
<input type="checkbox"/>	ADX-ha71b-209				0.2	3 default	ADX or Linux	
<input type="checkbox"/>	Dir63-152				0.4	8 default	ADX or Linux	
<input type="checkbox"/>	IBMi-6				0.1	4 default	IBM i	00000000
<input type="checkbox"/>	IBMi-7				0.1	4 default	IBM i	00000000
<input type="checkbox"/>	IBMi-vios				0.1	4 default	IBM i	00000000
<input checked="" type="checkbox"/>	IBMi-vios-LPM				0.1	4 LPM	IBM i	00000000
<input type="checkbox"/>	p7vios3-171				0.4	4 default	Virtual I/O Server	
<input type="checkbox"/>	p7vios4-ssp-172				0.4	4 default	Virtual I/O Server	
<input type="checkbox"/>	p7vios5-173				0.2	4 default	Virtual I/O Server	
<input type="checkbox"/>	trc-cts200				0.2	6 AMS	ADX or Linux	

Partition Migration - Server-8205-E6B-SN105E53P - Mozilla Firefox

9.196.148.130 | https://9.196.148.130/hmc/wcl/Tb88f

Partition Migration - Server-8205-E6B-SN105E53P - IBMi-vios-LPM

Profile Name

As part of the migration process, the HMC will create a new migration profile containing the partition's current state. Unless you specify a profile name when you start the migration, this profile will replace the existing profile that was last used to activate the partition. Also, if you specify an existing profile name, the HMC will replace that profile with the new migration profile. If you do not want the migration profile to replace any of the partition's existing profiles, you must specify a new, unique profile name.

During the migration a new profile is created for the migrating partition. The new profile contains the partition's current configuration and any changes that are made during the migration. You can edit and change the profile name.

New destination profile name:

< Back Next > Finish Cancel

Tasks: IBMi-vios-LPM

Properties
Change Default Profile
Operations

Hardware Information

Dynamic Logical Partitioning
Serviceability

Partition Mobility – Migration

- Alternatively you can select a migration from the partition tasks and you will be taken through a set of screens to set up the migration parameters

Systems Management > Servers > Server-8205-E6B-SN105E53P

Select	Name	ID	Status	Processing Units	Memory (GB)	Active Profile	Environment	Reference Code
<input type="checkbox"/>	AX61-cts180	16	Not Activated		0.1	1.25 default	ADX or Linux	00000000
<input type="checkbox"/>	AX71-cts181	17	Not Activated		0.1	1.25 default	ADX or Linux	00000000
<input type="checkbox"/>	AXdemo-201				0.2	2 AMS	ADX or Linux	
<input type="checkbox"/>	AXdemo-202				0.2	2 AMS	ADX or Linux	
<input type="checkbox"/>	AXdemo-210				0.4	2 AMS	ADX or Linux	
<input type="checkbox"/>	AX-ha61a-206				0.2	2 default	ADX or Linux	00000000
<input type="checkbox"/>	AX-ha61b-207				0.2	2 default	ADX or Linux	
<input type="checkbox"/>	AX-ha71a-208				0.2	3 default	ADX or Linux	
<input type="checkbox"/>	AX-ha71b-209				0.2	3 default	ADX or Linux	
<input type="checkbox"/>	Dir63-152				0.4	8 default	ADX or Linux	
<input type="checkbox"/>	IBMI-6				0.1	4 default	IBM i	00000000
<input type="checkbox"/>	IBMI-7				0.1	4 default	IBM i	00000000
<input type="checkbox"/>	IBMI-vios				0.1	4 default	IBM i	00000000
<input checked="" type="checkbox"/>	IBMI-vios-LPM				0.1	4 LPM	IBM i	00000000
<input type="checkbox"/>	p7vios3-171				0.4	4 default	Virtual I/O Server	
<input type="checkbox"/>	p7vios4-ssp-172				0.4	4 default	Virtual I/O Server	
<input type="checkbox"/>	p7vios5-173				0.2	4 default	Virtual I/O Server	
<input type="checkbox"/>	tr-cts200				0.2	6 AMS	ADX or Linux	

Partition Migration - Server-8205-E6B-SN105E53P - Mozilla Fire...

9.196.148.130 https://9.196.148.130/hmc/wcl/Tb88f

Partition Migration - Server-8205-E6B-SN105E53P - IBMI-vios-LPM

- ✓ Migration Information
- ✓ Profile Name
- **Remote HMC**
- Destination
- Validation Errors/Warnings
- Mover Service Partitions
- VLAN Configuration
- Virtual Storage Adapters
- Shared Processor Pools
- Wait Time
- Summary

Remote HMC

Specify remote HMC and user for partition migration. The destination system should have at least one managed system capable of partition migration.

Remote Migration

Remote HMC:

Remote User:

< Back Next > Finish Cancel

Tasks: IBMI-vios-LPM

Properties
Change Default Profile
Operations

Dynamic Logical Partitioning
Serviceability

Partition Mobility – Migration

- Alternatively you can select a migration from the partition tasks and you will be taken through a set of screens to set up the migration parameters

Systems Management > Servers > Server-8205-E6B-SN105E53P

Select	Name	ID	Status	Processing Units	Memory (GB)	Active Profile	Environment	Reference Code
<input type="checkbox"/>	ADK61-cts180	16	Not Activated		0.1	1.25 default	ADX or Linux	00000000
<input type="checkbox"/>	ADK71-cts181	17	Not Activated		0.1	1.25 default	ADX or Linux	00000000
<input type="checkbox"/>	ADKdemo-201				0.2	2 AMS	ADX or Linux	
<input type="checkbox"/>	ADKdemo-202				0.2	2 AMS	ADX or Linux	
<input type="checkbox"/>	ADKdemo-210				0.4	2 AMS	ADX or Linux	
<input type="checkbox"/>	ADK-ha61a-206				0.2	2 default	ADX or Linux	00000000
<input type="checkbox"/>	ADK-ha61b-207				0.2	2 default	ADX or Linux	
<input type="checkbox"/>	ADK-ha71a-208				0.2	3 default	ADX or Linux	
<input type="checkbox"/>	ADK-ha71b-209				0.2	3 default	ADX or Linux	
<input type="checkbox"/>	Dir63-152				0.4	8 default	ADX or Linux	
<input type="checkbox"/>	IBMi-6				0.1	4 default	IBM i	00000000
<input type="checkbox"/>	IBMi-7				0.1	4 default	IBM i	00000000
<input type="checkbox"/>	IBMi-vios				0.1	4 default	IBM i	00000000
<input checked="" type="checkbox"/>	IBMi-vios-LPM				0.1	4 LPM	IBM i	00000000
<input type="checkbox"/>	p7vios3-171				0.4	4 default	Virtual I/O Server	
<input type="checkbox"/>	p7vios4-ssp-172				0.4	4 default	Virtual I/O Server	
<input type="checkbox"/>	p7vios5-173				0.2	4 default	Virtual I/O Server	
<input type="checkbox"/>	trc-cts200				0.2	6 AMS	ADX or Linux	

Partition Migration - Server-8205-E6B-SN105E53P - Mozilla Firefox

9.196.148.130 | https://9.196.148.130/hmc/wcl/Tb88f

Partition Migration - Server-8205-E6B-SN105E53P - IBMi-vios-LPM

Destination

Select a destination managed system and user for partition migration. The destination managed systems listed below will support the migration of a partition from this managed system. If the managed system you want is not in the list, verify the system is migration capable and compatible with the migrating partition.

Destination System:

- Server3-E4A-SN10DDF11
- Server4-E4A-SN10DDF21
- Server-8231-E2B-SN06767FP

< Back Next > Finish Cancel

Tasks: IBMi-vios-LPM

Properties
Change Default Profile
Operations

Hardware Information

Dynamic Logical Partitioning
Serviceability

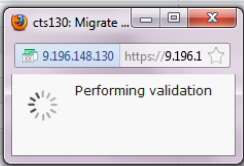
Partition Mobility – Migration

- Alternatively you can select a migration from the partition tasks and you will be taken through a set of screens to set up the migration parameters

Systems Management > Servers > Server-8205-E6B-SM105E53P

Select	Name	ID	Status	Processing Units	Memory (GB)	Active Profile	Environment	Reference Code
<input type="checkbox"/>	ADK61-cts180	16	Not Activated		0.1	1.25 default	ADK or Linux	00000000
<input type="checkbox"/>	ADK71-cts181	17	Not Activated		0.1	1.25 default	ADK or Linux	00000000
<input type="checkbox"/>	ADKdemo-201	7	Running		0.2	2 AMS	ADK or Linux	
<input type="checkbox"/>	ADKdemo-202	8	Running		0.2	2 AMS	ADK or Linux	
<input type="checkbox"/>	ADKdemo-210	14	Running		0.4	2 AMS	ADK or Linux	
<input type="checkbox"/>	ADK-ha61a-206	10	Not Activated		0.2	2 default	ADK or Linux	00000000
<input type="checkbox"/>	ADK-ha61b-207	11	Running		0.2	2 default	ADK or Linux	
<input type="checkbox"/>	ADK-ha71a-208	12	Running		0.2	3 default	ADK or Linux	
<input type="checkbox"/>	ADK-ha71b-209	13	Running		0.2	3 default	ADK or Linux	
<input type="checkbox"/>	Dir63-152	15	Running		0.4	8 default	ADK or Linux	
<input type="checkbox"/>	IBMi-6	5	Not Activated		0.1	4 default	IBM i	00000000
<input type="checkbox"/>	IBMi-7	4	Not Activated		0.1	4 default	IBM i	00000000
<input type="checkbox"/>	IBMi-vios	6	Running		0.1	4 default	IBM i	00000000
<input checked="" type="checkbox"/>	IBMi-vios-LPM	18	Running		0.1	4 LPM	IBM i	00000000
<input type="checkbox"/>	p7vios3-171	2	Running		0.4	4 default	Virtual I/O Server	
<input type="checkbox"/>	p7vios4-ssp-172	3	Running		0.4	4 default	Virtual I/O Server	
<input type="checkbox"/>	p7vios5-173	1	Running		0.2	4 default	Virtual I/O Server	
<input type="checkbox"/>	tcr-cts200	9	Running		0.2	6 AMS	ADK or Linux	

Max Page Size: 500 Total: 18 Filtered: 18 Selected: 1



Tasks: IBMi-vios-LPM

- Properties
- Change Default Profile
- Operations

- Configuration
- Hardware Information

- Dynamic Logical Partitioning
- Serviceability

Partition Mobility – Migration

- Alternatively you can select a migration from the partition tasks and you will be taken through a set of screens to set up the migration parameters

Systems Management > Servers > Server-8205-E6B-SN105E53P

Select	Source MSP Partition	Source MSP Partition's IP	Destination MSP Partition	Destination MSP Partition's IP
<input checked="" type="radio"/>	p7vios4-ssp-172	9.196.148.172	p7vios1-169	9.196.148.169
<input type="radio"/>	p7vios4-ssp-172	9.196.148.172	p7vios2-ssp-170	9.196.148.170
<input type="radio"/>	p7vios5-173	9.196.148.173	p7vios1-169	9.196.148.169
<input type="radio"/>	p7vios5-173	9.137.62.127	p7vios1-169	9.196.148.169
<input type="radio"/>	p7vios5-173	9.196.148.173	p7vios2-ssp-170	9.196.148.170
<input type="radio"/>	p7vios5-173	9.137.62.127	p7vios2-ssp-170	9.196.148.170
<input type="radio"/>	p7vios3-171	9.196.148.171	p7vios1-169	9.196.148.169
<input type="radio"/>	p7vios3-171	9.196.148.171	p7vios2-ssp-170	9.196.148.170

Navigation: < Back, Next >, Finish, Cancel

Tasks: IBM i-vios-LPM

- Properties
- Change Default Profile
- Operations
- Hardware Information
- Dynamic Logical Partitioning
- Serviceability

Partition Mobility – Migration

- Alternatively you can select a migration from the partition tasks and you will be taken through a set of screens to set up the migration parameters

Systems Management > Servers > Server-8205-E6B-SN105E53P

Select	Name	ID	Status	Processing Units	Memory (GB)	Active Profile	Environment	Reference Code
<input type="checkbox"/>	ADx61-cts180	16	Not Activated		0.1	1.25 default	ADX or Linux	00000000
<input type="checkbox"/>	ADx71-cts181	17	Not Activated		0.1	1.25 default	ADX or Linux	00000000
<input type="checkbox"/>	ADxdemo-201				0.2	2 AMS	ADX or Linux	
<input type="checkbox"/>	ADxdemo-202				0.2	2 AMS	ADX or Linux	
<input type="checkbox"/>	ADxdemo-210				0.4	2 AMS	ADX or Linux	
<input type="checkbox"/>	ADx-ha61a-206				0.2	2 default	ADX or Linux	00000000
<input type="checkbox"/>	ADx-ha61b-207				0.2	2 default	ADX or Linux	
<input type="checkbox"/>	ADx-ha71a-208				0.2	3 default	ADX or Linux	
<input type="checkbox"/>	ADx-ha71b-209				0.2	3 default	ADX or Linux	
<input type="checkbox"/>	Dir63-152				0.4	8 default	ADX or Linux	
<input type="checkbox"/>	IBMI-6				0.1	4 default	IBM i	00000000
<input type="checkbox"/>	IBMI-7				0.1	4 default	IBM i	00000000
<input type="checkbox"/>	IBMI-vios				0.1	4 default	IBM i	00000000
<input checked="" type="checkbox"/>	IBMI-vios-LPM				0.1	4 LPM	IBM i	00000000
<input type="checkbox"/>	p7vios3-171				0.4	4 default	Virtual I/O Server	
<input type="checkbox"/>	p7vios4-ssp-172				0.4	4 default	Virtual I/O Server	
<input type="checkbox"/>	p7vios5-173				0.2	4 default	Virtual I/O Server	
<input type="checkbox"/>	tcr-cts200				0.2	6 AMS	ADX or Linux	

Partition Migration - Server-8205-E6B-SN105E53P - Mozilla Firefox

9.196.148.130 | https://9.196.148.130/hmc/wcl/Tbd73

Partition Migration - Server-8205-E6B-SN105E53P - IBMI-vios-LPM

- Migration Information
- Profile Name
- Remote HMC
- Destination
- Validation Errors/Warnings
- Mover Service Partitions
- VLAN Configuration**
- Virtual Storage Adapters
- Shared Processor Pools
- Wait Time
- Summary

The table below displays the partition's VLAN configuration on the destination system matching the source partition's VLAN configuration.

