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IBM i 7.1 Overview – Virtualization



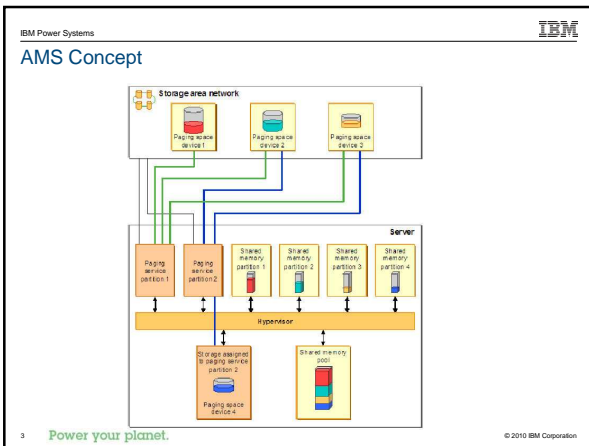
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Active Memory Sharing

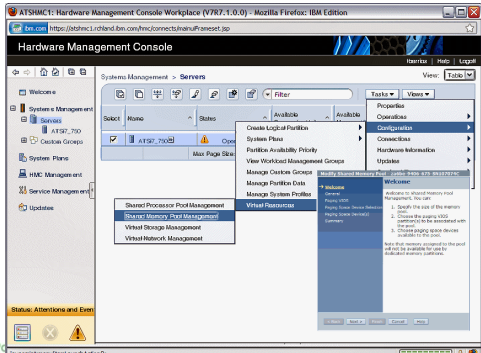
- **Sharing of a pool of physical memory among IBM i, AIX and Suse Linux logical partitions on a single IBM Power Systems server Power 6 or later**
 - Increase memory utilization and drive down system costs
 - Memory is dynamically allocated amongst the partitions as needed
- **Managed by the Power hypervisor:**
 - When a shared memory partition needs more memory than the current amount of unused memory in the shared memory pool, the hypervisor stores a portion of the memory that belongs to the shared memory partition in auxiliary storage known as a paging space device
 - Access to the paging space device is provided by a VIOS logical partition - the paging service partition
 - Attempts from an OS to access data that is located in a paging space device are directed by the hypervisor to the paging service partition to retrieve the data from the paging space device and write it to the shared memory pool so that the operating system can access the data
- **Logical partitions that provide virtual I/O resources to other logical partitions can be VIOS or IBM i and must be dedicated memory partitions but their client partitions could be shared memory partitions**

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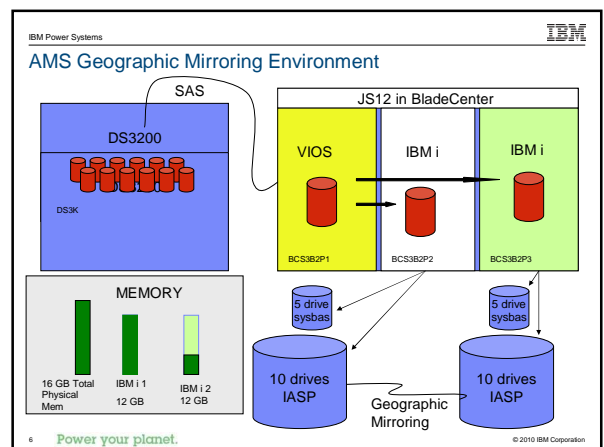
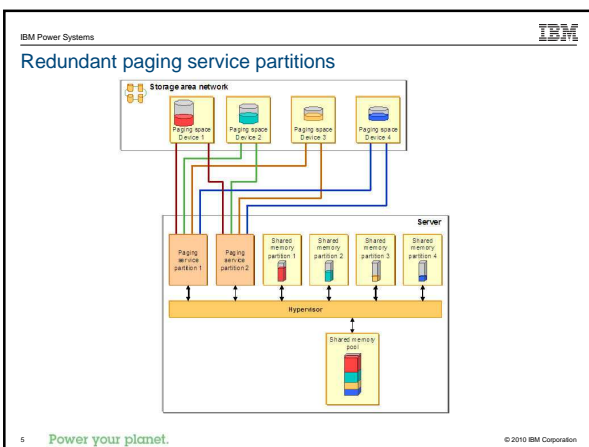


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Setup



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Minimum Requirements

- IBM Power Systems server or blade with POWER6 processors
- Virtual I/O Server (VIOS) 2.1.0.1Fixpack 21 or later
- System Firmware level 340_075 or later
- HMC v7.342 or later
- IBM i 6.1 plus PTF SI32798 or later
- AIX 6.1 TL3
- SUSE Linux Enterprise Server 11

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NPIV Concepts

- Multiple VFC server adapters may map to the same physical adapter port
- Each VFC server adapter connects to one VFC client adapter; each VFC client adapter gets a unique WWPN
- Clients can discover and manage physical devices on the SAN
- VIOS can't access or emulate storage, just provides clients access to the SAN.

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IBM i + NPIV with PowerHA

This configuration can support up to 64 IBM i partitions without adding any more adapters

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Redundant VIOS with NPIV

- Step 1: configure virtual and physical FC adapters
- Step 2: configure SAN fabric and storage

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Heterogeneous multipathing

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NPIV Configuration – VFC Adapters

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NPIV Configuration - Client WWPNs

The screenshot shows the 'Partition Properties - zafbp15' window with the 'Virtual Adapters' tab selected. A 'Virtual Fibre Channel Adapter Properties: zafbp15' dialog box is open, showing the configuration for a virtual fibre channel adapter. The 'Adapter ID' is 0, and the 'Type of adapter' is 'zafbc'. The 'Server adapter ID' is 16. The 'Server partition' is 'zafbc2,17'. The 'WWPNs' field contains two WWPNs: '050760002440038' and '050760002440039', both of which are circled in red. A red arrow points from the text 'How to see mapping of physical hardware between logical partitions. The current virtual partition is listed below.' to the 'Virtual Fibre Channel Adapter Properties' dialog box.

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NPIV Configuration - Server Adapter Mappings

The screenshot shows the 'Tasks: zafbc-9406-675-SN107074C' window. A 'Virtual Storage Management - zafbc-9406-675-SN107074C' dialog box is open, showing the configuration for a virtual storage management task. The 'VIOS' field is set to 'zafbcvics2'. A red arrow points from the text 'Use virtual storage management tasks to manage partition I/O for your Virtual I/O Server (VIOS) partitions. Select a VIOS partition from the type of virtual storage that you want to manage.' to the 'VIOS' field.

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NPIV Configuration - Server Adapter Mappings

The screenshot shows the 'Virtual Storage Management - zafbc-9406-675-SN107074C' window. A 'Modify Virtual Fibre Channel Partition Assignment - zafbc-9406-675-SN107074C' dialog box is open, showing the configuration for a virtual fibre channel partition assignment. The 'Partition Name' is 'zafbp15', the 'Partition State' is 'Running', and the 'World Wide Port Name' is 'fc3'. The 'Current Assignment' is 'fc3'. A red arrow points from the text 'A selected row in the table indicates that the physical port is assigned to the logical partition. Select additional partitions to assign to the port or deselect partitions that are currently assigned to the port.' to the 'Current Assignment' field.

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