Today

Power Systems Virtualisation from IBM - Technical Webinar User Group

Capture and Deploy Partitions

Starting at 10:00 am UK time by Fred Robinson

Series details, registration and replays of previous webinars from

http://tinyurl.com/UK-PowerVM-VUG

Register by sending email to Jyoti Dodhia – jyoti_dodhia@uk.ibm.com

Upcoming sessions …..

Session 16: Updating Power Systems, I/O and HMC
on August 15th 2012, 10:00 - 11:00 BST (UK time)

Session 17: Virtual Partition Manager for IBM i in action
on September 19th 2012, 10:00 - 11:00 BST (UK time)

Cloud Foundations: Capture and Deploy Partitions with VMControl

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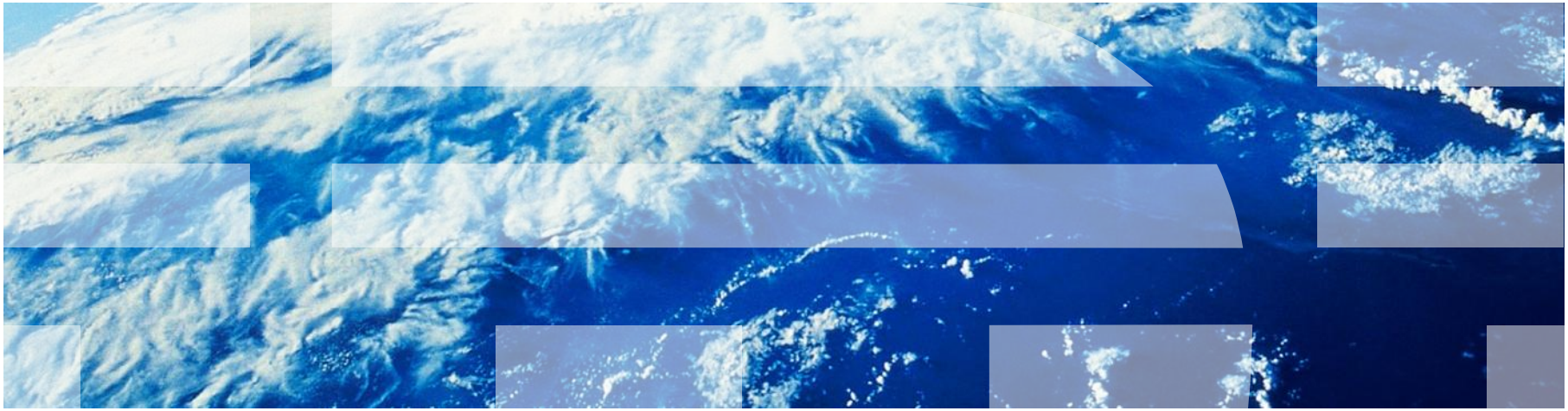
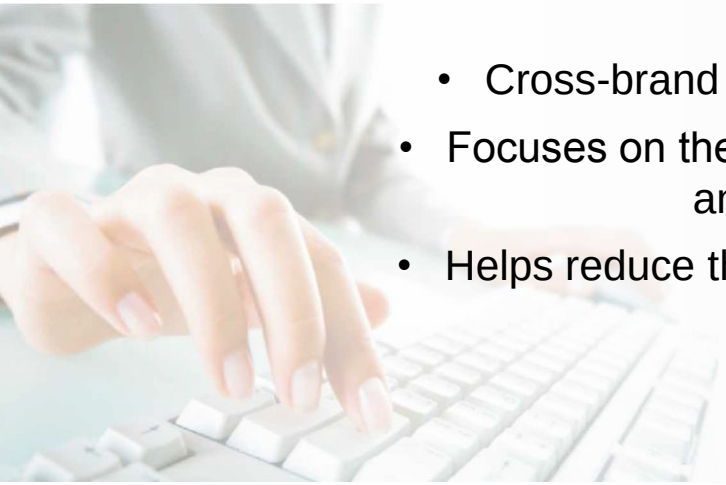


Agenda

- Introduction to VMControl and relationship to “Cloud”
- Components necessary for VMControl
- VMControl Editions

IBM® Systems Director



- Cross-brand IBM hardware platform manager
- Focuses on the “care and feeding” of the physical and virtual environment
- Helps reduce the costs of IT service management

Discover managed endpoints and collect detailed OS and system level information

Hardware failure and pre-failure notification, event logging, and automation

Ensure systems are operating optimally thru platform update identification and distribution

IBM Systems Director Topology

- **Three-tiered architecture**
- **Thousands of managed nodes**
- **Upward Integration modules supporting**
  - Tivoli, Computer Associates, Hewlett Packard, Microsoft

Preferred packaging: Editions

- **Express Edition**
  - •Basic Care and Feeding of an IBM Server Environment
    - •Inventory, Monitoring (Including Energy), Automation, Compliance and Updating
  - •Included on every Power 7 order unless you take it off
  - •Cost for maintenance after the first year
- **Standard Edition**
  - •Energy Management
  - •Virtualized Partition capture and deploy to a specific system
  - • Network Discovery and Management
- **Enterprise Edition**
  - •Virtualized Partition deployment to a Pool of Systems & Storage
  - •Capacity planning, historical trending of performance and energy with customized reporting for Single/Multiple Partitions/Systems.
  - •Compliance checking with tracking of changes over time and also relationships and causal analysis between partitions/systems

IBM Systems Director Editions packaging for Power Systems

Products	Express	Standard	Enterprise	AIX Enterprise
IBM System Director	✓	✓	✓	✓
Active Energy Manager	✓	✓	✓	✓
VMControl				
Express	✓	✓	✓	✓
Standard		✓	✓	✓
Enterprise			✓	✓
Storage Manager		✓	✓	✓
Network Control		✓	✓	✓
Transition Manager for HP® SIM	✓	✓	✓	✓
Service and Support Manager	✓	✓	✓	✓
IBM Tivoli Monitoring with Performance Analyzer, Energy Management			✓	✓
Tivoli Application Dependency Discovery Manager			✓	✓
AIX 6.1 or AIX 7.1				✓
Workload Partitions Manager				✓
1 or 3 year software maintenance	✓	✓	✓	✓

Note: Most components can be bought individually (with appropriate pre-req software)

How virtualization management needs evolve

Automate

Optimize With System Pools
- Create, modify, delete pools
- Automate resource mobility
- Manage utilization and availability

Manage

Manage Virtual Image Libraries
- Create, capture, import, deploy
- Centralize image management
- Migrate and move virtual images

Visualize

Virtualize Workloads
- View, create, modify, delete VMs
- Start/stop, relocate VMs
- Manage multiple hypervisors

IBM Systems Director Editions map client progress

Increasing scope of control

IBM Systems Director Express Edition with VMControl Express Edition

for lifecycle management

VISUALIZE

- Discover resources
- Monitor health
- Update components

IBM Systems Director Standard Edition with VMControl Standard Edition

for rapid deployment

MANAGE

- Create standardized images
- Automate resource provisioning
- Move virtual resources