Selected	VLAN ID	Status	Bridged	Destination VIOS
Yes	22	Present	Yes	p7vios1-169

< Back Next > Finish Cancel

Tasks: IBMI-vios-LPM

Properties: Change Default Profile, Operations

Dynamic Logical Partitioning, Serviceability

Partition Mobility – Migration

- Alternatively you can select a migration from the partition tasks and you will be taken through a set of screens to set up the migration parameters

Systems Management > Servers > Server-8205-E6B-SN105E53P

Select	Name	ID	Status	Processing Units	Memory (GB)	Active Profile	Environment	Reference Code
<input type="checkbox"/>	AD61-cts180	16	Not Activated		0.1	1.25 default	ADX or Linux	00000000
<input type="checkbox"/>	AD71-cts181	17	Not Activated		0.1	1.25 default	ADX or Linux	00000000
<input type="checkbox"/>	ADdemo-201				0.2	2 AMS	ADX or Linux	
<input type="checkbox"/>	ADdemo-202				0.2	2 AMS	ADX or Linux	
<input type="checkbox"/>	ADdemo-210				0.4	2 AMS	ADX or Linux	
<input type="checkbox"/>	ADX-ha61a-206				0.2	2 default	ADX or Linux	00000000
<input type="checkbox"/>	ADX-ha61b-207				0.2	2 default	ADX or Linux	
<input type="checkbox"/>	ADX-ha71a-208				0.2	3 default	ADX or Linux	
<input type="checkbox"/>	ADX-ha71b-209				0.2	3 default	ADX or Linux	
<input type="checkbox"/>	Dir63-152				0.4	8 default	ADX or Linux	
<input type="checkbox"/>	IBMI-6				0.1	4 default	IBM i	00000000
<input type="checkbox"/>	IBMI-7				0.1	4 default	IBM i	00000000
<input type="checkbox"/>	IBMI-vios				0.1	4 default	IBM i	00000000
<input checked="" type="checkbox"/>	IBMI-vios-LPM				0.1	4 LPM	IBM i	00000000
<input type="checkbox"/>	p7vios3-171				0.4	4 default	Virtual I/O Server	
<input type="checkbox"/>	p7vios4-ssp-172				0.4	4 default	Virtual I/O Server	
<input type="checkbox"/>	p7vios5-173				0.2	4 default	Virtual I/O Server	
<input type="checkbox"/>	tcr-cts200				0.2	6 AMS	ADX or Linux	

Partition Migration - Server-8205-E6B-SN105E53P - Mozilla Fref...

9.196.148.130 https://9.196.148.130/hmc/wcl/Tbd73

Partition Migration - Server-8205-E6B-SN105E53P - IBMi-vios-LPM

- ✓ Migration Information
- ✓ Profile Name
- ✓ Remote HMC
- ✓ Destination
- Validation Errors/Warnings
- ✓ Mover Service Partitions
- ✓ VLAN Configuration
- ✓ Virtual Storage Adapters
- Shared Processor Pools
- Wait Time
- Summary

Shared Processor Pools

The table below shows the validated target shared processor pools matching the source partition's shared processor pool configuration.

Destination Shared Processor Pool:

Select	Pool ID	Pool Name
<input checked="" type="radio"/>	0	DefaultPool

Tasks: IBMI-vios-LPM

Properties
Change Default Profile
Operations

Dynamic Logical Partitioning
Serviceability

Partition Mobility – Migration

- Alternatively you can select a migration from the partition tasks and you will be taken through a set of screens to set up the migration parameters

Systems Management > Servers > Server-8205-E6B-SN105E53P

Select	Name	ID	Status	Processing Units	Memory (GB)	Active Profile	Environment	Reference Code
<input type="checkbox"/>	ADX61-cts180	16	Not Activated		0.1	1.25 default	ADX or Linux	00000000
<input type="checkbox"/>	ADX71-cts181	17	Not Activated		0.1	1.25 default	ADX or Linux	00000000
<input type="checkbox"/>	ADXdemo-201				0.2	2 AMS	ADX or Linux	
<input type="checkbox"/>	ADXdemo-202				0.2	2 AMS	ADX or Linux	
<input type="checkbox"/>	ADXdemo-210				0.4	2 AMS	ADX or Linux	
<input type="checkbox"/>	ADX-ha61a-206				0.2	2 default	ADX or Linux	00000000
<input type="checkbox"/>	ADX-ha61b-207				0.2	2 default	ADX or Linux	
<input type="checkbox"/>	ADX-ha71a-208				0.2	3 default	ADX or Linux	
<input type="checkbox"/>	ADX-ha71b-209				0.4	8 default	ADX or Linux	
<input type="checkbox"/>	Dir63-152				0.1	4 default	IBM i	00000000
<input type="checkbox"/>	IBMI-6				0.1	4 default	IBM i	00000000
<input type="checkbox"/>	IBMI-7				0.1	4 default	IBM i	00000000
<input type="checkbox"/>	IBMI-vios				0.1	4 default	IBM i	00000000
<input checked="" type="checkbox"/>	IBMI-vios-LPM				0.1	4 LPM	IBM i	00000000
<input type="checkbox"/>	p7vios3-171				0.4	4 default	Virtual I/O Server	
<input type="checkbox"/>	p7vios4-ssp-172				0.4	4 default	Virtual I/O Server	
<input type="checkbox"/>	p7vios5-173				0.2	4 default	Virtual I/O Server	
<input type="checkbox"/>	tcr-cls200				0.2	6 AMS	ADX or Linux	

Partition Migration - Server-8205-E6B-SN105E53P - IBMi-vios-LPM

- ✓ Migration Information
- ✓ Profile Name
- ✓ Remote HMC
- ✓ Destination
- ✓ Validation Errors/Warnings
- ✓ Mover Service Partitions
- ✓ VLAN Configuration
- ✓ Virtual Storage Adapters
- ✓ Shared Processor Pools
- Wait Time
- Summary

Wait Time

Wait time is the maximum time, in minutes, that the operating system should wait for applications to acknowledge that a partition migration event is about to happen. You may enter a non-zero value if the default value is unsuitable.

Wait time (in min):

Partition Mobility – Migration

- Alternatively you can select a migration from the partition tasks and you will be taken through a set of screens to set up the migration parameters

The screenshot displays the IBM Systems Management console interface. In the background, a table lists various partitions with columns for Name, ID, Status, Processing Units, Memory (GB), Active Profile, Environment, and Reference Code. One partition, 'IBMi-vios-LPM', is highlighted in blue.

In the foreground, a 'Partition Migration' configuration window is open, titled 'Partition Migration - Server-8205-E6B-SN105E53P - IBMi-vios-LPM'. The window shows a 'Summary' section with the following details:

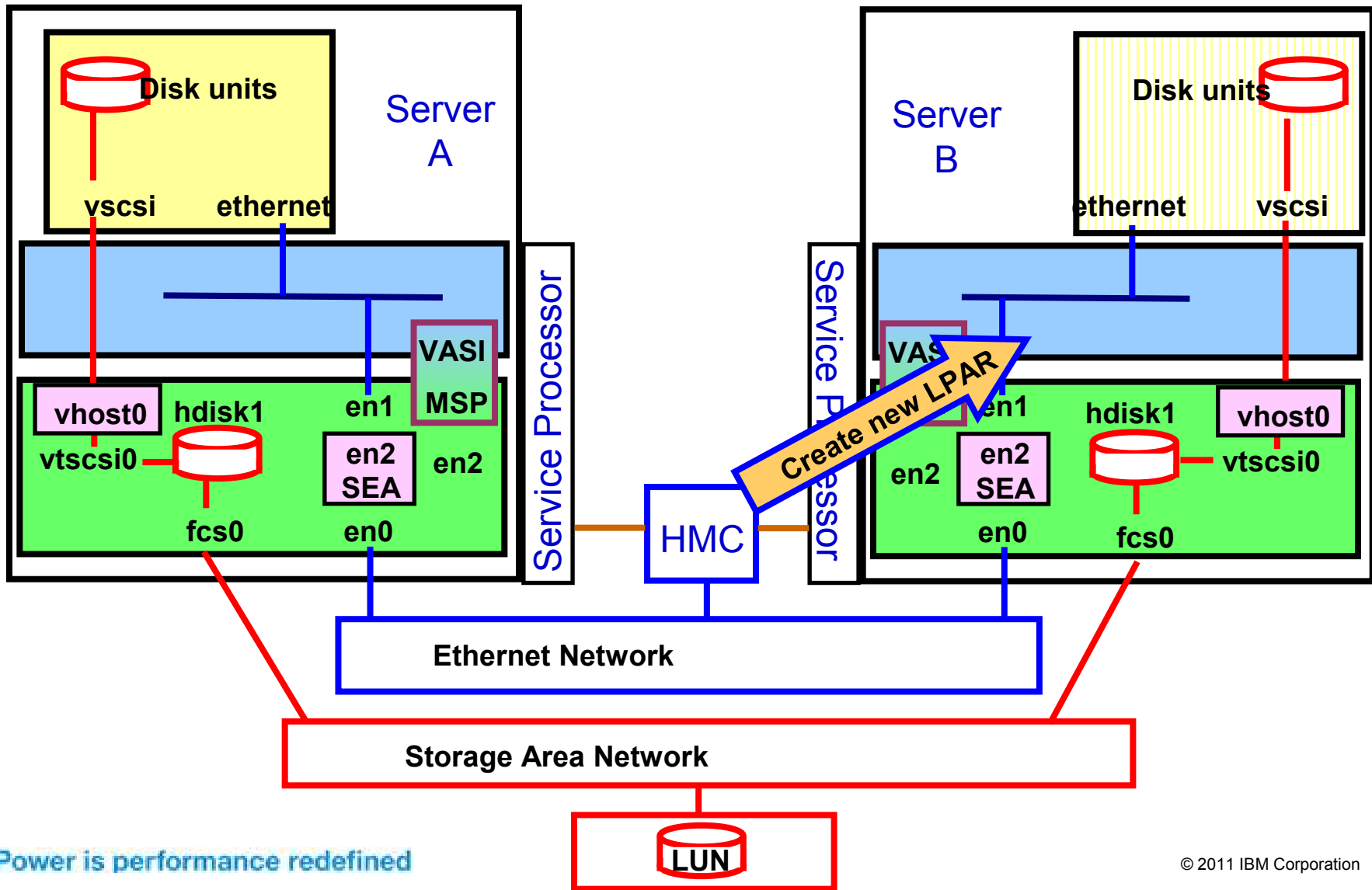
- Migration Information:**
 - Destination: IBMi-vios-LPM
 - Destination partition ID: 18
 - Destination system: Server-8231-E2B-SN06767FP
 - New profile name: LPM
 - Shared pool id: 0
 - Shared pool name: DefaultPool
 - Source mover service partition: p7vios4-ssp-172
 - Destination mover service partition: p7vios1-169
 - Wait time (in min): 5
- Migrated VLAN Assignments:**

Selected	VLAN ID	Status	Bridged	Destination VIOS
Yes	22	Present	Yes	p7vios1-169
- Migrated Virtual Storage Assignments:**

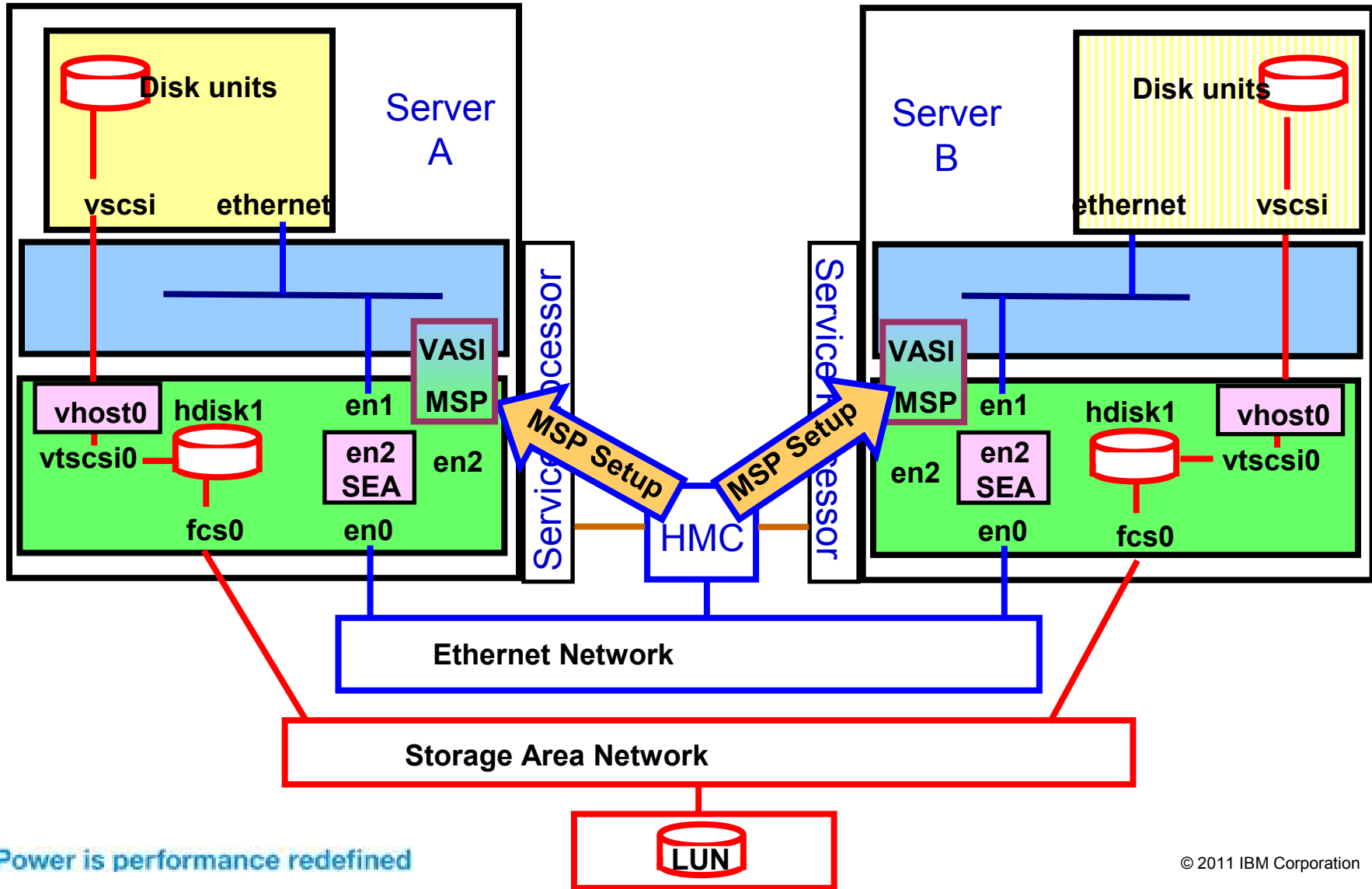
Slot ID	Slot Type	Destination VIOS
18	SCSI	p7vios2-ssp-170

At the bottom of the window, there are navigation buttons: '< Back', 'Next >', 'Finish', and 'Cancel'. A note at the bottom of the window states: 'If you are satisfied with these settings, select 'Finish' to begin the migration.'

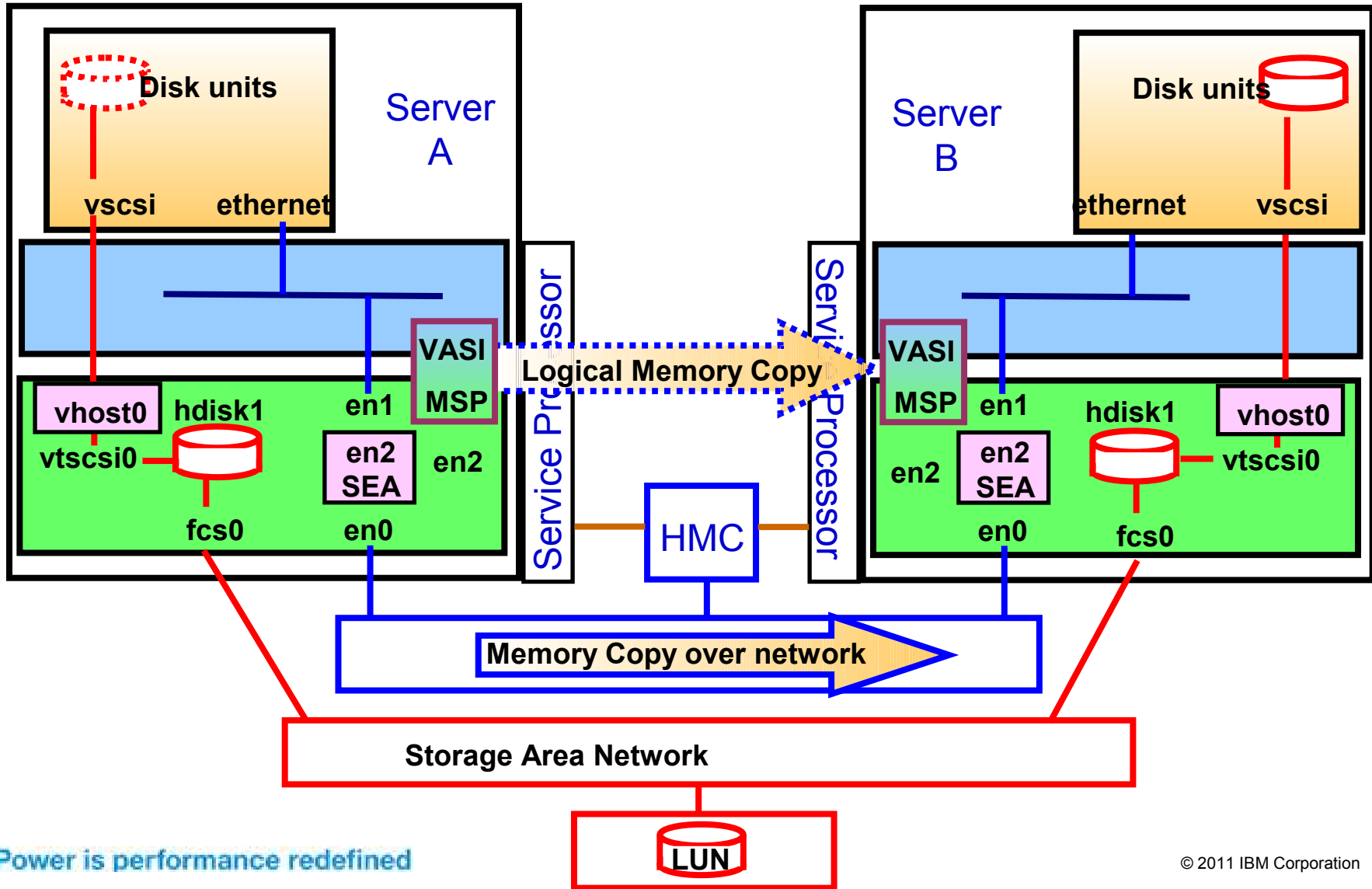
Partition Mobility – Migration



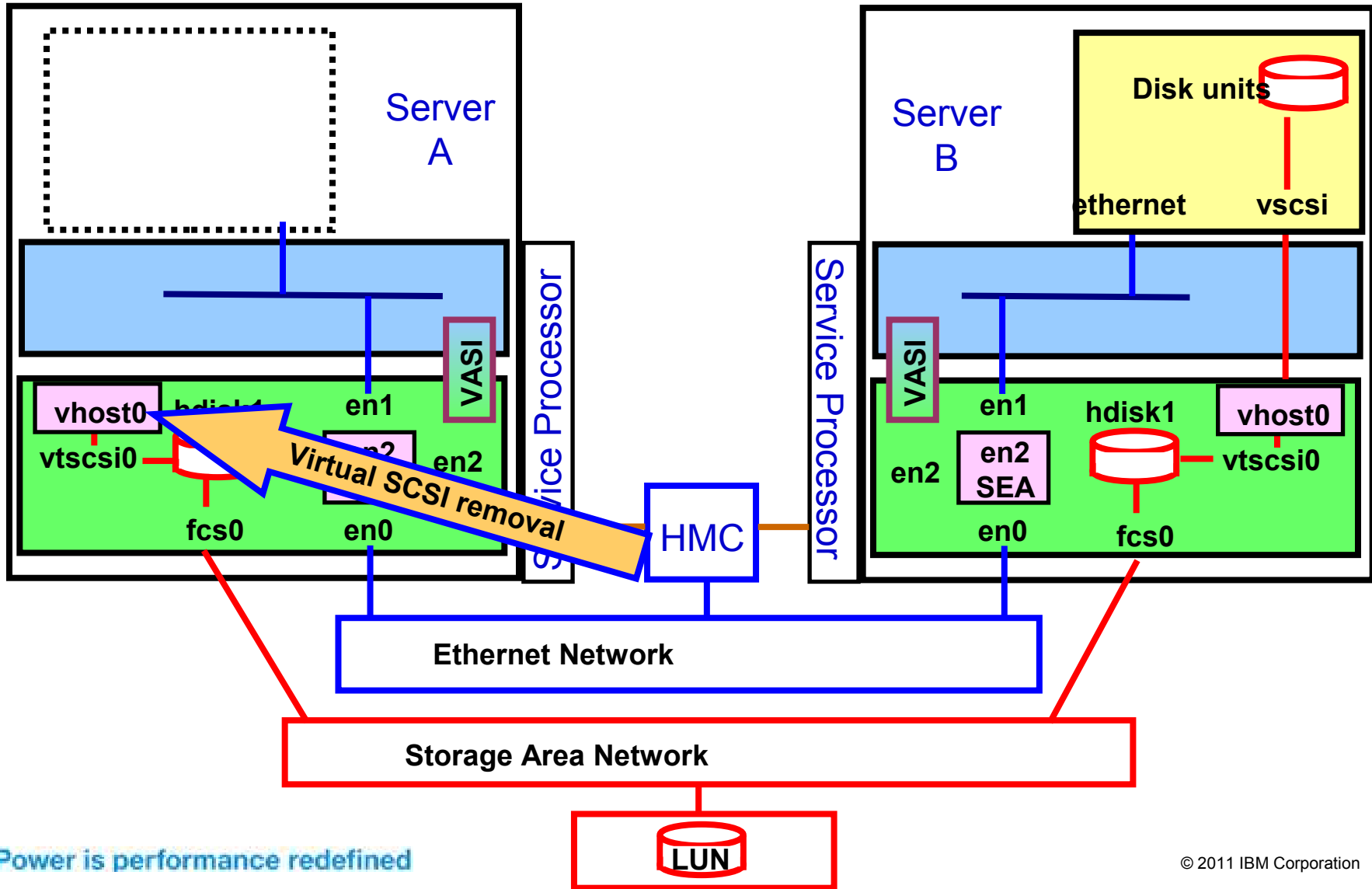
Partition Mobility – Migration



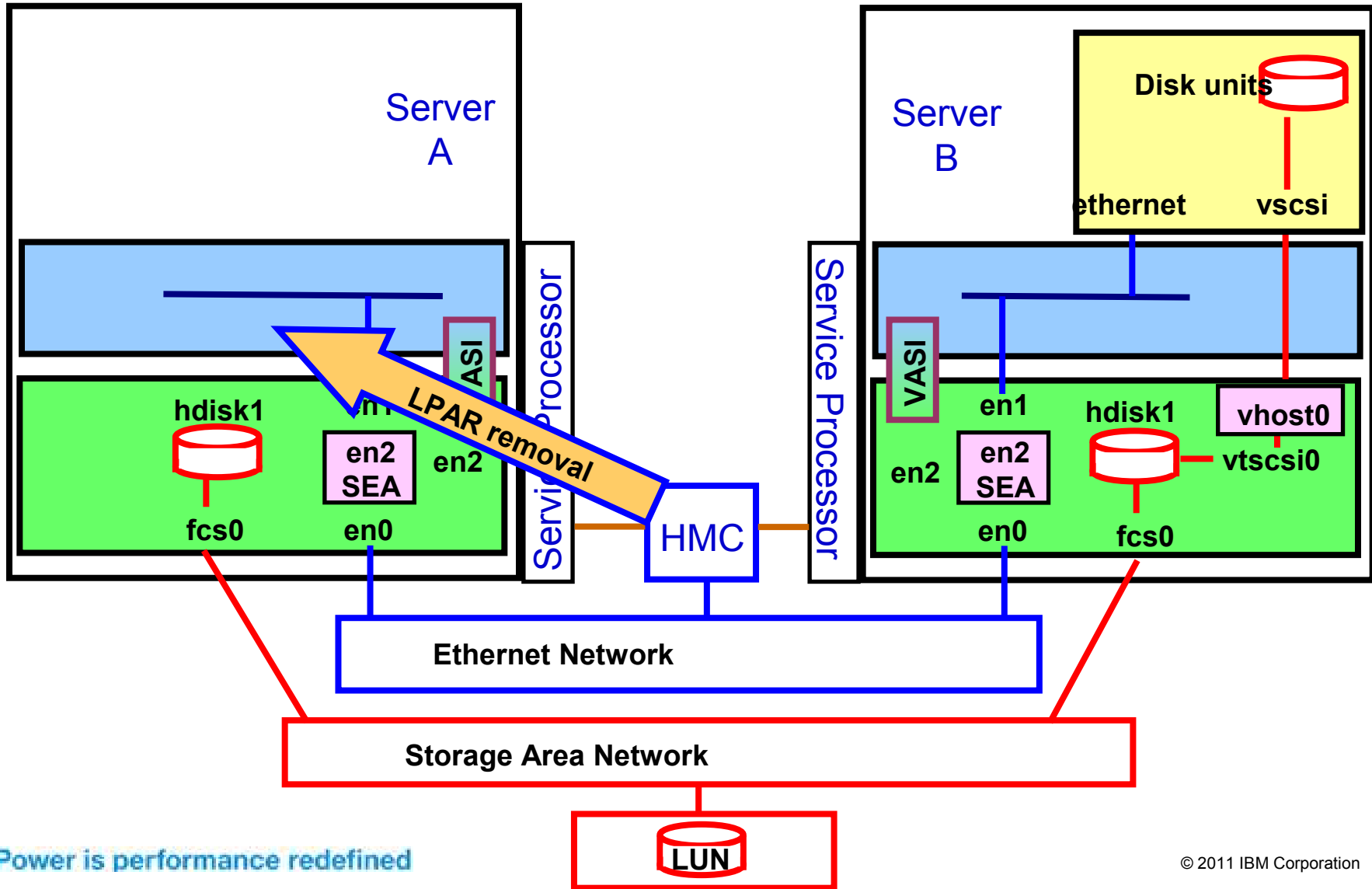
Partition Mobility – Migration



Partition Mobility – Migration



Partition Mobility – Migration



Partition Mobility for IBM i

- Clicking on the 'Migrate' button starts the migration process, on the HMC you will be given a progress indication of how the migration is progressing

The screenshot displays the IBM i Systems Management console interface. The main window shows a table of partitions with columns for Name, ID, Status, Processing Units, Memory (GB), Active Profile, Environment, and Reference Code. The partition 'IBMI-vios-LPM' (ID 18) is highlighted as 'Running'.