IBM Systems Director Enterprise with VMControl Enterprise Edition

for cloud computing

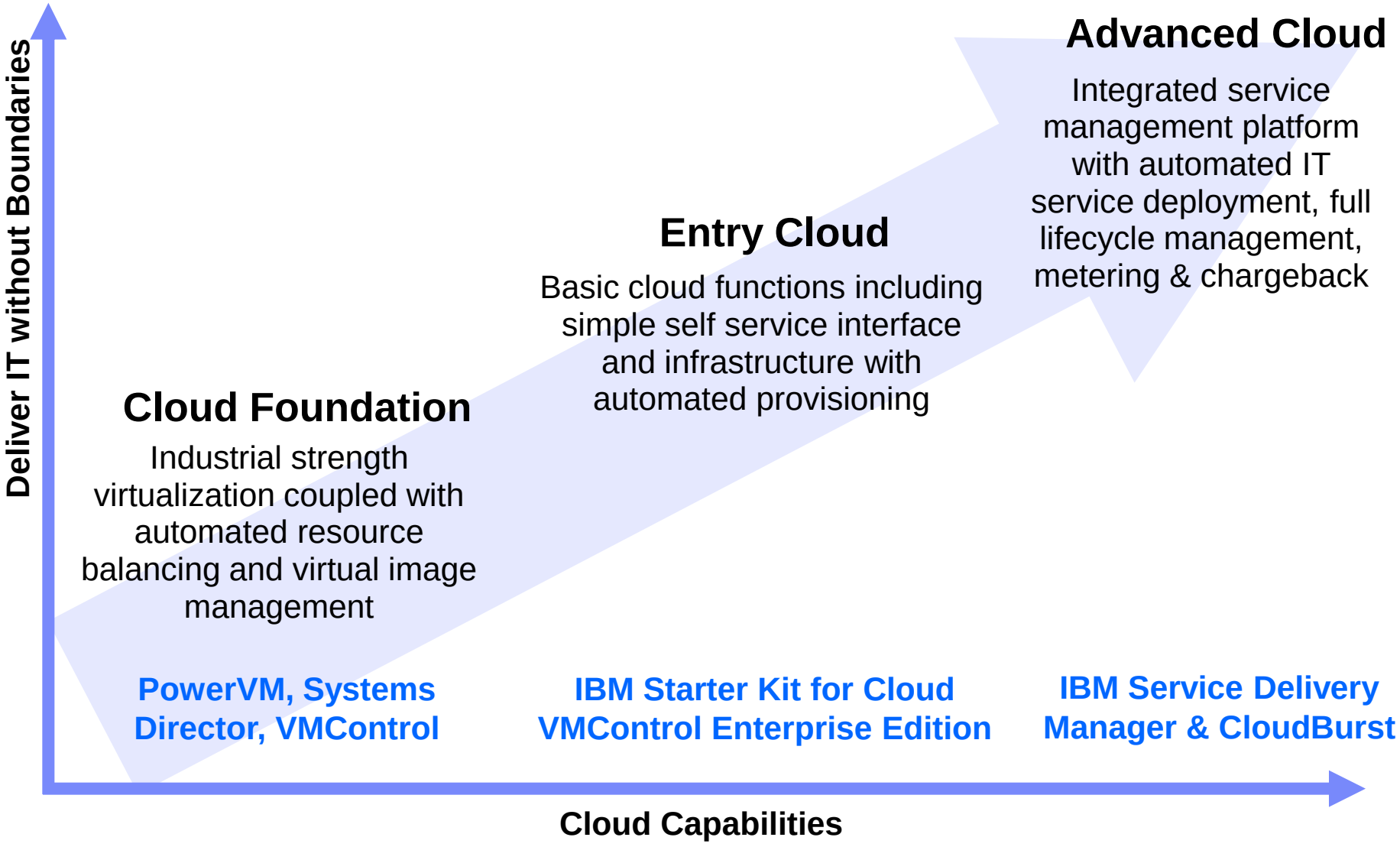
AUTOMATE

- Create virtual pools
- Automate workload provisioning
- Balance workloads

Statement of Direction for IBM i for Enterprise Edition function

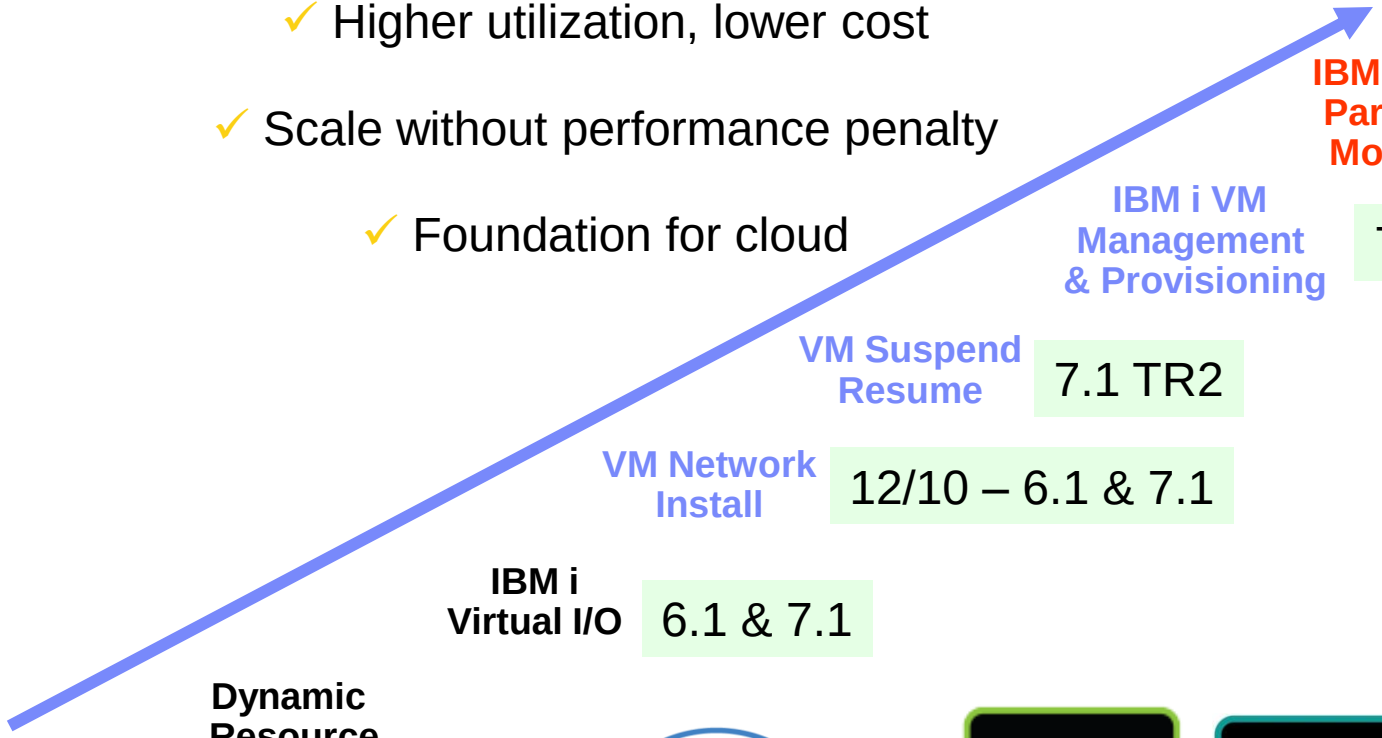
Increasing management simplicity

Power Systems Cloud Solution Positioning



IBM i adoption of IBM PowerVM cloud technologies

- ✓ Higher utilization, lower cost
- ✓ Scale without performance penalty
- ✓ Foundation for cloud



VMControl's Virtual Systems Management Strategy

- Traditional Focus…
- – Hardware centric; partitioning and sharing hardware; bottoms up
- – Server, storage and network virtualization and management silos
- – Point products and solutions for the different management domains
- – Homogenous management solutions for System z, Power and System x
- – Managing large number of individual systems
- – Attempts to manage virtual resources like hardware

- VMControl's Focus…
- – Workload aware; tops down; in the context of the business needs
- – **The system = server + storage + network**
- – **Integration across availability, energy, performance and security management domains**
- – A single and consistent solution for all IBM Systems
- – **Managing pools of cooperating systems within the simplicity of a single system**
- – A shift from managing virtualization to using virtualization to manage

- The Value…
- – Radically ***improved time to value*** for new workloads
- – Provide ***repeatable accuracy and consistency*** via automation
- – Drive ***higher utilization*** and efficiencies of IBM System

Comparison times of Capture and Deploy

Operation	NIM Based	SCS CR – DD Copy	SCS CR - FastCopy
AIX (~5 GB Image) Lab	4 Minutes Capture 13 Minutes Deploy	2.5 Minutes Capture 5 Minutes Deploy	15 Seconds Capture 3 Minutes Deploy
AIX Deploy 300 GB 5 Disk Volumes (Customer)	San Team- allocate storage Network -zone switches 70 GB Root NIM deploy Restore VG 80 GB Oracle Restore VG 50 Application Restore VG 50 (2) paging Disk	60 Minutes Capture 58 Minute Deploy	3 Minutes Capture 13 Minutes Deploy (over new disks) 6 Minutes Deploy (over existing disks)
IBM i 100 GB	N/A	12 Minutes Capture 18 Minutes Deploy	45 seconds Capture 45 seconds Deploy & then 7 minutes before 5250 session sign-on
IBM i 40 GB	N/A	10 Minutes Capture 6 Minutes Deploy	30 seconds Capture 30 seconds Deploy + 6 minutes to 5250 sign-on

VMControl encompasses virtual workload lifecycle management, image management and system pool management as an extension to IBM Systems Director, usually purchased as IBM Systems Director Standard Edition

What is the key word in the above definition - **VIRTUAL**

What does Virtual mean for Power? – **PowerVM (VIOS) & SAN Storage**

What does PowerVM Provide?

- Industry-leading virtualization technology for…
  - IBM Power Systems
  - AIX, Linux and IBM i operating systems
- Capabilities include
  - **Logical partitions, micro-partitioning**
  - **Virtual I/O Server**
  - **Suspend / resume**
  - Shared processor pools
  - Shared storage pools
  - Thin provisioning
  - **Live Partition Mobility**
  - Active Memory Sharing

Virtualization Terms – Mostly Interchangeable

Variations of the same theme

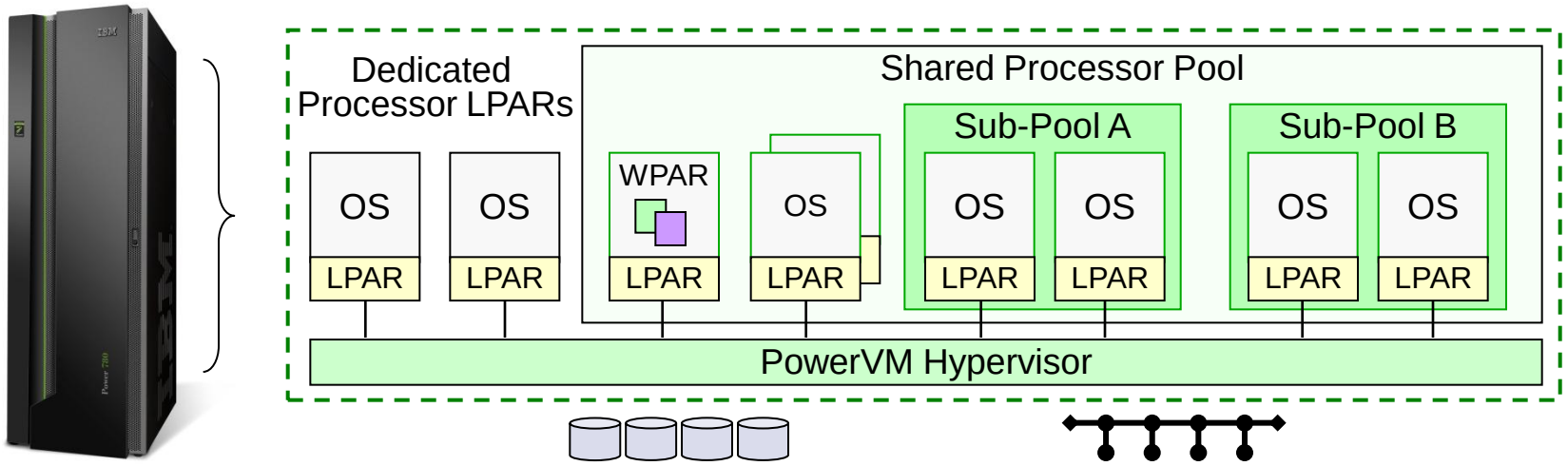
Logical Partition = LPAR = Virtual Machine

= VM = Virtual Image = Virtual System

- “Logical partition” (a.k.a. LPAR) is familiar to Power Systems customers
- “Virtual machine” (a.k.a. VM) originated with the mainframe and was later embraced by VMware
- A “Virtual image” contains the requisite software to be application-ready
- “Virtual system” is a generic term for an independent environment configured with virtual resources

Logical Partitions (LPARs)

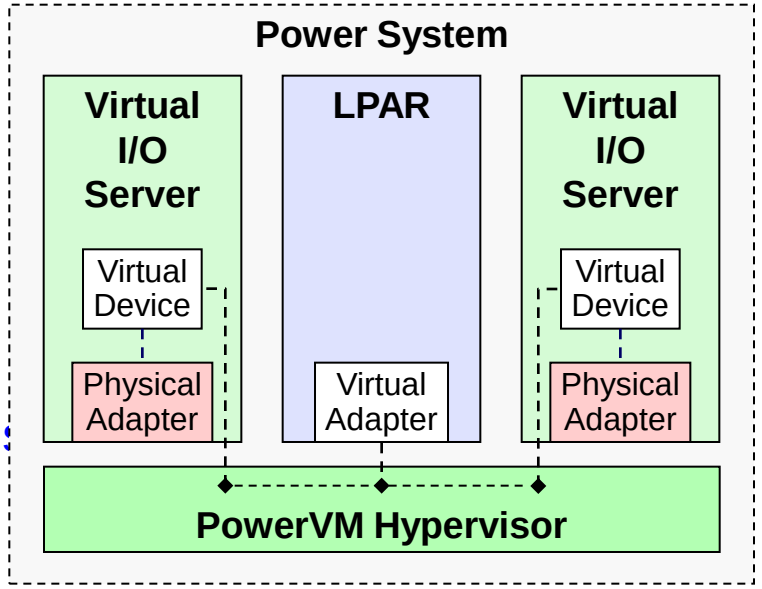
- Power Systems hardware can be virtualized into multiple logical partitions, each operating as an independent system
- Processors, memory and I/O are assigned to each LPAR
- Can run AIX, IBM i, Linux or the Virtual I/O Server



DEDICATED I/0: Typical for most today

Virtual I/O Server (VIOS)

- I/O virtualization appliance partition
  - Storage (virtual SCSI, virtual Fibre Channel)
  - Network (virtual Ethernet)
- Enables sharing of physical I/O resources among partitions
  - VIOS owns the physical I/O
  - Serves AIX, IBM i and Linux operating systems
- Multiple VIOS support
  - Typically deployed in pairs
  - Improve availability and performance
- Maximize the utilization of physical adapters
- Set up logical partitions faster and at lower cost



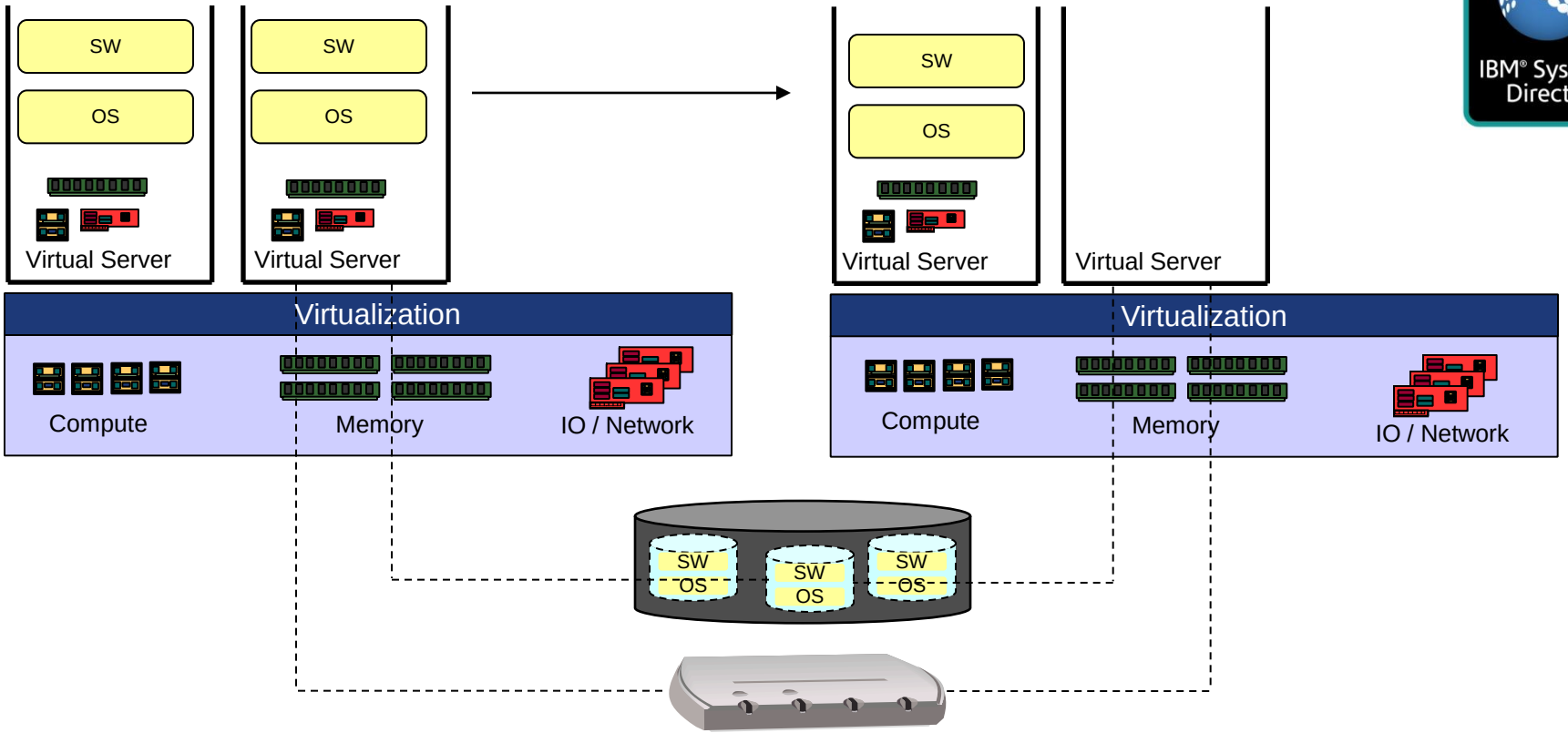
VIOS and SAN Storage Necessary for Live Partition Mobility and quick deployment of partitions

Why Virtualize Workloads with PowerVM?

- It's simple
  1. Create a new virtual machine (VM) – a.k.a. logical partition (LPAR)
  2. Install AIX, IBM i or Linux
  3. Deploy the workload
  4. Configure/tune as required
- A virtualized workload can be stored, copied, archived or modified
- Operational benefits
  - Rapid provisioning
  - Scalability
  - Recoverability
  - Consolidation
- Bottom line – save time and reduce costs

IBM Systems Director Standard Edition with VMControl can help automate the creation, deployment and management of those workloads

Automating VM relocation (Live Partition Mobility)



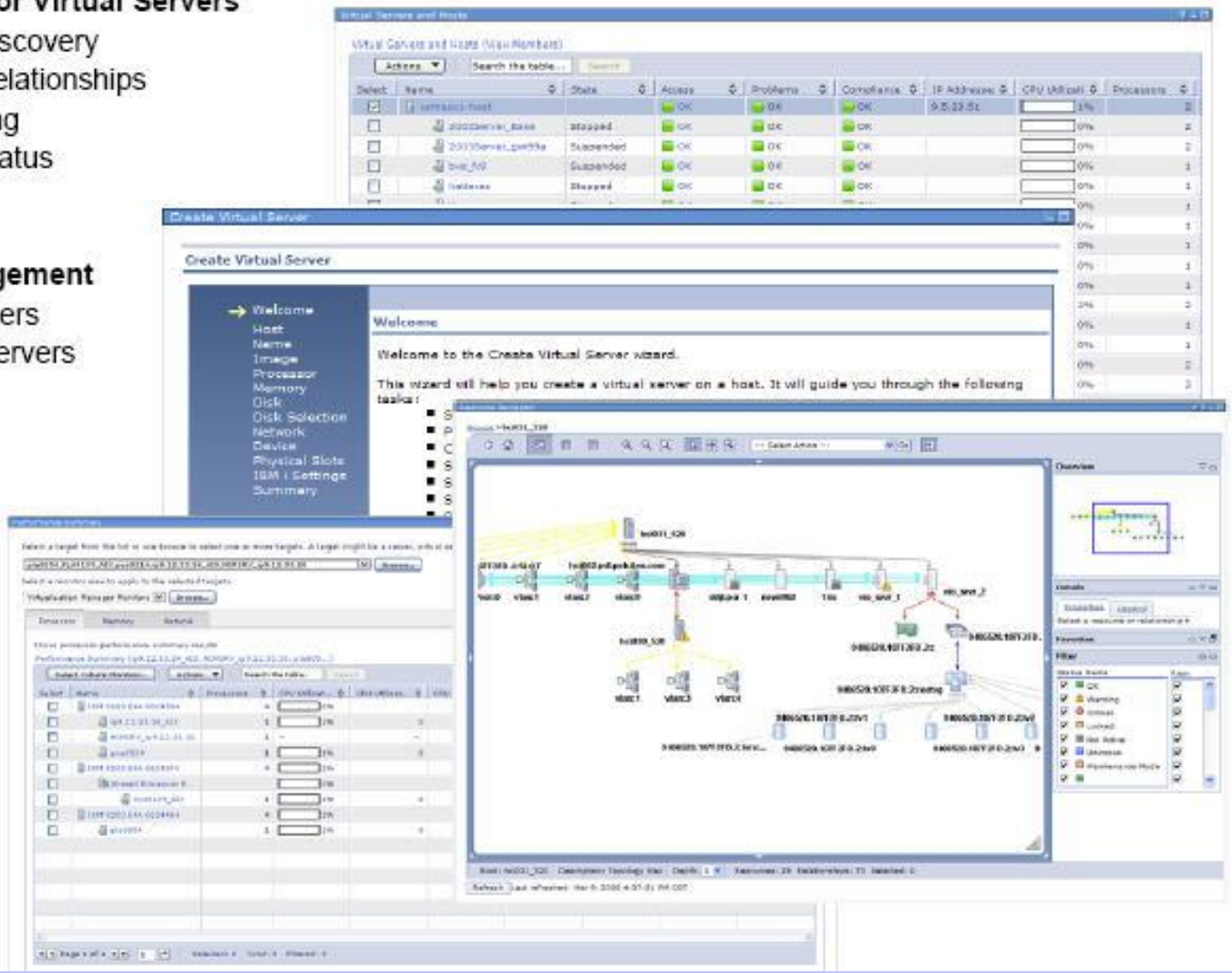
- There is significant value in the tight integration of server, storage and network aspects
  - Allocate resources on the target host.
  - Provide access (re-zone/re-mask) to the virtual server storage on the target host
  - Move the virtual server in-memory state to target host.
  - De-allocating resources on the source host.

IBM Systems Director VMControl Express

Visualize, Monitoring and Manage Virtual Servers

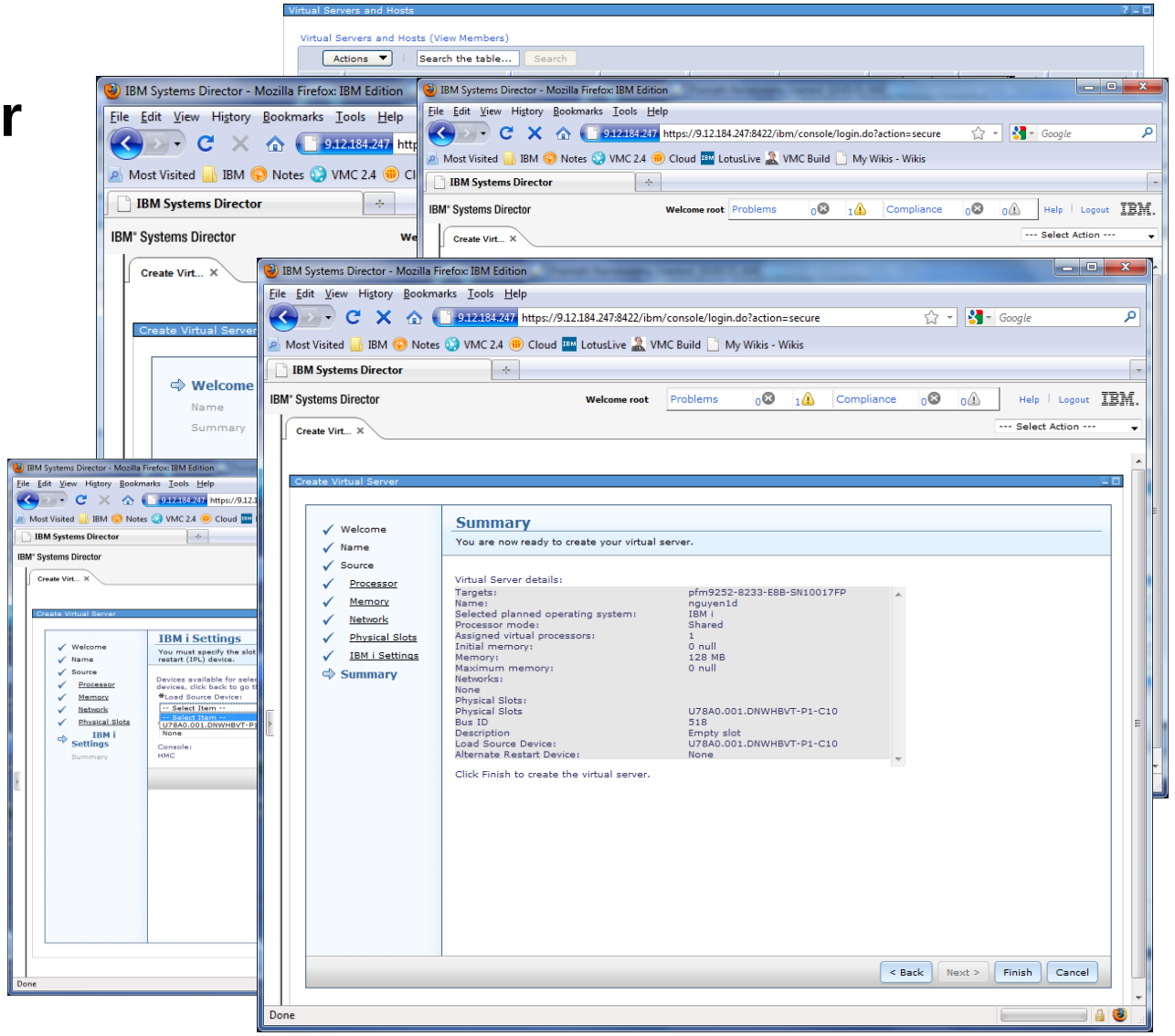
- **Discover, Visualize and Monitor Virtual Servers**
  - Host and Virtual Server Discovery
  - Topology Maps showing relationships
  - Virtual Resource Monitoring
  - Host and Virtual Server Status
  - Thresholds
- **Virtual Server Lifecycle Management**
  - Create/Delete Virtual Servers
  - Dynamically Edit Virtual Servers
- **Basic Virtual Server Mobility**
  - Move Virtual Server
  - Evacuate Host
  - Relocation Plans
- **Cross Platform Consistency**
  - VMware ESX
  - VMware vCenter
  - Hyper-V
  - Xen
  - KVM*
  - PowerVM
  - z/VM