An overlay window titled 'Partition Migration Status : IBMI-vios-LPM' is open, showing the migration progress. The 'Action' column indicates 'Migration Starting' and the 'Status' column is empty. A 'Progress (%)' field shows 0%. Buttons for 'Stop...', 'Close', and 'Help' are visible.

A terminal window titled '9.175.189.81 - PuTTY' is also open, displaying the following output:

```

*****
1 unsuccessful login attempt since last login.
Last unsuccessful login: Fri 27 Apr 17:34:46 2012 on /dev/pts/0 from ibm-nox580g2k3z.bedfont.uk.ibm.com
Last login: Thu 26 Apr 15:36:58 2012 on /dev/pts/0 from ibm-nox580g2k3z.bedfont.uk.ibm.com

# ping 9.196.148.253
PING 9.196.148.253: (9.196.148.253): 56 data bytes
64 bytes from 9.196.148.253: icmp_seq=0 ttl=55 time=8 ms
64 bytes from 9.196.148.253: icmp_seq=1 ttl=55 time=37 ms
64 bytes from 9.196.148.253: icmp_seq=2 ttl=55 time=9 ms
64 bytes from 9.196.148.253: icmp_seq=3 ttl=55 time=6 ms
64 bytes from 9.196.148.253: icmp_seq=4 ttl=55 time=5 ms
64 bytes from 9.196.148.253: icmp_seq=5 ttl=55 time=6 ms
64 bytes from 9.196.148.253: icmp_seq=6 ttl=55 time=41 ms
64 bytes from 9.196.148.253: icmp_seq=7 ttl=55 time=7 ms
64 bytes from 9.196.148.253: icmp_seq=8 ttl=55 time=5 ms
64 bytes from 9.196.148.253: icmp_seq=9 ttl=55 time=5 ms
64 bytes from 9.196.148.253: icmp_seq=10 ttl=55 time=6 ms
64 bytes from 9.196.148.253: icmp_seq=11 ttl=55 time=5 ms
64 bytes from 9.196.148.253: icmp_seq=12 ttl=55 time=6 ms
64 bytes from 9.196.148.253: icmp_seq=13 ttl=55 time=5 ms
    
```

At the bottom of the console, there are tabs for 'Tasks: IBMI-vios-LPM' and a list of available actions: Properties, Change Default Profile, Operations, Configuration, Hardware Information, Dynamic Logical Partitioning, and Serviceability.

Partition Mobility for IBM i

- At the end of the migration process the progress dialog will be updated to a status of success
 - During the migration process we have send some minor delays in ping response times of between 50ms and 1.5 seconds during the final stage

Systems Management > Servers > Server-8205-E6B-SM105E53P

Select	Name	ID	Status	Processing Units	Memory (GB)	Active Profile	Environment	Reference Code
<input type="checkbox"/>	AD61-cts180		16	Not Activated	0.1	1.25 default	AIK or Linux	00000000
<input type="checkbox"/>	AD71-cts181		17	Not Activated	0.1	1.25 default	AIK or Linux	00000000
<input type="checkbox"/>	ADdemo-201							
<input type="checkbox"/>	ADdemo-202							
<input type="checkbox"/>	ADdemo-210							
<input type="checkbox"/>	AD-ha61a-206							
<input type="checkbox"/>	AD-ha61b-207							00000000
<input type="checkbox"/>	AD-ha71a-208							
<input type="checkbox"/>	AD-ha71b-209							
<input type="checkbox"/>	Dir63-152							
<input type="checkbox"/>	IBMi-6							00000000
<input type="checkbox"/>	IBMi-7							00000000
<input type="checkbox"/>	IBMi-vios		6	Running				00000000
<input type="checkbox"/>	p7vios3-171		2	Running				00000000
<input type="checkbox"/>	p7vios4-ssp-172		3	Running				00000000
<input type="checkbox"/>	p7vios5-173		1	Running				00000000
<input type="checkbox"/>	tcr-cts200		9	Running				

Max Page Size: 500 Total: 17 Filtered: 17 Selected: 0

cts130: Migrate - Mozilla Firefox

9.196.148.130 https://9.196.148.130/hmc/content?taskId=519&refresh=986

Partition Migration Status : IBMi-vios-LPM

Migration status :

Action	Status
Migration	Success

Stop...

Progress (%): 100

Close Help

9.175.189.81 - PuTTY

```
64 bytes from 9.196.148.253: icmp_seq=125 ttl=55 time=5 ms
64 bytes from 9.196.148.253: icmp_seq=126 ttl=55 time=6 ms
64 bytes from 9.196.148.253: icmp_seq=127 ttl=55 time=6 ms
64 bytes from 9.196.148.253: icmp_seq=128 ttl=55 time=6 ms
64 bytes from 9.196.148.253: icmp_seq=129 ttl=55 time=6 ms
64 bytes from 9.196.148.253: icmp_seq=130 ttl=55 time=8 ms
64 bytes from 9.196.148.253: icmp_seq=131 ttl=55 time=7 ms
64 bytes from 9.196.148.253: icmp_seq=132 ttl=55 time=10 ms
64 bytes from 9.196.148.253: icmp_seq=133 ttl=55 time=15 ms
64 bytes from 9.196.148.253: icmp_seq=134 ttl=55 time=35 ms
64 bytes from 9.196.148.253: icmp_seq=135 ttl=55 time=57 ms
64 bytes from 9.196.148.253: icmp_seq=136 ttl=55 time=7 ms
64 bytes from 9.196.148.253: icmp_seq=137 ttl=55 time=7 ms
64 bytes from 9.196.148.253: icmp_seq=138 ttl=55 time=5 ms
64 bytes from 9.196.148.253: icmp_seq=139 ttl=55 time=9 ms
64 bytes from 9.196.148.253: icmp_seq=140 ttl=55 time=6 ms
64 bytes from 9.196.148.253: icmp_seq=141 ttl=55 time=8 ms
64 bytes from 9.196.148.253: icmp_seq=142 ttl=55 time=5 ms
64 bytes from 9.196.148.253: icmp_seq=143 ttl=55 time=5 ms
64 bytes from 9.196.148.253: icmp_seq=144 ttl=55 time=7 ms
64 bytes from 9.196.148.253: icmp_seq=145 ttl=55 time=7 ms
64 bytes from 9.196.148.253: icmp_seq=146 ttl=55 time=5 ms
64 bytes from 9.196.148.253: icmp_seq=147 ttl=55 time=7 ms
64 bytes from 9.196.148.253: icmp_seq=148 ttl=55 time=5 ms
```


Partition Mobility – Configuration Gotcha's

- Configuration, management and usage for partition migration is common across both IBM i and AIX, however there is some information missing in the current online documentation
- All disk units must be visible to both systems and have the reserve policy set to no_reserve, you will receive the following error when you attempt to migrate the partition:

HSCLA27C The operation to get the physical device location for adapter U9117.MMB.102709P-V20-C6 on the virtual I/O server partition VIOS1-Dilling has failed. The partition command is: migmgr -f get_adapter -t vscsi -s U9117.MMB.102709P-V20-C6 -d 1 The partition standard error is: child process returned error
HSCLA9C1 The partition suspend or resume operation has stopped unexpectedly. If necessary, perform a suspend or resume recovery operation for the partition.

- VLAN id's must be common to both systems otherwise the validation phase will fail
- If using Dual VIOS for multipathing this must be available on the Destination system

Agenda

What we will talk about today:

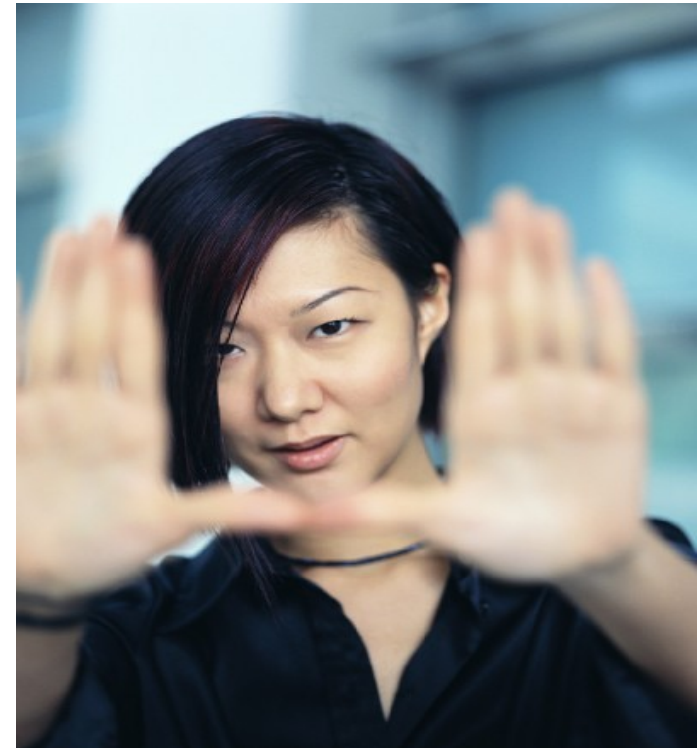
1 Partition Mobility

2 What implications are there on IBM i

3 Allowing or preventing a live Partition migration on IBM i

4 Post Live Partition Migration considerations on IBM i

5 Implications for PASE based AIX applications



Partition Mobility and Power-HA

- Currently Partition Mobility and Power HA are independent capabilities and are unaware of each other, this means:

- You need to ensure that your heartbeat intervals for failure detection will not be impacted by a live partition mobility operation
 - When you move an live partition between systems we have seen a minor delay in TCP/IP response times at the moment of the workload becomes active on second system
 - You need to ensure that your failure detection is not set so sensitively that this will cause your environment to believe it is had a failure on the source system

Live Partition Mobility and TCP/IP (or APPC) communications

- As we discussed previously we have seen a minor delay in response times during the final stage of the mobility process these should not cause any issues with applications dependant on TCP/IP or APPC. However if you use very low timeout values you should ensure they will not impacted by a mobility activity

- As with Software likely to be impacted:
 - MQ: Typically there will be no impact
 - WebSphere Application Server on IBM i: Typically there will be no impact
 - WebSphere Application Server connecting to an IBM i during mobility: Typically there will be no impact, however capabilities with timeout values, such as JDBC, may need to be revalidated
 - Sockets programs: Typically there will be no impact, you may wish wish to check you time-out values within your applications
 - APPC programs: Typically there will be no impact, you may wish wish to check you time-out values within your applications
 - FTP: Typically there will be no impact

Live partition Mobility and Personal Communications 5250 sessions

- There should be no impact when use live partition mobility to move a partition that has active 5250 sessions. We have seen minor delays in 5250 response times of between 50ms and 1.5 seconds during the final stage which is matches what we see when using ping
- If you use interactive IBM i PASE within your environment then when thinking about Live Partition Mobility we consider this to be a 5250 session and the same behaviour is seen as described previously

Note: Our investigation was undertaken with IBM Personal Communications as the terminal emulator, the findings may differ when utilizing other manufactures emulators

Live partition Mobility and Personal Communications 5250 sessions

- There should be no impact when use live partition mobility to move a partition that has active 5250 sessions. We have seen minor delays in 5250 response times of between 50ms and 1.5 seconds during the final stage which is matches what we see when using ping

The screenshot displays the IBM Systems Management console interface for a server named 'Server-8231-E2B-SN06767FP'. The 'Partition Migration Validation' window is open, showing details for migrating the 'IBMI-vios-LPM' partition to a destination system 'Server-8205-E6B-SN105E53P'. The migration is currently in progress, with a status of 'Validating'.

Overlaid on the console is a 5250 terminal session window titled 'Session A - [24 x 80]'. The terminal shows the following information:

```

Work with Active Jobs
CPU %: 1.1 Elapsed time: 00:32:01 Active jobs: 143
Type options, press Enter.
2=Change 3=Hold 4=End 5=Work with 6=Release 7=Display message
8=Work with spooled files 13=Disconnect ...

Current
Opt Subsystem/Job User Type CPU % Function Status
--- QBASE QSYS SBS .0
--- QPADEV0001 QSECOFR INT .0 CMD-WRKACTJOB RUN
--- QSYSSCD QPGMR BCH .0 PGM-QEZSCNEP EVTW
--- QHTTPSVR QSYS SBS .0 DEQW
--- ADMIN QTMHHTTP BCH .0 PGM-QZHBMAIN SIGW
--- ADMIN QTMHHTTP BCI .0 PGM-QZSRLOG SIGW
--- ADMIN QTMHHTTP BCI .0 PGM-QZSRHTTP SIGW
--- QSERVER QSYS SBS .0 DEQW
--- QPWFSEVSD QUSER BCH .0 SELW
More...

Parameters or command
===>
F3=Exit F5=Refresh F7=Find F10=Restart statistics
F11=Display elapsed data F12=Cancel F23=More options F24=More keys
    
```

The terminal session shows a list of active jobs with columns for Opt, Subsystem/Job, User, Type, CPU %, Function, and Status. The jobs listed include QBASE, QPADEV0001, QSYSSCD, QHTTPSVR, ADMIN, QSERVER, and QPWFSEVSD. The terminal also displays a list of function keys and their corresponding actions.