*New in VMControl 2.3.1



Create & Edit VS Wizards tailored to Partition specifics (AIX, VIOS, i)

- **Wizard guides user through VS creation**
  - Processor
  - Memory
  - Network
- **IBM i required parameters**
  - Physical Slots
  - Load Source
  - Alternate Restart Device



Supporting an Ecosystem around Open Standards

- OVF standardizes a virtual machine image structure and packaging format
  - The Open Virtualization Format is being standardized in the DMTF.
  - Allows complex software solutions to be defined as compositions of virtual machine images.
  - IBM's collaboration with other industry leaders has driven the OVF standard.

DMTF®

- A Virtual Machine Image is a Virtual Appliance
  - Simplifies delivery and deployment of complex software systems
  - Provides pre-installed, pre-configured and tested software stack
    Operating Systems, Middleware and Application Software
  - The entire software solution is managed (deployed, updated, etc.) as a unit
    Removes the need to deal with problematic dependency management

Appliance Simplicity for Complex Software Solutions

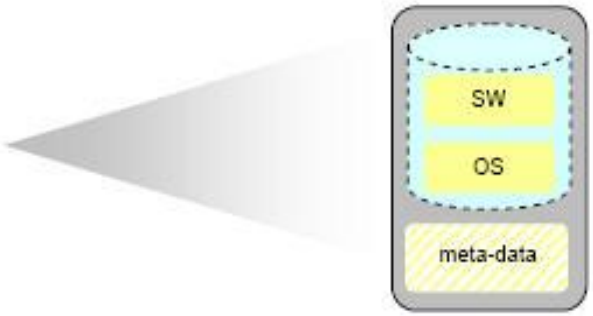
- Virtual Machine Images enable the delivery of Software in the Cloud
  - IBM Software is being delivered as Virtual Appliances (e.g. WebSphere Cloudburst)
  - Many others within the industry are forming ecosystems around Virtual Machine Images

IBM® Systems Director

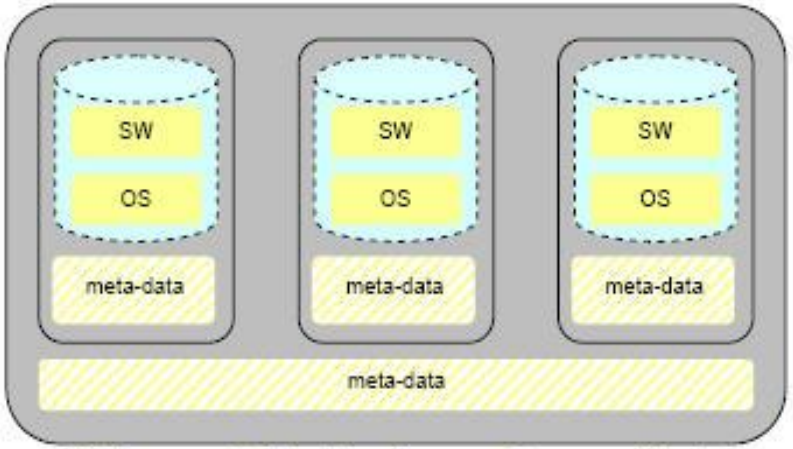
VMControl enables the delivery and management of Open Standard Virtual Machine Images on IBM Systems.

Virtual Server Image Detailed View

- **Virtual Server Definition**
  - CPU requirements
  - Memory requirements
  - I/O requirements
- **Virtual Network Definition**
  - VLAN Identifiers
  - Network properties
- **Virtual Disk Image(s)**
  - Disk type
  - Disk format
  - Data (by value / by reference, *optional**)
- **Customization Details**
  - OS properties
  - Middleware properties
  - Software properties
- **Goals and Constraints**
  - Availability goals
  - Placement constraints



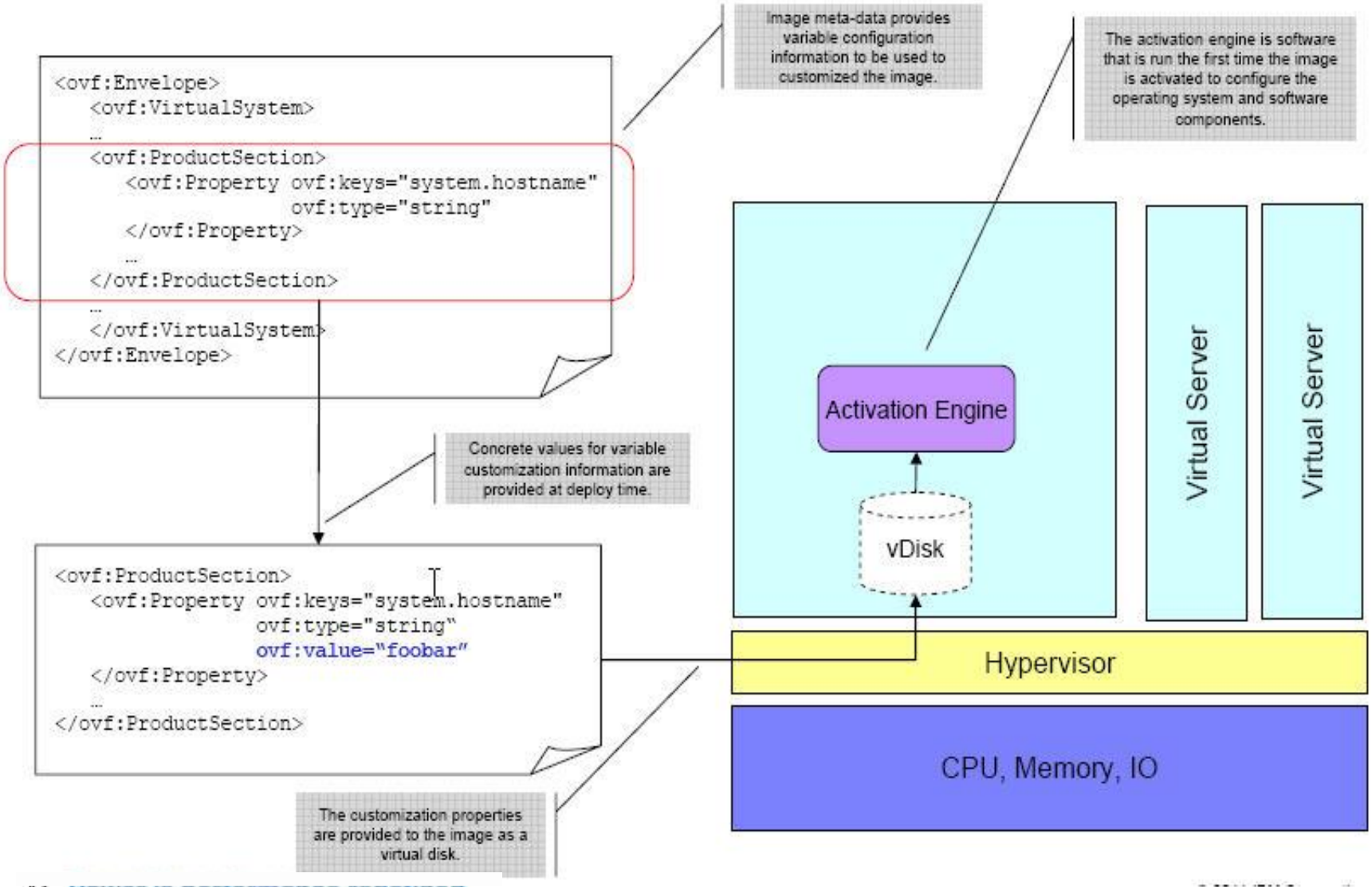
VS Image



VS Image Collection (Image Composition)

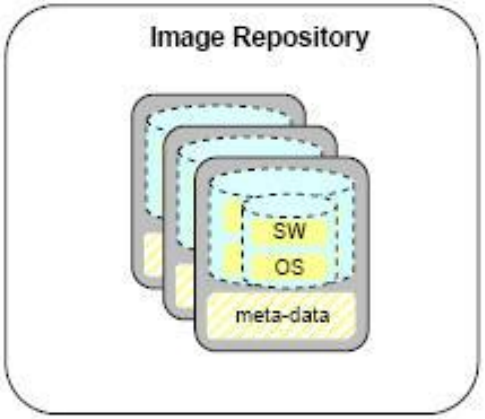
*New with VMControl 2.4

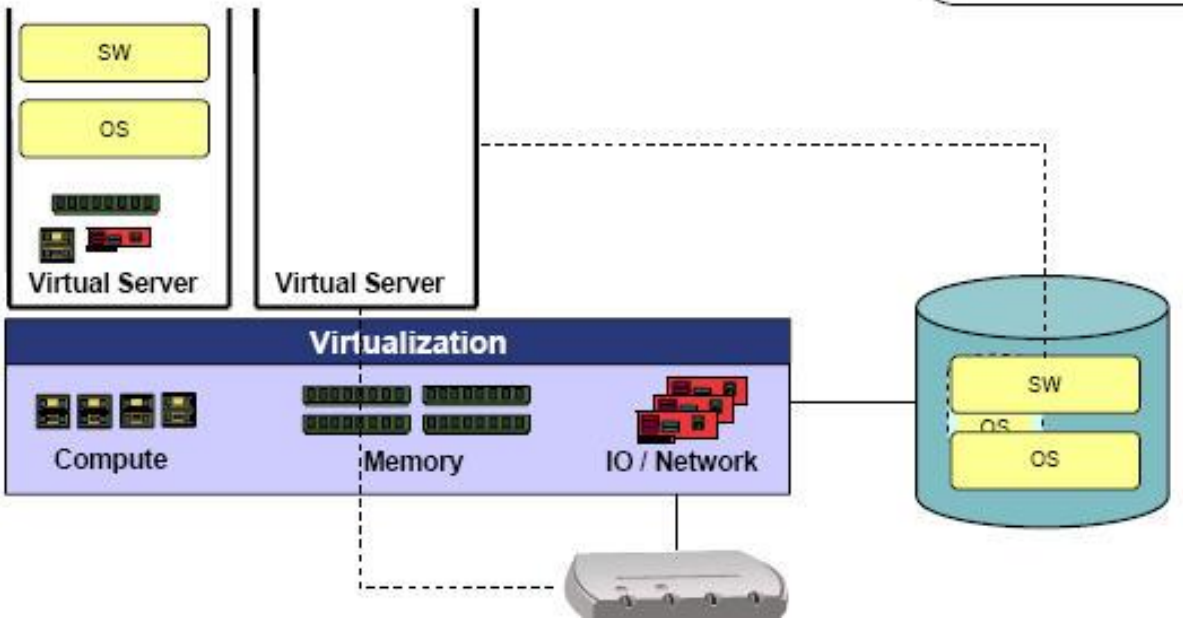
Image Customization



Deploying a Virtual Server Image

- The VS image meta-data is used to create VS container, allocating the required platform resources.
- Storage is dynamically allocated and attached to the virtual server - other data disks are attached.
- The VS is dynamically attached to the appropriate networks and VLANs.
- The virtual server is started from the bootable disk image and customized as part of its initial boot.

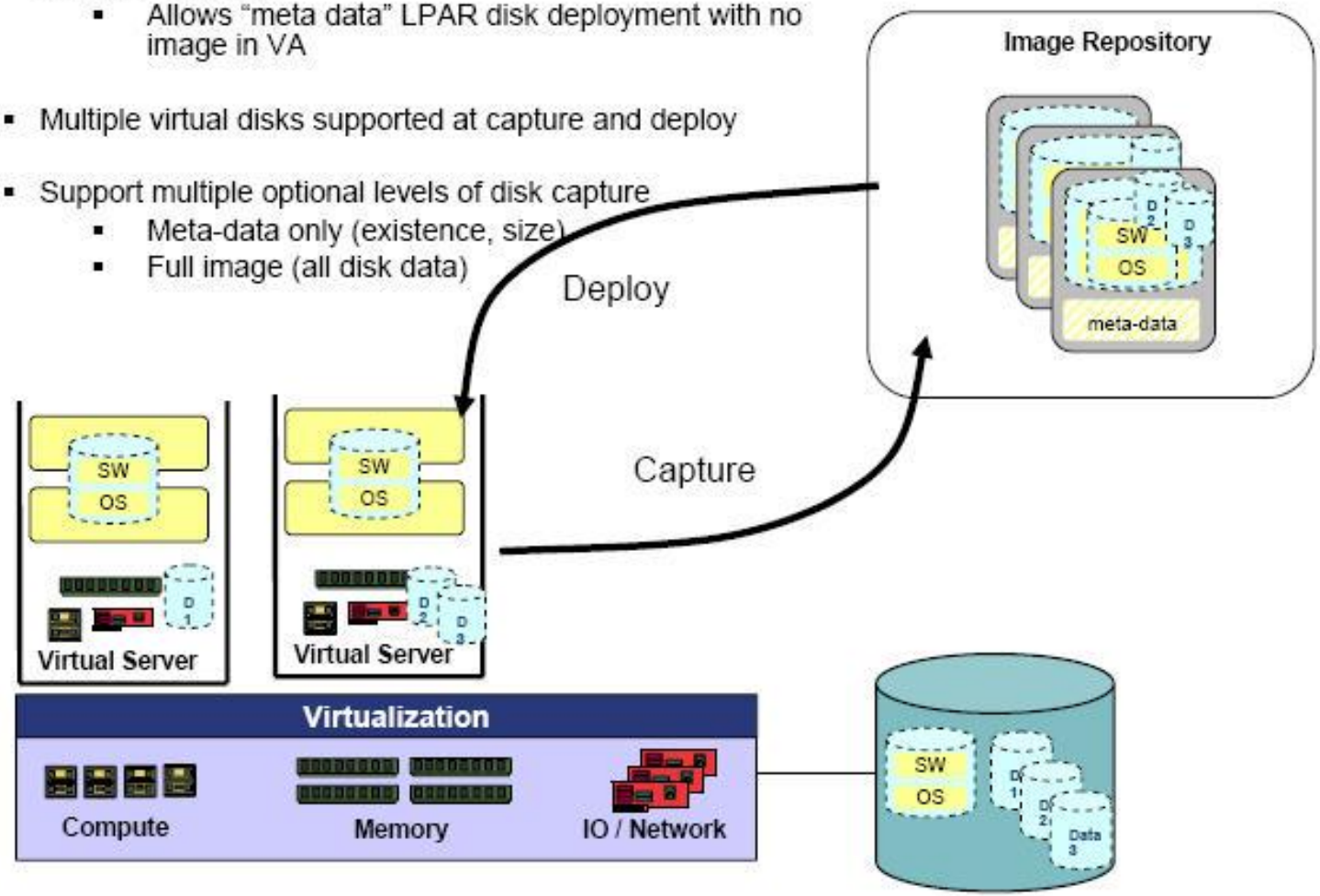




- Improved time-to-value…
- Fewer tools and fewer tasks…
- Workload (business) context…

Multiple virtual data disk Virtual Appliances*

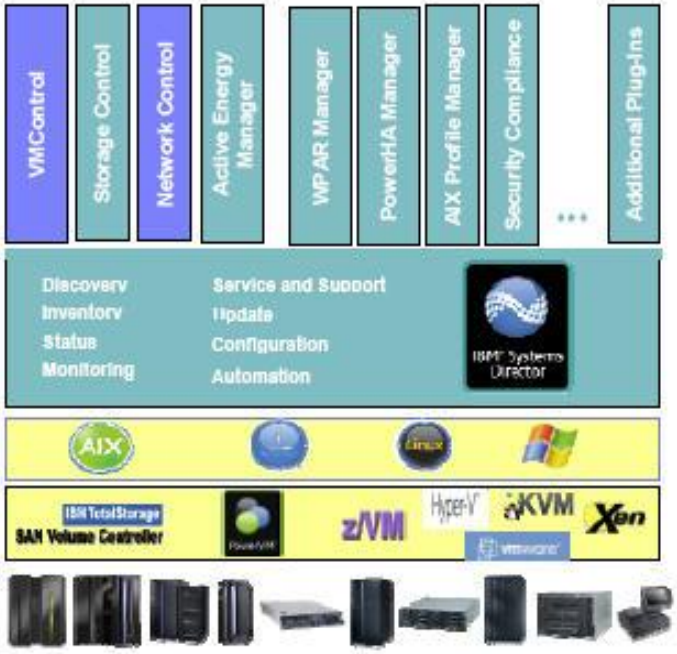
- Support for the capture and deployment of LPAR non-OS disk in a VS image
  - Allows "meta data" LPAR disk deployment with no image in VA
- Multiple virtual disks supported at capture and deploy
- Support multiple optional levels of disk capture
  - Meta-data only (existence, size)
  - Full image (all disk data)



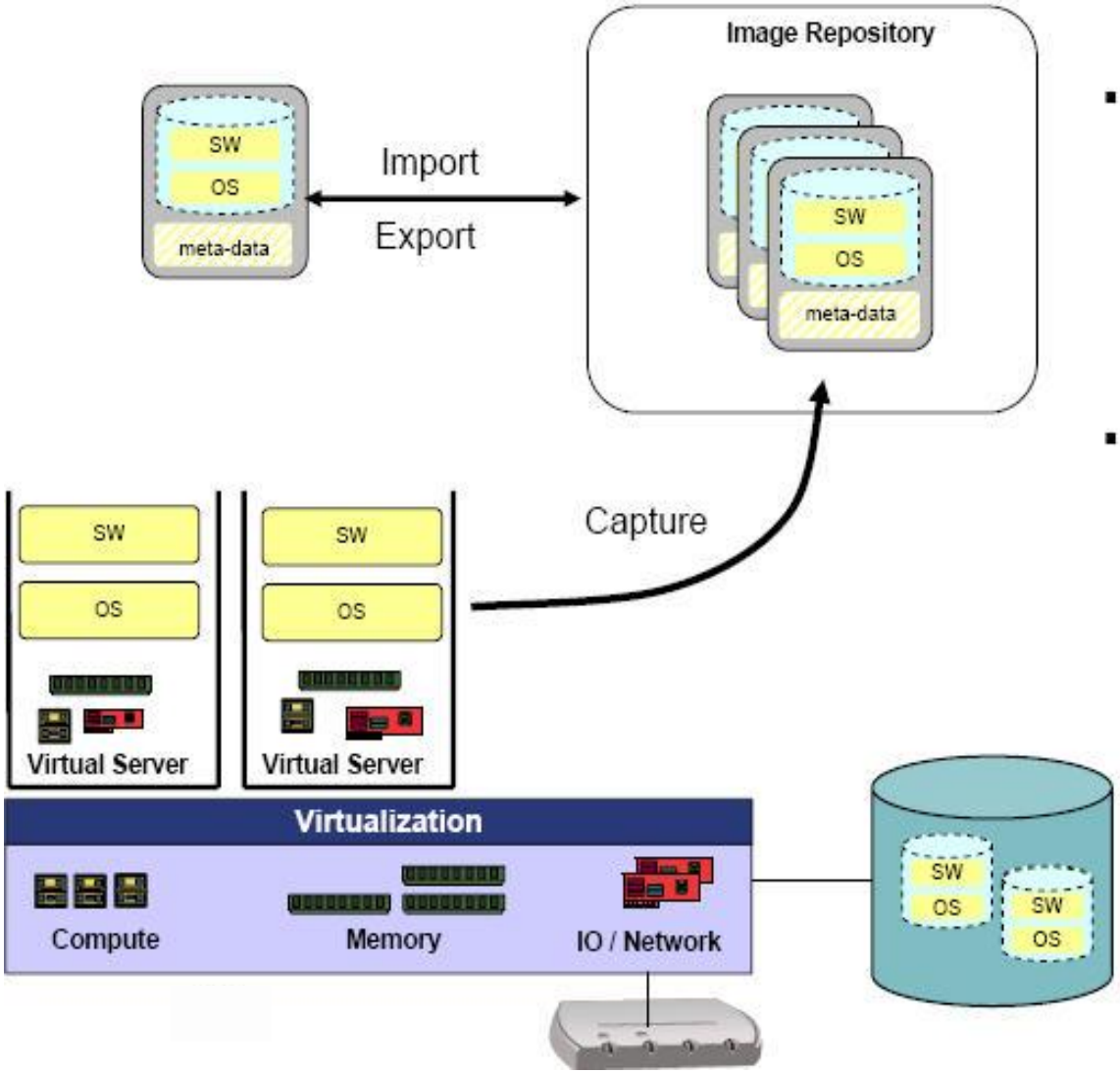
*New with VMControl 2.4

Attaching Network Resources

- VMControl provides the ability to attach to existing logical networks when deploying virtual servers
- When Network Control is also installed & licensed, VMControl provides the ability to dynamically provision and attach new logical networks when deploying virtual servers
  - Leverages Network System Pools (NSP)
  - Deployment of new Virtual Appliances
  - Relocating Virtual Servers within a virtual farm
  - Relocating Virtual Servers within System Pools