Live partition Mobility and Personal Communications 5250 sessions

- There should be no impact when use live partition mobility to move a partition that has active 5250 sessions. We have seen minor delays in 5250 response times of between 50ms and 1.5 seconds during the final stage which is matches what we see when using ping

The screenshot shows the IBM i Systems Management console with a 'Partition Migration Status : IBMi-vios-LPM' dialog box open. The dialog indicates 'Migration status : Migration Starting' and 'Progress (%) : 0'. In the background, a 5250 terminal session is active, displaying the following information:

```

Work with Active Jobs
CPU %: 5.2 Elapsed time: 00:00:01 Active jobs: 143
Type options, press Enter.
2=Change 3=Hold 4=End 5=Work with 6=Release 7=Display message
8=Work with spooled files 13=Disconnect ...
Current
Opt Subsystem/Job User Type CPU % Function Status
---
QBASE QSYS SBS .0 DEQW
QPADEV0001 QSECOFR INT 3.5 CMD-WRRACTJOB RUN
QSYSSCD QPGMR BCH .0 PGM-QEZSCNEP EVTW
QHTTSPVR QSYS SBS .0 DEQW
ADMIN QTMHHTTP BCH .0 PGM-QZHBMAIN SIGW
ADMIN QTMHHTTP BCI .0 PGM-QZSRLOG SIGW
ADMIN QTMHHTTP BCI .0 PGM-QZSRHTTP SIGW
QSERVER QSYS SBS .0 DEQW
QPWFSEVSD QUSER BCH .0 SELW
More...
Parameters or command
===>
F3=Exit F5=Refresh F7=Find F10=Restart statistics
F11=Display elapsed data F12=Cancel F23=More options F24=More keys
    
```

Live partition Mobility and Personal Communications 5250 sessions

- There should be no impact when use live partition mobility to move a partition that has active 5250 sessions. We have seen minor delays in 5250 response times of between 50ms and 1.5 seconds during the final stage which is matches what we see when using ping

Systems Management > Servers > Server-8231-E2B-SN06767FP

The screenshot shows the IBM i Systems Management console. On the left, a 'Partition Migration Status: IBMi-vios-LPM' dialog box is open, showing 'Migration In Progress' with a progress bar at 39%. In the background, a table lists servers: ADX-cloud-cts196 (ID 6, Not Activated) and Director-151 (ID 3, Not Activated). On the right, a PC 5250 session window titled 'Session A - [24 x 80]' is active. The session displays a 'Work with Active Jobs' screen for user SEAWOLF on 04/27/12 at 11:18:54. The CPU usage is 2.8% and there are 143 active jobs. A table of current jobs is shown below.

Opt	Subsystem/Job	User	Type	CPU %	Function	Status
—	QBASE	QSYS	SBS	.0		DEQW
—	QPADEV0001	QSECOFR	INT	1.0	CMD-WRKACTJOB	RUN
—	QSYSSCD	QPGMR	BCH	.0	PGM-QEZSCNEP	EVTW
—	QHTTPSVR	QSYS	SBS	.0		DEQW
—	ADMIN	QTMHHTTP	BCH	.0	PGM-QZHBMAIN	SIGW
—	ADMIN	QTMHHTTP	BCI	.0	PGM-QZSRLOG	SIGW
—	ADMIN	QTMHHTTP	BCI	.0	PGM-QZSRHTTP	SIGW
—	QSERVER	QSYS	SBS	.0		DEQW
—	QPWFERSVSD	QUSER	BCH	.0		SELW

Parameters or command
 F3=Exit F5=Refresh F7=Find F10=Restart statistics
 F11=Display elapsed data F12=Cancel F23=More options F24=More keys

Live partition Mobility and Personal Communications 5250 sessions

- There should be no impact when use live partition mobility to move a partition that has active 5250 sessions. We have seen minor delays in 5250 response times of between 50ms and 1.5 seconds during the final stage which is matches what we see when using ping

The screenshot shows the IBM Systems Management console interface. On the left, a 'Partition Migration Status : IBMi-vios-LPM' dialog box is open, showing 'Migration status : Action Status' with 'Migration : Migration In Progress' and 'Progress (%) : 99'. The background shows a list of servers with columns for Name, ID, and Status.

On the right, a terminal window titled 'Session A - [24 x 80]' displays a 5250-style interface. The terminal shows the following information:

```

Work with Active Jobs
CPU %: 3.5 Elapsed time: 00:00:00 Active jobs: 143
Type options, press Enter.
2=Change 3=Hold 4=End 5=Work with 6=Release 7=Display message
8=Work with spooled files 13=Disconnect ...

Current
Opt Subsystem/Job User Type CPU % Function Status
--- QBASE QSYS SBS .0 DEQW
--- QPADEV0001 QSECOFR INT 3.5 CMD-WRRACTJOB RUN
--- QSYSSCD QPGMR BCH .0 PGM-QEZSCNEP EVTW
--- QHTTSPVR QSYS SBS .0 DEQW
--- ADMIN QTMHHTTP BCH .0 PGM-QZHBMAIN SELW
--- ADMIN QTMHHTTP BCH .0 PGM-QZSRLOG SIGW
--- ADMIN QTMHHTTP BCH .0 PGM-QZSRHTTP SIGW
--- QSERVER QSYS SBS .0 DEQW
--- QPWFSERVSD QUSER BCH .0 SELW

Parameters or command
===>
F3=Exit F5=Refresh F7=Find F10=Restart statistics
F11=Display elapsed data F12=Cancel F23=More options F24=More keys
    
```

The terminal also shows a 'More...' prompt and a status bar at the bottom indicating '10/002' and '1002 - Session successfully started'.

Live partition Mobility and Personal Communications 5250 sessions

- There should be no impact when use live partition mobility to move a partition that has active 5250 sessions. We have seen minor delays in 5250 response times of between 50ms and 1.5 seconds during the final stage which is matches what we see when using ping

The screenshot displays the IBM Systems Management console interface. On the left, a 'Partition Migration Status' dialog box shows a successful migration for 'IBMI-vios-LPM' with a progress of 100%. The main console window shows a list of servers, including 'ADX-cloud-cts196' and 'Director-151'. On the right, a terminal window titled 'Session A' shows a 5250-style command prompt with active jobs and a table of current jobs.

Opt	Subsystem/Job	User	Type	CPU %	Function	Status
—	QBASE	QSYS	SBS	.0		DEQW
—	QPADEV0001	QSECOFR	INT	1.3	CMD-WRKACTION	RUN
—	QSYSQCD	QPGMR	BCH	.0	PGM-QEZSCNEP	EVTW
—	QHTTSPVR	QSYS	SBS	.0		DEQW
—	ADMIN	QTMHHTTP	BCH	.0	PGM-QZHBMAIN	SIGW
—	ADMIN	QTMHHTTP	BCI	.0	PGM-QZSRLOG	SIGW
—	ADMIN	QTMHHTTP	BCI	.0	PGM-QZSRHTTP	SIGW
—	QSERVER	QSYS	SBS	.0		DEQW
—	QPWFSEVSD	QUSER	BCH	.0		SELW

Agenda

What we will talk about today:

1 Partition Mobility

2 What implications are there on IBM i

3 Allowing or preventing a Live Partition Migration on IBM i

4 Post Live Partition migration considerations on IBM i

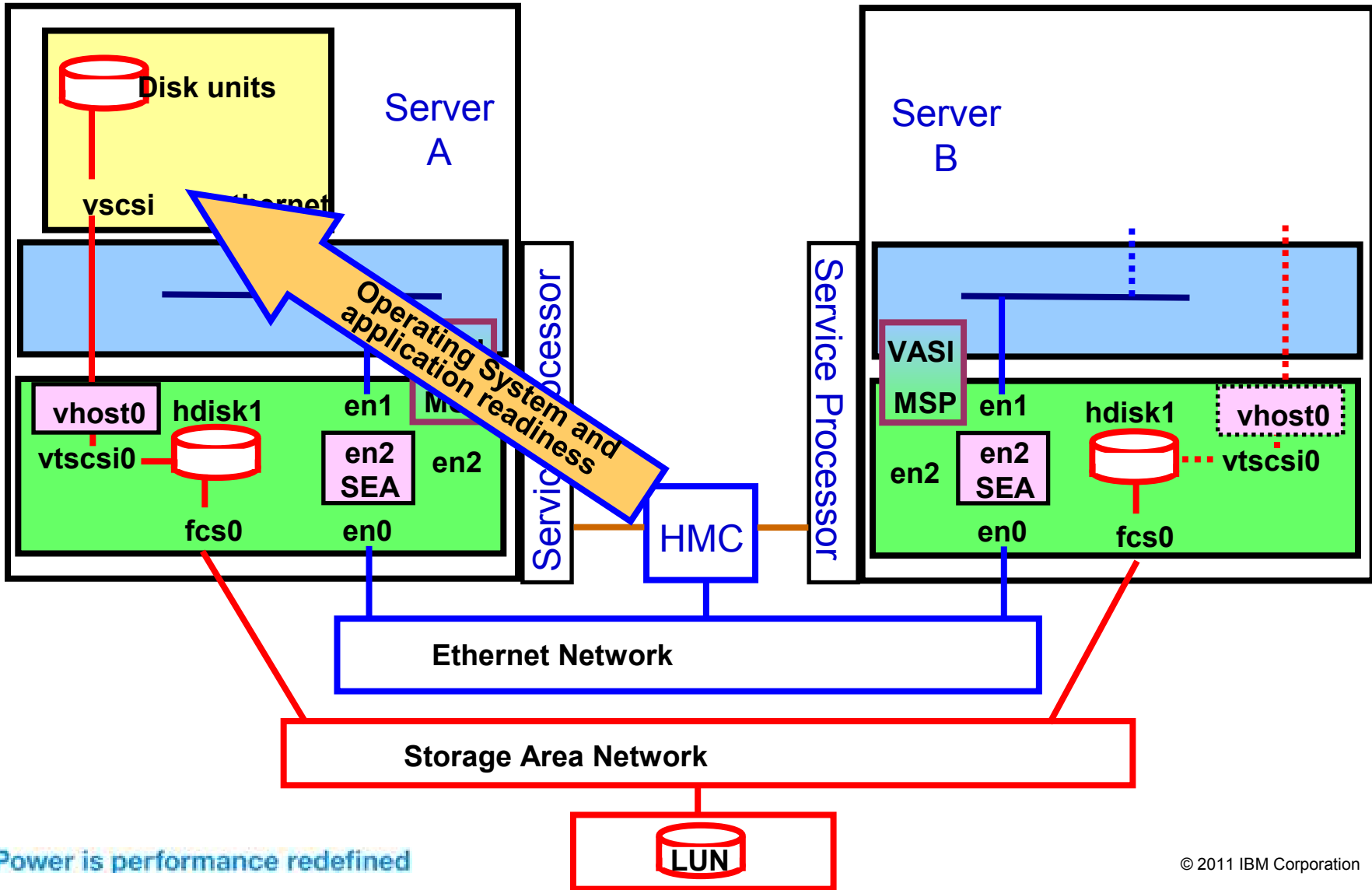
5 Implications for PASE based AIX applications



Allowing or preventing a Live Partition Migration on IBM i

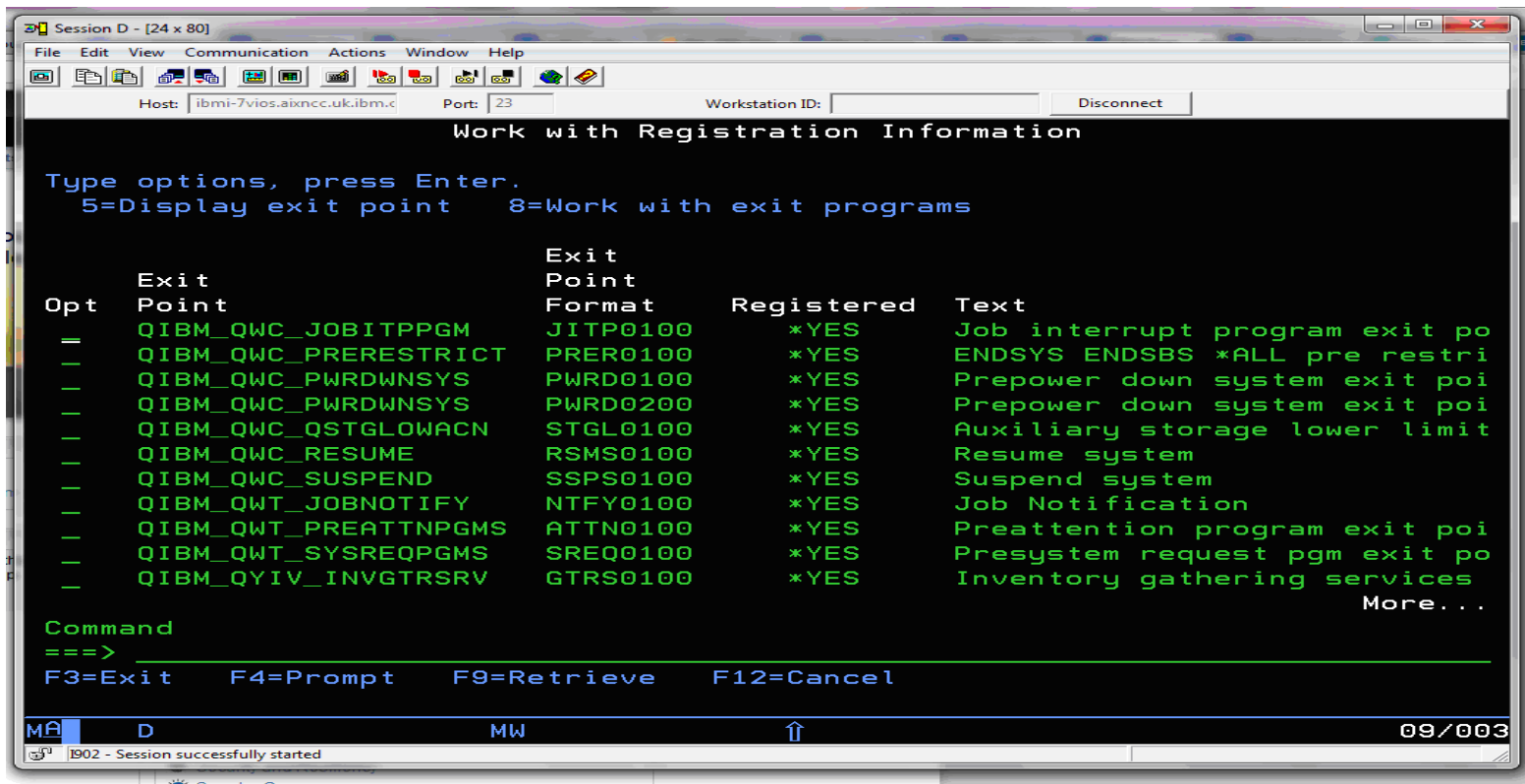
- During a partition migration, or a standalone partition migration validation, from the hardware management console (HMC) there is a communication between the hypervisor and the IBM i partition to ensure that partition is in a state that it can be migrated
- What does this mean? In a state that can be migrated? What are you on about...
 - All systems at some point will be undertaking some business critical function that should not, or can not, be delayed at that point in time. If we were to migrate the partition at this time then there would be a dire set of business consequences that we wish to avoid at all times.
- The partition migration validation utilizes a capability on the IBM i partition that can be programmatically exploited to ensure that the business critical functionality will be completed in a time window, has been quiesced or can block the migration of the IBM i partition

Allowing or preventing a Live Partition Migration on IBM i



Allowing or preventing a Live Partition Migration on IBM i

- This capability is surfaced on the IBM i by a Work Management exit added with PTF SI42815 called QIBM_QWC_SUSPEND
- There is no restriction on the number of programs register against this exit point



```

Session D - [24 x 80]
File Edit View Communication Actions Window Help
Host: ibmi-7vios.aixncc.uk.ibm.c Port: 23 Workstation ID: Disconnect
Work with Registration Information
Type options, press Enter.
5=Display exit point      8=Work with exit programs

  Opt  Exit Point          Exit Point          Registered  Text
  ---  -
  --   QIBM_QWC_JOBITPPGM   JITP0100           *YES       Job interrupt program exit po
  --   QIBM_QWC_PRERESTRICT PRER0100           *YES       ENDSYS ENDSBS *ALL pre restri
  --   QIBM_QWC_PWRDWSYS    PWRD0100           *YES       Prepower down system exit poi
  --   QIBM_QWC_PWRDWSYS    PWRD0200           *YES       Prepower down system exit poi
  --   QIBM_QWC_QSTGLOWACN  STGL0100           *YES       Auxiliary storage lower limit
  --   QIBM_QWC_RESUME      RSMS0100           *YES       Resume system
  --   QIBM_QWC_SUSPEND     SSPS0100           *YES       Suspend system
  --   QIBM_QWT_JOBNOTIFY   NTFY0100           *YES       Job Notification
  --   QIBM_QWT_PREATTNPGMS ATTN0100           *YES       Preattention program exit poi
  --   QIBM_QWT_SYSREQPGMS  SREQ0100           *YES       Presystem request pgm exit po
  --   QIBM_QYIV_INVGTRSRV  GTRS0100           *YES       Inventory gathering services
                                     More...

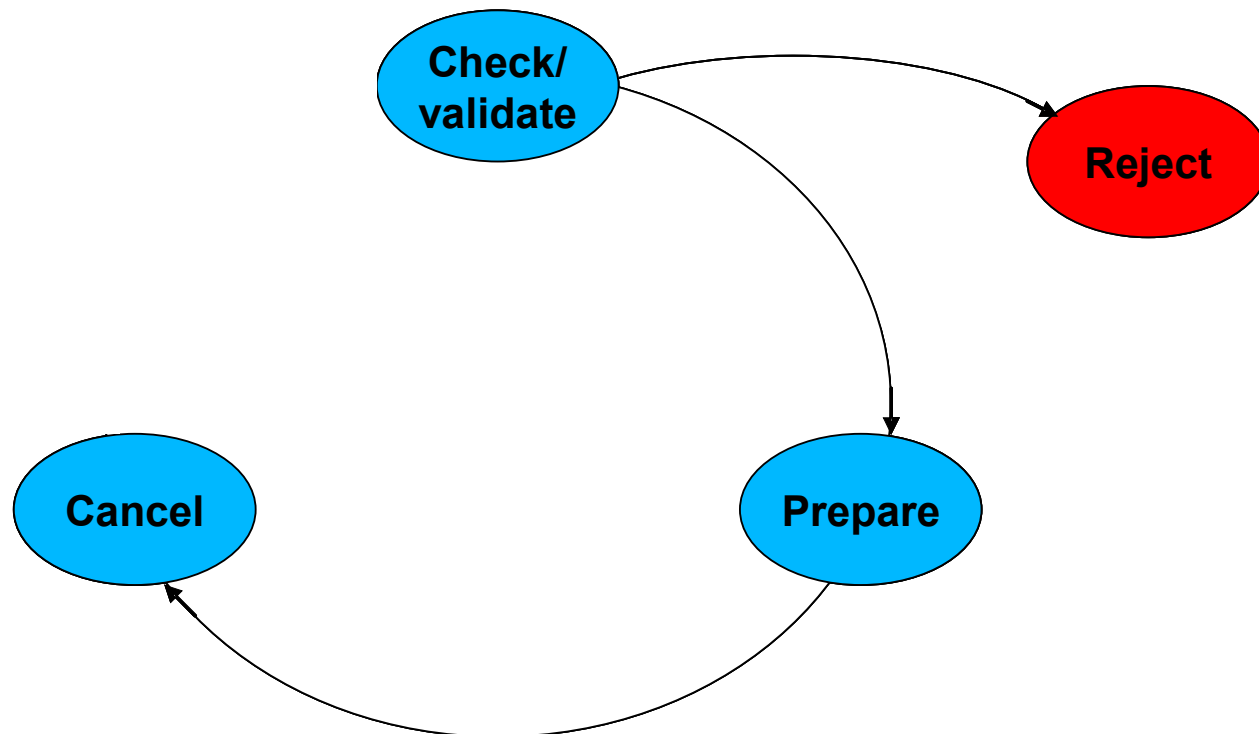
Command
===>
F3=Exit  F4=Prompt  F9=Retrieve  F12=Cancel

MA  D  MW  ↑  09/003
1902 - Session successfully started
Smarter Commerce

```

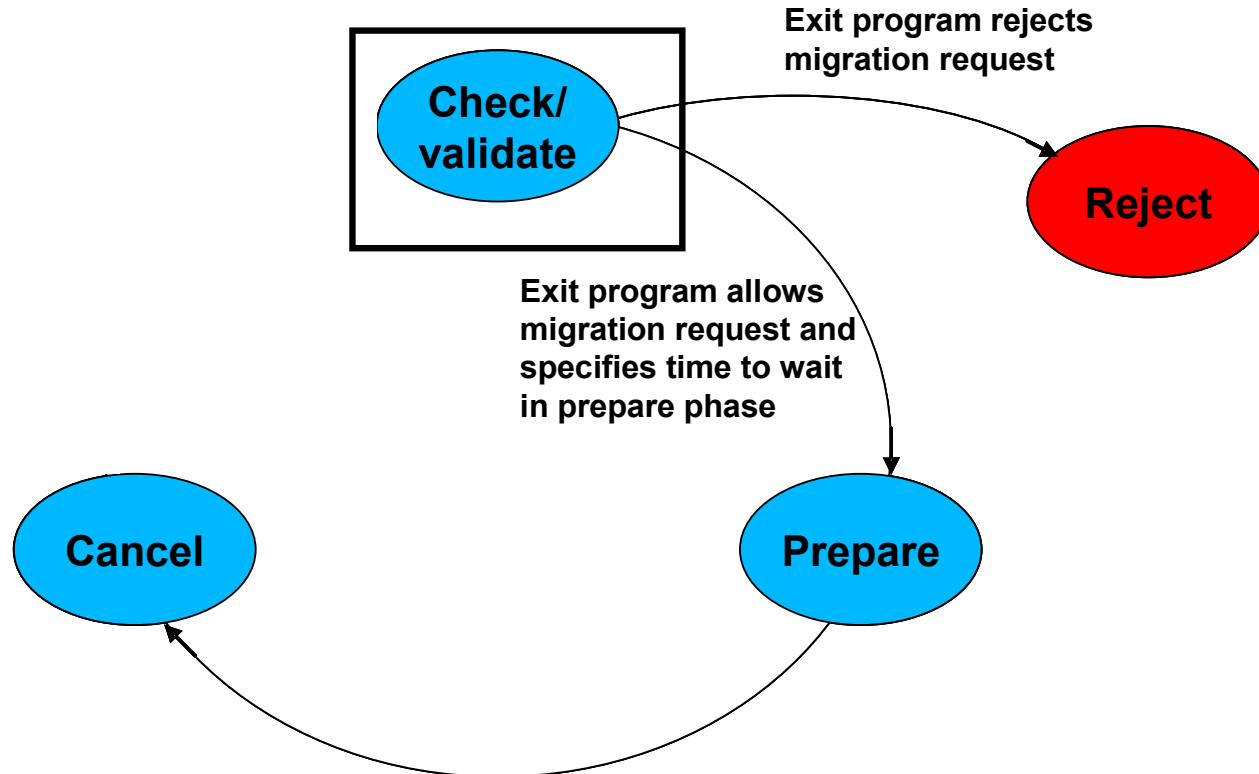
Allowing or preventing a Live Partition Migration on IBM i

- This simplified representation of the interaction between the HMC and the IBM i exit point during a partition migration shows that the exit program will get called a minimum of two times (Validate and Prepare) and potential a third time if the migration is cancelled from the HMC during the process



Allowing or preventing a Live Partition Migration on IBM i

- When the exit point program is called during a validate or check phase it has the option to allow or deny the migration request as we can see here



Allowing or preventing a Live Partition Migration on IBM i

- When the exit point program is called due to a standalone validation request or as part of the validation phase of a migration request the data passed to the program will have a value of 1 in the phase parameter and will receive exit information in the format of BMGF0100

BMGF0100 Format

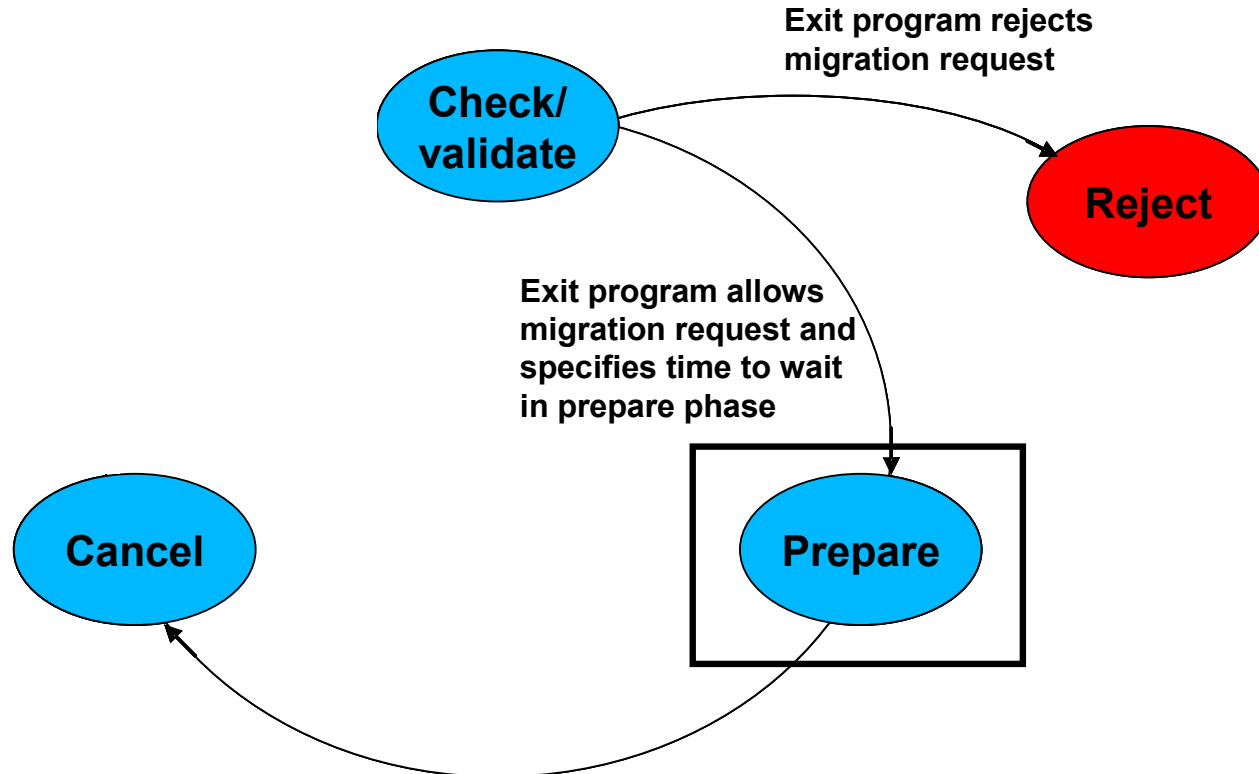
The following table describes the information that is located in the Exit information parameter for the BMGF0100 format. For detailed descriptions of the fields, see [Field Descriptions](#).