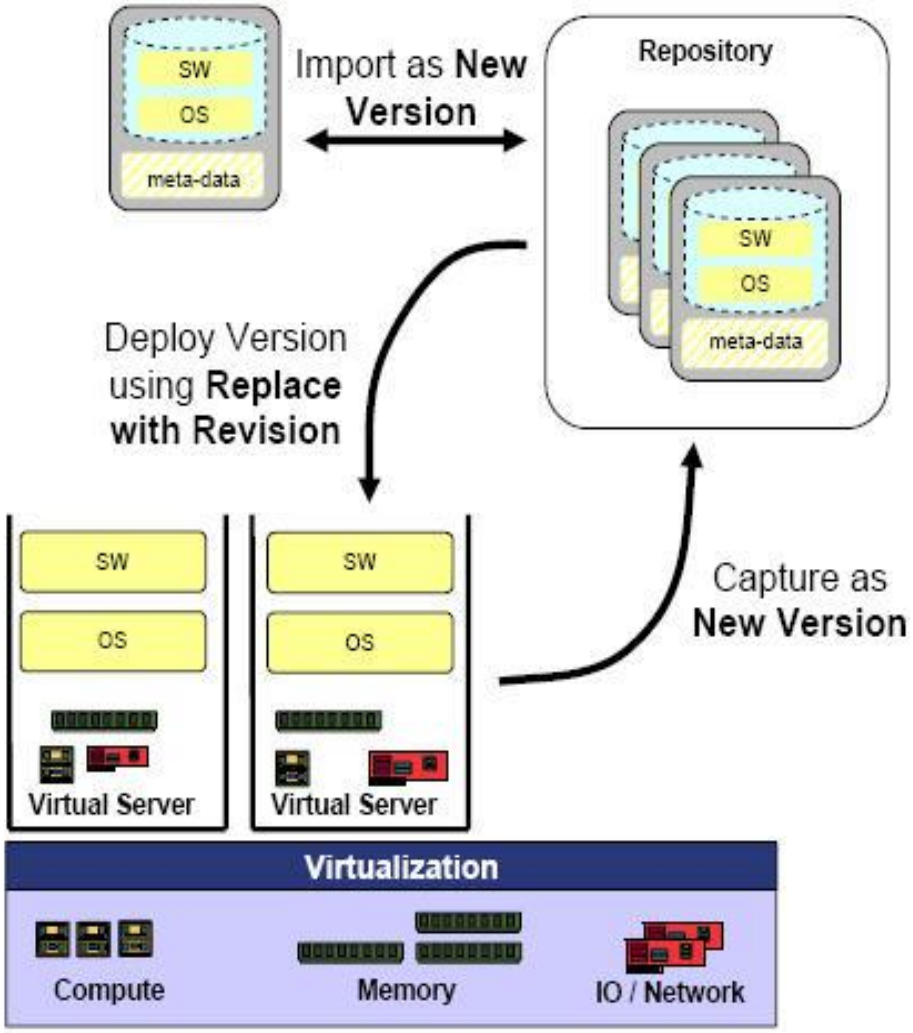


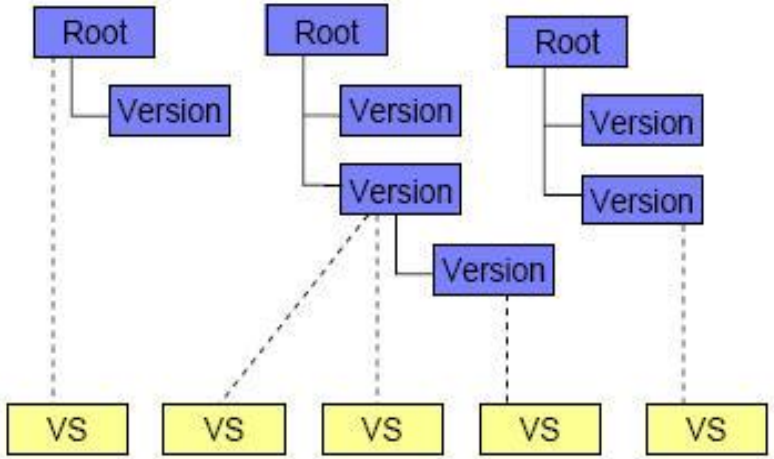
Managing Virtual Server Images



- **Capture a Virtual Server**
  - The bootable disk image is copied into the image repository.
  - Image meta-data describing the VS container is captured and included as part of the virtual appliance.
- **Import/Export a VS Image**
  - A VS image may be imported to the image repository and cataloged by VMControl.
  - A VS image can be exported from a repository and easily distributed to other systems and environments.

Image Versioning



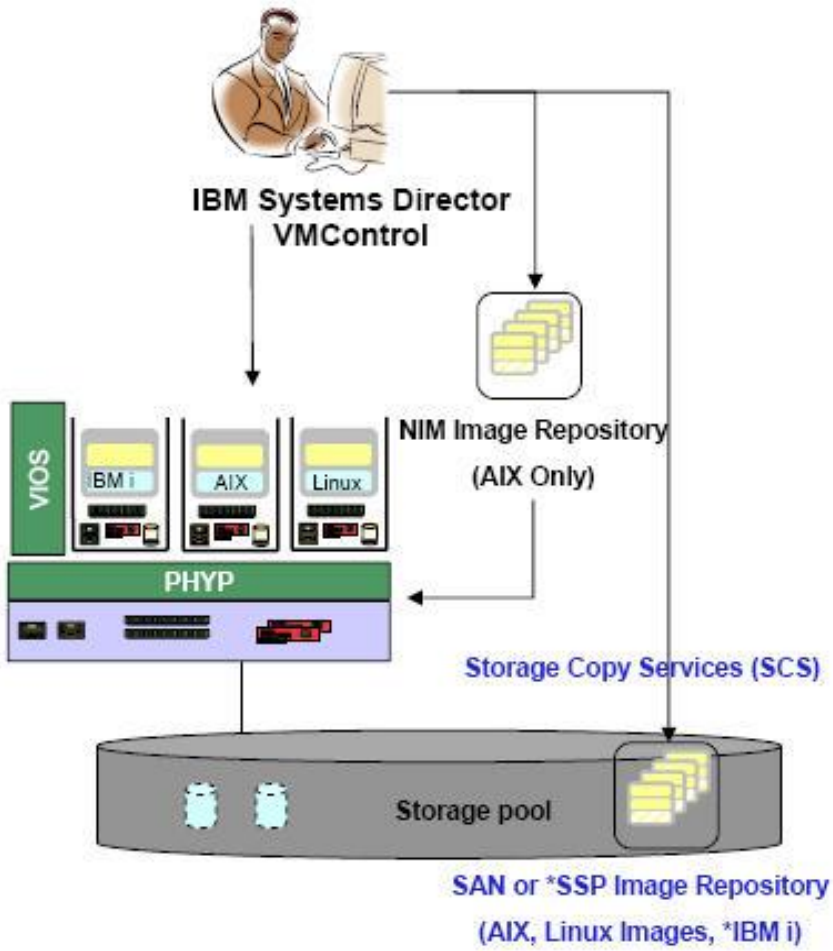


- Key relationships maintained in the resource model aiding in managing the full image lifecycle
- "version-of" relationship indicating an image is a version of another image in the repository.
- "deployed" relationship between an image in the repository and a deployed virtual server.

Managing PowerVM Images with VMControl

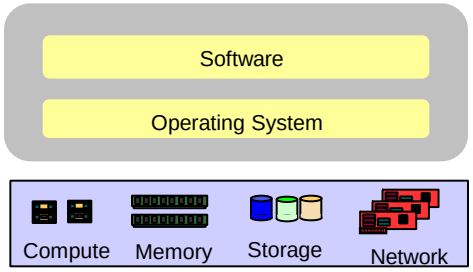
- Capture and Catalog PowerVM Virtual Servers
  - Within a NIM Image Repository for AIX
  - *Within a common repository on the SAN or SSP for AIX, Linux and iOS
- Deploy to NEW or EXISTING LPAR
  - New LPAR provisioning based on Image (OVF) meta-data
  - *New LPAR provisioned and attachment of pre-allocated storage (LUN)
  - Existing LPAR validated against Image (OVF) meta-data
- Dynamic allocation of Storage resources
  - VIOS managed volume groups
  - Shared SAN storage pools
  - Storage System Pools
  - NPIV
  - Multi-path IO to storage supported
- Dynamic allocation of Network resources
  - Map the networks in the virtual appliance to the host server's networks
- NIM resources auto-created during Deploy
  - Adapter file, SPOT, User-specified resource

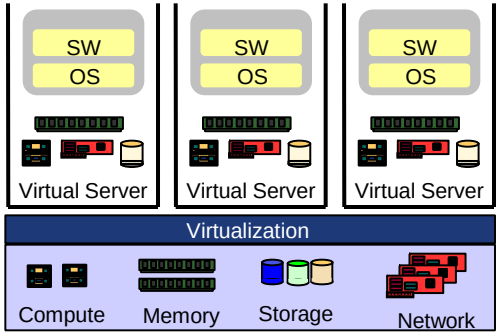
*New with VMControl 2.4
Note: SCS provides NIM alternative, but both can be used, if desired

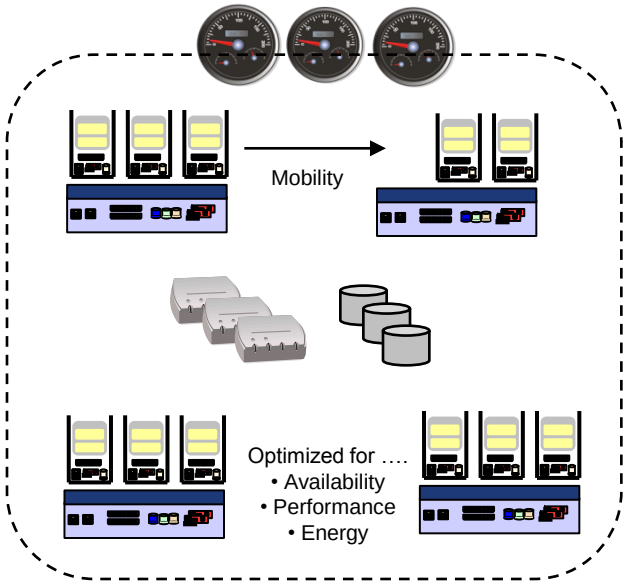


IBM Systems Director VMControl Enterprise

IBM System Pools and Workload Management







Servers

Virtual Servers

System Pools- AIX, Linux, SOD for IBM i

IBM® Systems Director

Managing a pool of system resources with the simplicity of a single system.