Offset		Type	Field
Dec	Hex		
0	0	BINARY(4)	Exit information length
4	4	BINARY(4)	Status flag
8	8	BINARY(4)	Wait time
12	C	BINARY(4)	Action

- To block the request the exit program must return zero for the value of the status flags
- To allow the request to proceed the exit program should return a one for the value of the status flag and a value between 1 and 900 representing the number of seconds that will be required by the system to prepare itself for migration
- Note: If you specify an invalid value for the status parameter the migration will proceed and if you specify an invalid value for the wait time the it will be ignore and the wait time will be 1 second

Allowing or preventing a Live Partition Migration on IBM i

- When the exit point program is called to allow the system to prepare itself for a migration, it should ensure that any environment or application changes are made before the migration starts



Allowing or preventing a Live Partition Migration on IBM i

- When the exit point program is called during the prepare phase (the migration is about to start) the data passed to the program will have a value of 2 in the phase parameter and will receive exit information in the format of BMGF0200

BMGF0200 Format

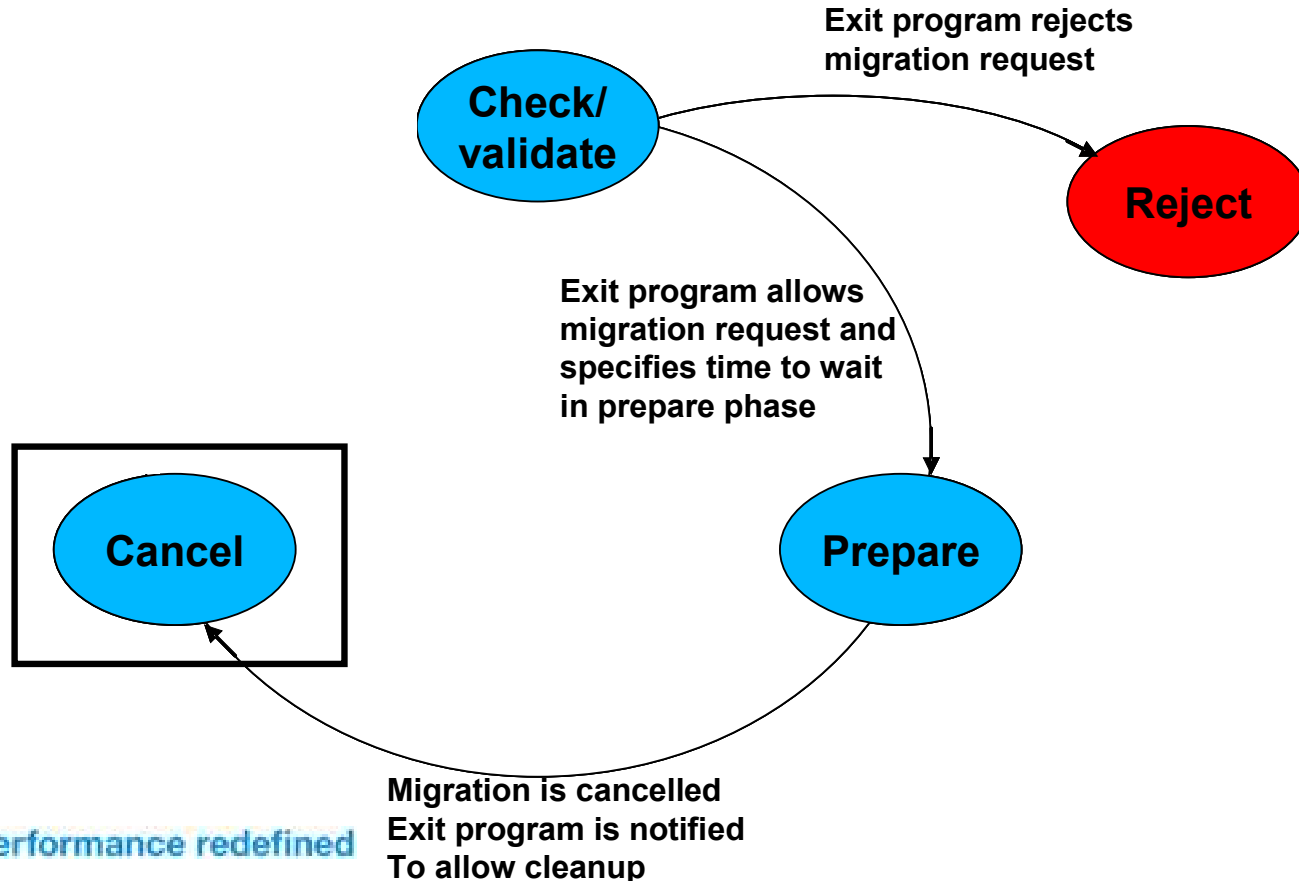
The following table describes the information that is located in the Exit information parameter for the BMGF0200 format. For detailed descriptions of the fields, see [Field Descriptions](#).

Offset		Type	Field
Dec	Hex		
0	0	BINARY(4)	Exit information length
4	4	BINARY(4)	Prepare time allowed
8	8	BINARY(4)	Action

- The value returned in the Prepare time allowed parameter will be the maximum of all wait time returned by the exit point programs registered for this exit point
- If the exit program does not complete within the wait time, terminates abnormally the migration will proceed regardless.

Allowing or preventing a Live Partition Migration on IBM i

- When the exit point program is called due to a migration being cancelled by the user, it is supposed to undertake any cleanup necessary to return the source system to its original state



Allowing or preventing a Live Partition Migration on IBM i

- At any time during an LPM process the migration may be cancelled from the HMC. If this were to occur then the exit program will be called again, in these situations will have a value of 2 in the phase parameter and will receive exit information in the format of BMGF0200

BMGF0200 Format

The following table describes the information that is located in the Exit information parameter for the BMGF0200 format. For detailed descriptions of the fields, see [Field Descriptions](#).

Offset		Type	Field
Dec	Hex		
0	0	BINARY(4)	Exit information length
4	4	BINARY(4)	Prepare time allowed
8	8	BINARY(4)	Action

- This is to allow the exit program to notify other applications that the system will not be migrated or undertake any 'clean-up' activity that may be required.

Allowing or preventing a Live Partition Migration on IBM i

- Whilst at first glance this seems like a pretty straight forward exit point, there are several things to be aware of:
 - The exit point calls a standalone program
 - This program runs in a standalone job
- What are the implications of this?
 - The prime implication is that it is responsibility of the exit point implementer to ensure that the system (or application's that are suspend/resume and mobility aware) are in a state to allow the partition to be suspended or migrated, however as the program runs in its own job there is a burden on the exit point developer to have some type of inter process communication, or interaction, with other jobs and processes on the system and to respond back to the operating system in a timely manner
- This could potentially mean retro-fitting the required Suspend/Resume awareness into existing applications and environments

Allowing or preventing a Live Partition Migration on IBM i

- What mechanism are available to an Exit Point developer to do this, here are some with a discussion to follow:
 - Interrupt Job Exit - Invoking a Program in Another Job
 - Inter process communications via signals and semaphores
 - Inter process communications via queues
 - Inter process communications via locks
 - Inter process communications via data area/system area
- Ideally you would develop capabilities suitable to your organization or applications

Allowing or preventing a Live Partition Migration on IBM i

- Interrupt Job Exit
 - This allows you to invoke a program in another job, allowing you therefore to validate some job specific environment setting such as a QTEMP object or environment variable
 - To use this capability you need to know information about each job on the system you need to interrogate, this would need to be designed into your environment
 - You would also potentially be stopping a critical piece of functionality whilst this check occurs, which may be problematic for time sensitive communications activities

Allowing or preventing a Live Partition Migration on IBM i

- Inter-process communications (POSIX style semaphores and signals)
 - There are many options here

When some critical activity is occurring a semaphore could be create, the exit program checks for the semaphore and if found blocks the suspend or migration operation. If no such semaphore exists then the exit program creates one which indicates that the system is about to be suspended or migrated and no critical activity should occur. On resume another exit program could clear the semaphore

When the exit program starts execution it sends out a signal and waits for a response (semaphore or other IPC) to indicate whether there is critical system activity at that time

- Be aware of the implications of user activities
-
- Ideal you would implement this via a set of library functions in service programs
- Downside is awareness of POSIX capabilities on IBM i

Allowing or preventing a Live Partition Migration on IBM i

- Inter-process communications (Queues)
 - Same concepts as for the previous example, however using queues and non destructive reads for the Inter-process communication between the environment and the exit program
- Inter-process communications (Locks)
 - Utilizing locking on objects to indicate that critical system activity is occurring or that a partition is being suspended or migrated
- Inter process communications via data area/system area
 - Utilize a global data area(s) or system area(s) in a common library to indicate critical system activity or being suspended or migrated
- These options are better understood by the broader IBM i community
- Ideally implemented via a set of functions with a service library

Agenda

What we will talk about today:

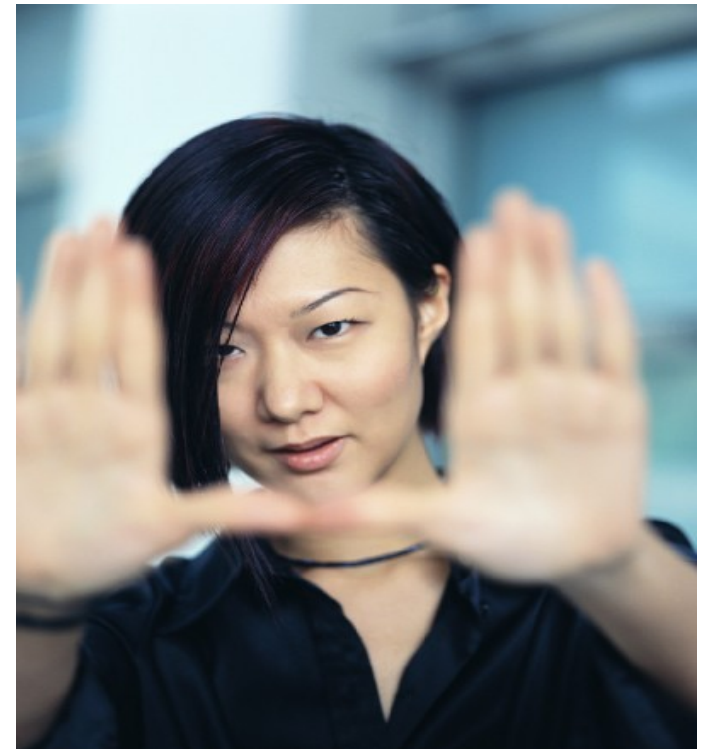
1 Partition Mobility

2 What implications are there on IBM i

3 Allowing or preventing a Live Partition Migration on IBM i

4 Post Live Partition Migration consideration on IBM i

5 Implications for PASE based AIX applications



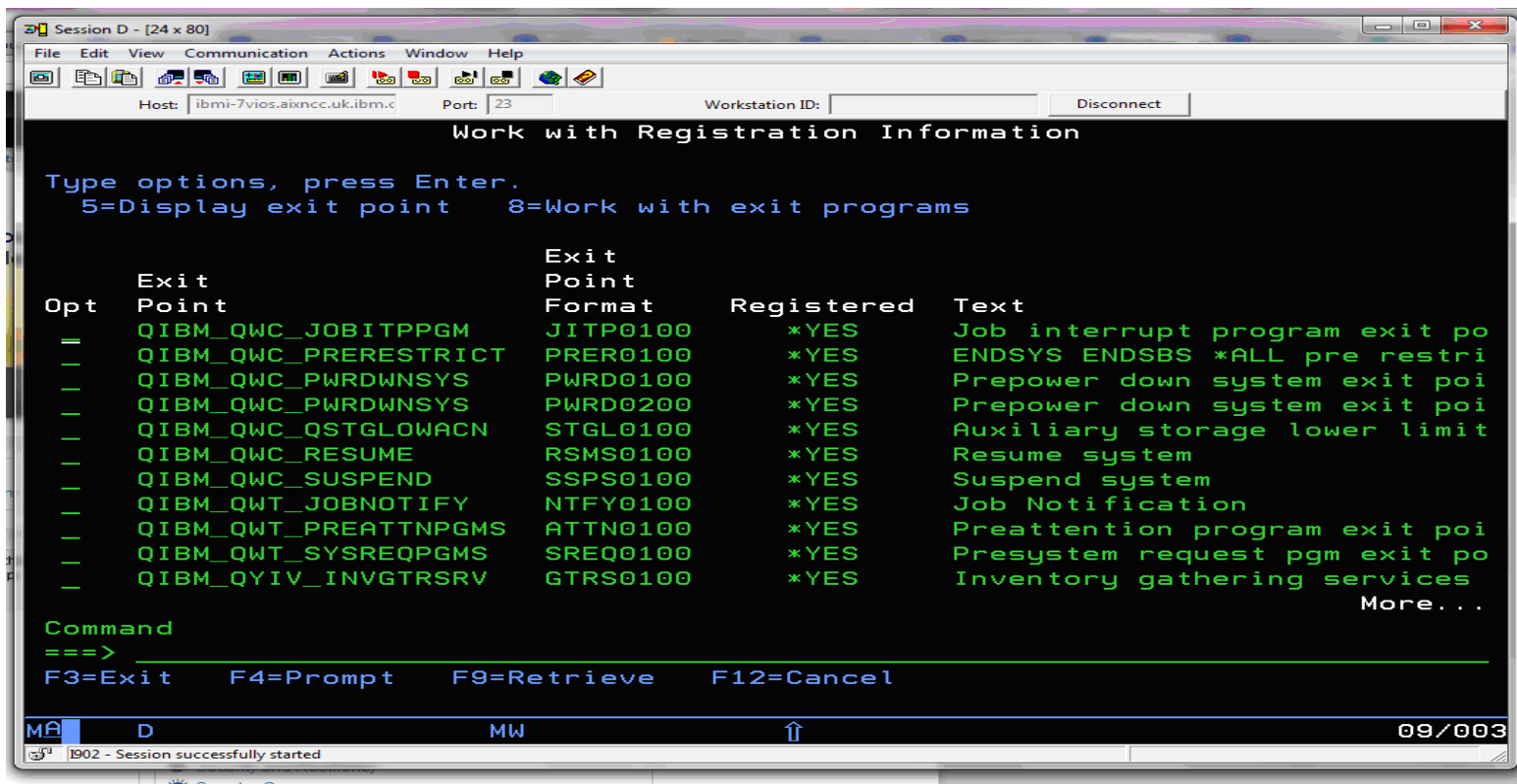
Post Live partition Migration considerations for an IBM i partition

- After a live partition has been migrated onto the destination system, there may be some cleanup or activity that needs to occur on the partition to bring the system up to a active state
 - Such as activating reconnecting to an NPIV tape library

- If this is required then it is possible to utilizes a capability on the IBM i to programmatically achieve this

Post Live partition Migration considerations for an IBM i partition

- This capability is surfaced on the IBM i by a Work Management exit added with PTF SI42815 called QIBM_QWC_RESUME
- There is no restriction on the number of programs register against this exit point



```

Session D - [24 x 80]
File Edit View Communication Actions Window Help
Host: ibmi-7vios.aixncc.uk.ibm.c Port: 23 Workstation ID: Disconnect
Work with Registration Information
Type options, press Enter.
5=Display exit point 8=Work with exit programs

Exit
Point
Format Registered Text
Opt Exit Point
- QIBM_QWC_JOBITPPGM JITP0100 *YES Job interrupt program exit po
- QIBM_QWC_PRERESTRICT PRER0100 *YES ENDSYS ENDSBS *ALL pre restri
- QIBM_QWC_PWRDWSYS PWRD0100 *YES Prepower down system exit poi
- QIBM_QWC_PWRDWSYS PWRD0200 *YES Prepower down system exit poi
- QIBM_QWC_QSTGLOWACN STGL0100 *YES Auxiliary storage lower limit
- QIBM_QWC_RESUME RSMS0100 *YES Resume system
- QIBM_QWC_SUSPEND SSPS0100 *YES Suspend system
- QIBM_QWT_JOBNOTIFY NTFY0100 *YES Job Notification
- QIBM_QWT_PREATTNPGMS ATTN0100 *YES Preattention program exit poi
- QIBM_QWT_SYSREQPGMS SREQ0100 *YES Presystem request pgm exit po
- QIBM_QYIV_INVGTRSRV GTRS0100 *YES Inventory gathering services
More...

Command
===>
F3=Exit F4=Prompt F9=Retrieve F12=Cancel

MA D MW 09/003
1902 - Session successfully started
Smarter Commerce

```

Post Live partition Migration considerations for an IBM i partition

- Programs registered against the QIBM_QWC_RESUME exit point need to utilise the RSMS0100 exit format as shown bellow. Note the phase parameter will always have a value of 4 to indicate that the migration has been completed

Resume System Exit Programs

Required Parameter Group:

1	Exit information	Input	Char(*)
2	Format of exit information	Input	Char(8)
3	Phase	Input	Char(1)

Exit Point Name: QIBM_QWC_RESUME

Exit Point Format Name: [RSMS0100](#)

The Resume System exit program is called when the system becomes available again after the partition was migrated to another machine or the partition resumed from hibernation. See [Format RSMS0100 Required Parameter Group](#) for parameter information or [RSMS0100 Format Usage Notes](#) for more information.

- Information on the formats used by the exit point can be found on the IBM i v7.1 Infocenter [here](#)

Post Live partition Migration considerations for an IBM i partition

- When the exit point program is called to indicate completion, the exit information will always be in the format of AMGF0100

AMGF0100 Format

The following table describes the information that is located in the Exit information parameter for the AMGF0100 format. For detailed descriptions of the fields, see [Field Descriptions](#).

Offset		Type	Field
Dec	Hex		
0	0	BINARY(4)	Exit information length
4	4	BINARY(4)	System state
8	8	BINARY(4)	Action

- For a migration the value of the Action attribute will always be a one
- The value of the system state attribute is used to indicate the state of the system (restricted or normal) and will be:
 - 0 The system has resumed during normal operation.
 - 1 The system has resumed while in restricted state.

Post Live partition Migration considerations for an IBM i partition

- Whilst at first glance this seems like a pretty straight forward exit point, there are several things to be aware of:
 - The exit point calls a standalone program
 - This program runs in a standalone job
- What are the implications of this?
- The prime implication is that it is the responsibility of the exit point implementer to ensure that the system, or application's that are Suspend/Resume and Migration aware, that the system is being resumed. However as the program runs in its own job there is a burden on the exit point developer to have some type of inter process communication, or interaction, with other jobs and processes on the system and to respond to back in a timely manner
- This could potentially mean retro-fitting the required Suspend/Resume and Migration awareness into existing applications and environments

Post Live partition Migration considerations for an IBM i partition

- What mechanisms are available to an Exit Point developer to do this, here are some with a discussion to follow:
 - Interrupt Job Exit - Invoking a Program in Another Job
 - Inter process communications via signals and semaphores
 - Inter process communications via queues
 - Inter process communications via locks
 - Inter process communications via data area/system area
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Post Live partition Migration considerations for an IBM i partition

- Interrupt Job Exit
 - This allows you to invoke a program in another job, allowing you therefore to validate some job specific environment setting such as a QTEMP object or environment variable
 - To use this capability you need to know information about each job on the system you need to interrogate, this would need to be designed into your environment
 - You would also potentially be stopping a critical piece of functionality whilst this check occurs, which may be problematic for time sensitive communications activities

Allowing or preventing a Live Partition Migration on IBM i

- Inter-process communications (POSIX style semaphores and signals)
 - There are many options here

When some critical activity is occurring a semaphore could be create, the exit program checks for the semaphore and if found blocks the suspend or migration operation. If no such semaphore exists then the exit program creates one which indicates that the system is about to be suspended or migrated and no critical activity should occur. On resume another exit program could clear the semaphore

When the exit program starts execution it sends out a signal and waits for a response (semaphore or other IPC) to indicate whether there is critical system activity at that time

- Be aware of the implications of user activities
-
- Ideal you would implement this via a set of library functions in service programs
- Downside is awareness of POSIX capabilities on IBM i

Allowing or preventing a Live Partition Migration on IBM i

- Inter-process communications (Queues)
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- These options are better understood by the broader IBM i community
- Ideally implemented via a set of functions with a service library

Agenda

What we will talk about today:

1 Partition Mobility

2 What implications are there on IBM i

3 Allowing or preventing an LPM request on IBM i

4 Post Live Partition migration considerations for IBM i

5 Implications for PASE based AIX applications



Implications for PASE based AIX DLPAR aware applications

- AIX uses a different mechanism to inform applications that there is a Suspend/Resume or Live Partition Mobility activity occurring for a partition
- The AIX kernel sends a SIGRECONFIG signal out to all processes
- The process can then use the `dr_reconfig()` api to gain insight into what what is occurring within the partition and can use the same api to veto the activity

The screenshot displays a system management interface on the left and a terminal window on the right. The terminal window shows the execution of a test program named `t_sigwaitinfo` on a remote host (9.137.62.142).

Terminal Output:

```

150 Opening data connection for t_sigwaitinfo (66466 bytes).
226 Transfer complete.
66466 bytes received in 0.01698 seconds (3824 Kbytes/s)
local: t_sigwaitinfo remote: t_sigwaitinfo
ftp> quit
221 Goodbye.
$ ls -la
total 152
drwxr-xr-x  2 blightj  system    256 Dec  2 13:39 .
drwxr-xr-x  3 blightj  staff     256 Dec  1 16:26 ..
-rw-r--r--  1 blightj  system   1453 Dec  1 16:29 dspsigset.c
-rw-r--r--  1 blightj  system   66466 Dec  2 13:39 t_sigwaitinfo
$ chmod 777 t_sigwaitinfo
$ ./t_sigwaitinfo
./t_sigwaitinfo: PID is 7471302
./t_sigwaitinfo: signals blocked
before for...before sigwaitinfobefore sig check..before term check...got si
58 (SIG-58)
si_signo=58, si_code=8 (other), si_value=0
si_pid=0, si_uid=0
before sigwaitinfobefore sig check..before term check...got signal: 58 (SIG
si_signo=58, si_code=8 (other), si_value=0
si_pid=0, si_uid=0
  
```

The terminal window also shows the status of the process `t_sigwaitinfo` and the output of the `ls -la` command. The status of the process is shown as `VT340 7` and the terminal is connected to the remote server/host 9.137.62.142 using port 23.

The system management interface on the left shows a table of processes and a status window for `hmc13: Suspend - Mozilla Firefox`. The status window shows the suspend status of the process, including the action being performed and the progress of the suspend operation.

Implications for PASE based AIX DLPAR aware applications

- The IBMi PASE environment has the signal and the api defined within the open system include files

```

Session D - [27 x 132]
Host: ibmi-7vios.
Browse : /QOpenSys/usr/include/sys/drm.h
Record : 169 of
Control :

....+....1...+....2....+
/*
 * Signals 50 to 57 are as
 * See SIGRTMIN and SIGRTM
 */
#define SIGRECONFIG 58 /*
#define SIGCPUFAIL 59 /*
/* RESERVED - DON'T USE
#define SIGKAP 60 /*
#define SIGGRANT SIGKAP /*
#define SIGRETRACT 61 /*
#define SIGSOUND 62 /*
#define SIGSAK 63 /* se
/*
 * additional signal names
 */
#define SIGIOINT SIGURG /*
#define SIGAIO SIGIO /* be
#define SIGPTY SIGIO /* p
#define SIGIOT SIGABRT /*

F3=Exit F10=Display Hex

MA D MW 14/012
1902 - Session successfully started

```

```

Session D - [27 x 132]
Host: ibmi-7vios.aixncc.uk.ibm.c Port: 23 Workstation ID: Disconnect
Browse : /QOpenSys/usr/include/sys/drm.h
Record : 66 of 807 by 18 Column : 1 73 by 131
Control : migrate

....+....1....+....2....+....3....+....4....+....5....+....6....+....7....+....8....+....9....+....0....+....1....+....2....+....3.
/*
unsigned int cap_constrained : 1; /* Set to 1 if requested capacity
 * update is constrained by PHYP to
 * be within partition capacity bounds.
 */
unsigned int migrate : 1;
unsigned int hibernate : 1;
unsigned int partition : 1;

unsigned int workload_partition : 1; /* workload partition event */
unsigned int checkpoint : 1; /* checkpoint operation */
unsigned int restart : 1; /* restart operation */

/* The following fields are filled out for cpu based requests */
int lcpu; /* logical id of target cpu */
int bcpu; /* bind-id of target cpu */
uint phase_gen; /* Reserved for kernel use.

F3=Exit F10=Display Hex F12=Cancel F15=Services F16=Repeat find F19=Left F20=Right

MA D MW 14/012
1902 - Session successfully started

```

Implications for PASE based AIX DLPAR aware applications

- Running the same AIX LPAR aware application inside the IBMi PASE QP2TERM environment, we see that the IBMi does not send a SIGRECONFIG signal to listening AIX DLPAR aware applications.

The screenshot displays the HMC console interface. On the left, a table shows the status of various processes. A modal window titled 'Status - IBMi-vios' is open, showing the suspend status of the system. On the right, a terminal window shows the execution of several commands in a PASE environment.

ID	Status	Proces... Units	Memory (GB)	...	Environment	Reference Code
9	Running	0.2	2	AMS	AIX or Linux	

Status - IBMi-vios

Action	Status	
Preparing	✓	
Validating	✓	00000000
Saving platform data	In progress	00000000
Saving partition data	MB total = 4440 MB remaining = 4229 Percent complete = 4%	00000000
Completing		

```

Session D - [27 x 132]
File Edit View Communication Actions Window Help
Host: |ibmi-7vios.aixncc.uk.ibm.c Port: |23 Workstation ID:
/openSys/usr/bin/-sh

#
> cd /home/BLIGHTJ
#
> ls -la
total 224
drwxrws--- 2 qsecofr  0      8192 Dec 02 14:56 .
drwxrwsrwx  5 qsys    0      8192 Dec 02 14:51 ..
-rwxrwx---  1 qsecofr  0     66466 Dec 02 14:56 t_sigwaitinfo
#
> ./t_sigwaitinfo
./t_sigwaitinfo: PID is 620
./t_sigwaitinfo: signals blocked

===>

F3=Exit  F6=Print  F9=Retrieve  F11=Truncate/Wrap
F13=Clear F17=Top   F18=Bottom  F21=CL command entry

21/007
ibm02 - Session successfully started
  
```


Implications for PASE based AIX DLPAR aware applications

- What does this mean
- Any application vendor who has an existing IBMi PASE application or is in the process of porting an application which is DLPAR aware needs to recode their application(s)
- They need to utilize the existing IBMi OS/400 exit points as described in the previous section
- Multiple choices on how to achieve this:
 - Redesign the application to utilize the IBMi exit point
 - or
 - Custom IPC mechanism such as
 - Have an exit point program that sends out the SIGRECONFIG signal to the relevant applications (there may be additional work to have this list of interested applications available to the exit program)
 - Provide a dr_reconfig api wrapper that handles the investigatory and veto process via the external exit program

Further information

- **IBM i exit programs**

- Suspend exit point

<http://publib.boulder.ibm.com/infocenter/iseres/v7r1m0/topic/apis/xsuspend.htm>

- Resume exit point

<http://publib.boulder.ibm.com/infocenter/iseres/v7r1m0/topic/apis/xresume.htm>

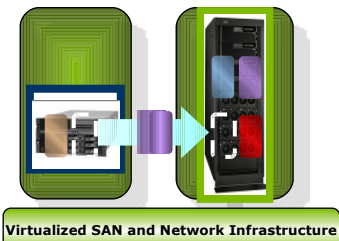


- **Preparing for partiton mobility**

- <http://pic.dhe.ibm.com/infocenter/powersys/v3r1m5/index.jsp?topic=/p7hc3/iphc3hmcprepare.htm>

- **Redbooks**

- “**IBM PowerVM Virtualization Introduction and Configuration**” Redbook.



IBM i zone on developerWorks

- ✓ Resource for the IBM i community
- ✓ Wide variety of technical information

ibm.com/developerworks/ibmi