Power Systems Pools with VMControl Enterprise Edition

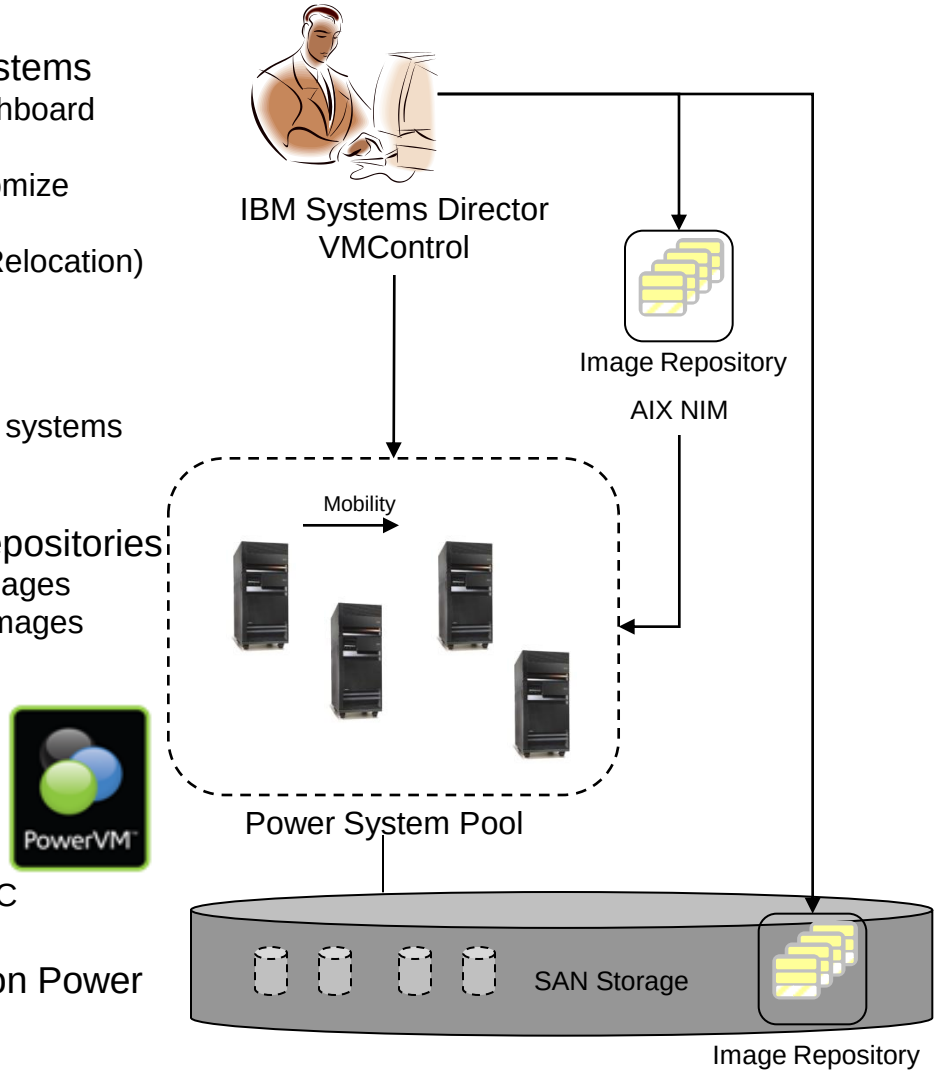
- Simplifying the management of Power Systems
  - Integration with the IBM Systems Director dashboard
    - Dynamic Virtual Server Placement
  - Simplified Image Capture, Deploy and Customize
    - Virtual Server Relocation/Mobility
  - Workload Resilience (Hardware PFA automated Relocation)
    - Host Maintenance Mode

- Support for P5, P6 and P7 Systems
  - New systems or available capacity from existing systems
    - IVM and HMC managed systems

- Support for NIM and Storage Based Image Repositories
  - Capture, Search, Version and Deploy AIX Images
  - Capture, Search, Version and Deploy Linux Images

- Dynamic allocation of SAN storage
  - Shared SAN storage pools
  - Non-IBM storage via SVC and TPC
  - Multi-path IO to storage supported
    - Storage System Pools
  - Storage Control providing embedded TPC

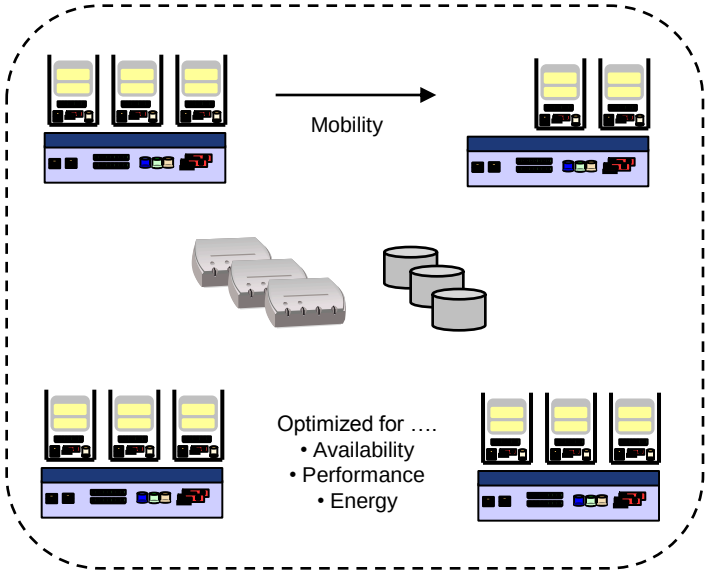
- Provides the foundation for IBM CloudBurst on Power



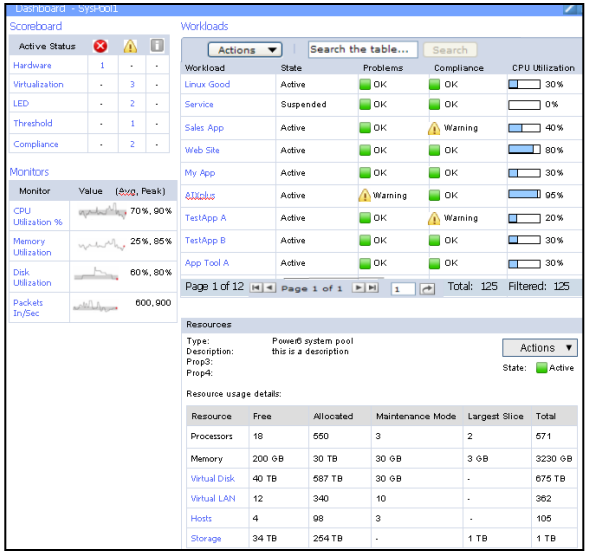
System Pools within IBM Systems Director

Managing a pool of system resources with single systems simplicity

IBM Systems Director
VMControl



System Pool

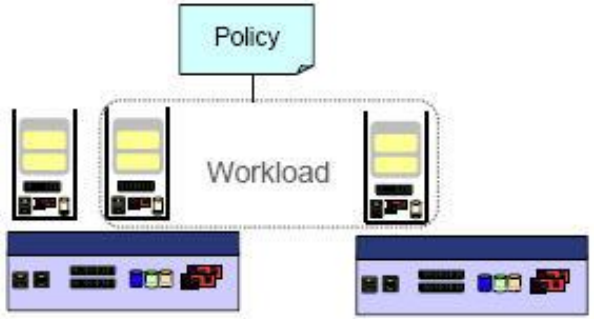


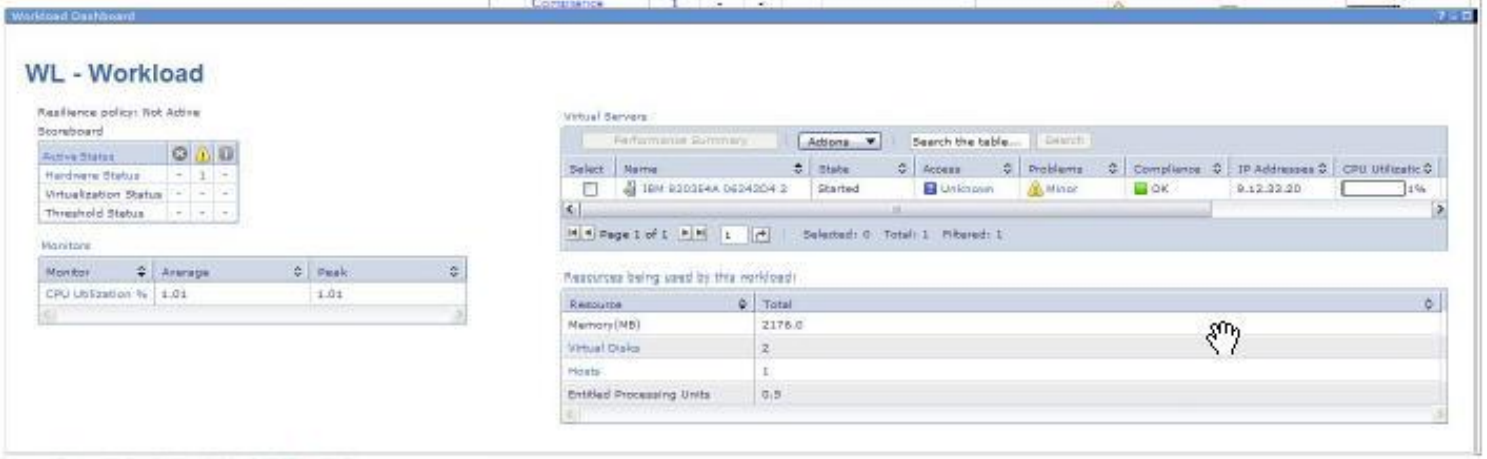
- System pools are being integrated as a new type of system with the IBM System Director tools, allowing the pool to be managed a single logical entity in the data center.
- A dashboard view for System pools will provide overall view of health and status of the pool and the deployed workloads.
- The dashboard will provide simplified monitoring and visualization of the aggregate capacity and utilization for the systems within a pool.

IBM Systems Director VMControl

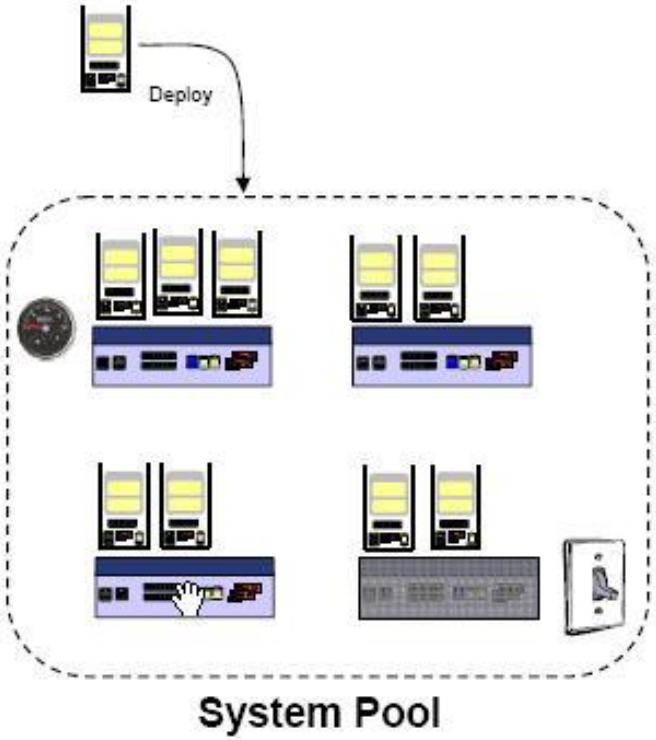
VMControl Workloads

- Group of virtual servers that contribute to an application workload or business service
- Summarize health and status of the composition of workload's virtual resources
- Aggregated monitoring
- Attachment of workload policies



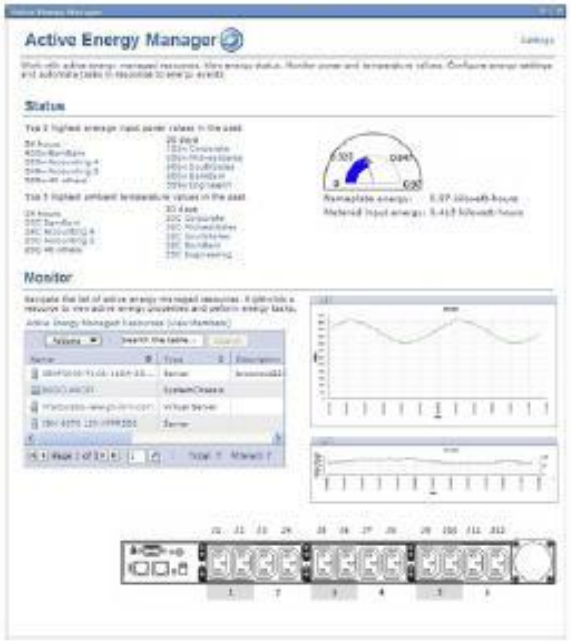


Ongoing optimization / rebalancing within a System Pool



- **User initiated or scheduled optimization / re-balancing**
  - New placement plan calculated favoring performance
  - Virtual servers moved away from areas of resource contention
  - Host and virtual server CPU and memory utilization considered
- **Re-balancing placement during deployment**
  - New placement plan calculated
  - Existing virtual servers may move to make room new virtual server
  - Virtual server capacity and existing virtual server and host utilization
- **Dynamic Consolidation and Power Controls**
  - Included as part of user initiated or scheduled optimization
  - Placement plans influenced by AEM to favor consolidation
  - Host systems power dynamically managed by AEM
  - New sleep and hibernations modes within IBM Systems leveraged
- **Dynamic Allocation and Resource Management**
  - Dynamically move virtual resource between workloads
  - Temporarily suspend lower priority workloads (VMs)
  - Dynamically add capacity via CUOD

Automated Energy Optimizations*



System Pool

- **Integrate with IBM Systems Director Active Energy Manager**
  - Leverage AEM's rich energy monitoring and power controls
  - AEM contributes to placement decisions via an energy placement advisor
- **Consolidate VMs on a fewer number of host systems during periods of lower utilization**
  - Move using VM mobility (relocation) and dynamic virtual machine placement within a System Pool
  - Reduce host power, leveraging new suspend and sleep modes within IBM Systems
- **Redistribute VMs as workload utilization needs increase**
  - Resume host capacity as required – leveraging new resume modes within IBM Systems

Demo Time

Requirements for VMControl SCS Environment

- All AIX, Linux and IBM i virtual servers to be “captured from” or “deployed to” using VMControl must have their storage allocated from the SAN and provided through one or more VIOS partitions.
- The virtual servers must use virtual Ethernet connections provided through one or more VIOS partitions.
  - The virtual servers must not have any physical devices allocated from the IBM Power server.
- Hardware Management Console (HMC) and POWER7®, must use HMC V7R7.4 or higher and all available updates.
- For POWER7 processor-based servers, use FW7.2 or higher and all available updates
- Communication to the SAN switch needed
  - SMI-S provider for Brocade, QLOGIC, Tivoli Productivity Center (TPC) for CISCO
- Communication to the IBM SAN needed
  - IBM Storage Control or Tivoli Productivity Center (TPC) or SMI-S provider

SCS Common Repository Setup and Configuration

- Basic Steps
  - Activate Common Agent Services (CAS) on VIOS
  - Discover the VIOS OS in Systems Director
  - Install Common Repository Subagent on VIOS
  - Create and Assign SAN Storage for SCS Common Repository
  - Create the SCS Common Repository in VMControl
  - Install the Activation Engine in the Virtualized partition you want to capture (IBM i, AIX, Linux)

Five Easy Steps to scope VMControl capabilities

1. What function do you want to perform with VMControl: Single disk (NIM), or multi disk (SCS) capture and deploy?
2. Do you attach storage with NPIV or VSCII?
3. What is you backend storage? IBM, EMC, Hitachi, SVC or V7000 with OEM?
4. Who is your SAN network switch vendor? Brocade, CISCO, QLOGIC or IBM (Brocade or BNT branded)
5. Now walk through the tables.

VMControl Function: SCS or NIM

Method	Access to Switch Required	Access to Storage Required	IBM Storage Supported	EMC Storage Supported	HDS Storage Supported
VSCII					
SCS	Yes	Yes	Yes	Via SVC	Via SVC
NIM	No	No	Yes	Yes *	Yes
NPIV					
SCS	Yes	Yes	Yes	Via SVC	Via SVC
NIM Capture	No	No	Yes	Yes *	Yes
NIM Deploy	Yes	Yes	Yes	Via SVC	Via SVC

* VIOS Level 2.2.1.3 HMC 7.7.4 or greater

SAN Attached to VIOS Partition

Storage	SMIS	Storage Control	TPC
DS3/4/5	Yes (via netapp)	Yes	Yes
DS8000	SSPC	Yes	Yes
SVC/V7000	No	Yes	Yes
EMC	Yes**	Yes**	Yes**
HDS	Via SVC	Via SVC	Via SVC

** Needed for SERVER to SAN Mapping

San Network Switch **

Switch Vendor	SMI-S
Brocade	120.10 or 120.11 or Brocade Network Advisor 11.1.2 or above (x86 Linux or Windows)
Cisco	TPC
Qlogic	Built-In
IBM (BNT)	?

** Access to SAN Network Switch needed for SERVER to SAN Mapping, VMControl NPIV, or SCS Capture/Deploy

Bottom Line

- Bottom Line: IBM Storage Supported for SCS and NIM deploys of all types
- EMC & HDS supported for SCS and NIM deploys of all types if attached via an SVC or V7000
- EMC VIOS native storage attachment only supported for VMControl NIM with VSCII. Additional IBM Systems Director function of Server to San mapping enabled if you have access to both San and Switch
- Hitachi (HDS) supported for VMControl NIM via VSCII only. No San to Storage mapping.
- Can not mix types of VIOS attachment ie Local Boot from SAN and SAN Disks or VSCII Boot and NPIV SAN Disks.

IBM Systems Director Next Steps

1. **Decide what IBM Systems Director Function is important to you**
   - **Accurate Inventory**
   - **OS, Firmware updating**
   - **Energy Management**
   - **Image Automation**
2. **Determine IBM Systems Director Server**
   1. 8-12 GB Memory, .5 to 2 cores – uncapped, 100 GB disk
   2. Could be IBM i hosted Power Linux or AIX
3. **Load Appropriate Program Products and/or PTFs to support IBM Systems Director**
4. **Obtain help from someone who has done this before**
   1. Most problems with troubleshooting endpoints – IBM Systems Director communication
   2. Don't forget about IBM i Voucher, PowerCare services, or including services into a sale
5. **Implement all of the prereqs and follow all of the instructions, not just the ones you like**

Good Reference Documentation

- V7000 & Brocade configuration for SCS
  - Chapter 11 Configuring the Management Stack of Implementing IBM SmartCloud Entry on POWER Systems using the POWER 740 Express Reference Configuration
  - ftp://public.dhe.ibm.com/common/ssi/ecm/en/poo03078usen/POO03078USEN.PDF
- Cisco Configuration within TPC
  - 3.1.6.1 Configuring Cisco MDS9000 switches for Out-of-band communication of TPC Hints and Tips – Update for 4.2.2
  - https://www-304.ibm.com/support/docview.wss?uid=swg27008254&aid=1
- IBM Systems Director 6.3 information center – SCS Requirements
  - http://publib.boulder.ibm.com/infocenter/director/pubs/index.jsp?topic=%2Fcom.ibm.director.vim.helps.doc%2Ffsd0_vim_r_sb_aix_on_power.html&resultof=%22scs%22%20%22sc%22%20%22requirements%22%20%22requir%22
- IBM Systems Director VMControl Wiki
  - Minimum levels, NIM trouble shooting guide, SCS troubleshooting guide
  - https://www.ibm.com/developerworks/wikis/display/WikiPtype/IBM+Systems+Director+VMControl

VMControl Web resources

IBM Systems Director Redbook:
VMControl Implementation Guide on IBM Power Systems

VMControl Performance Summary :
Optimizing Virtual Infrastructure with VMControl

VMControl Information Center:
IBM Systems Director InfoCenter - VMControl

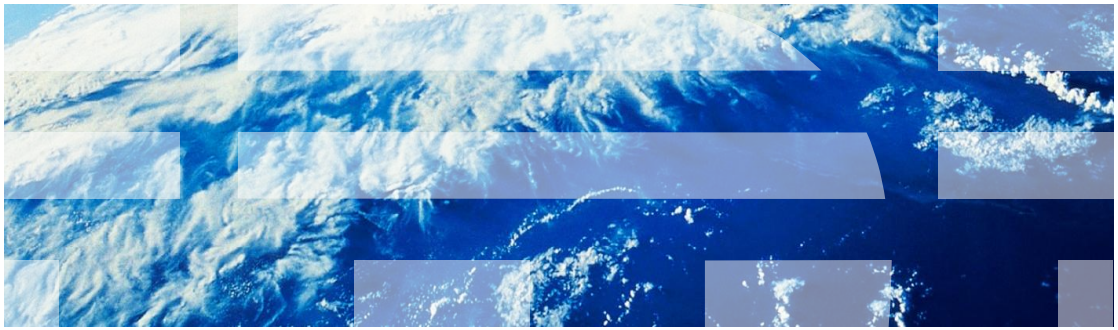
VMControl Web site:
VMControl Web page

IBM Systems Director Downloads
http://www.ibm.com/systems/management/director/downloads

IBM Systems Director Upward Integration
http://www.ibm.com/systems/software/director/downloads/integration.html

IBM Systems Director Best Practices Wiki
http://www.ibm.com/developerworks/wikis/display/WikiPtype/IBM+Systems+Director+Best+Practices+Wiki

YouTube VMControl Video Library:
10 Minute Overview of VMControl
4 minute Value Summary of VMControl
Virtualization Overview for x86 Systems

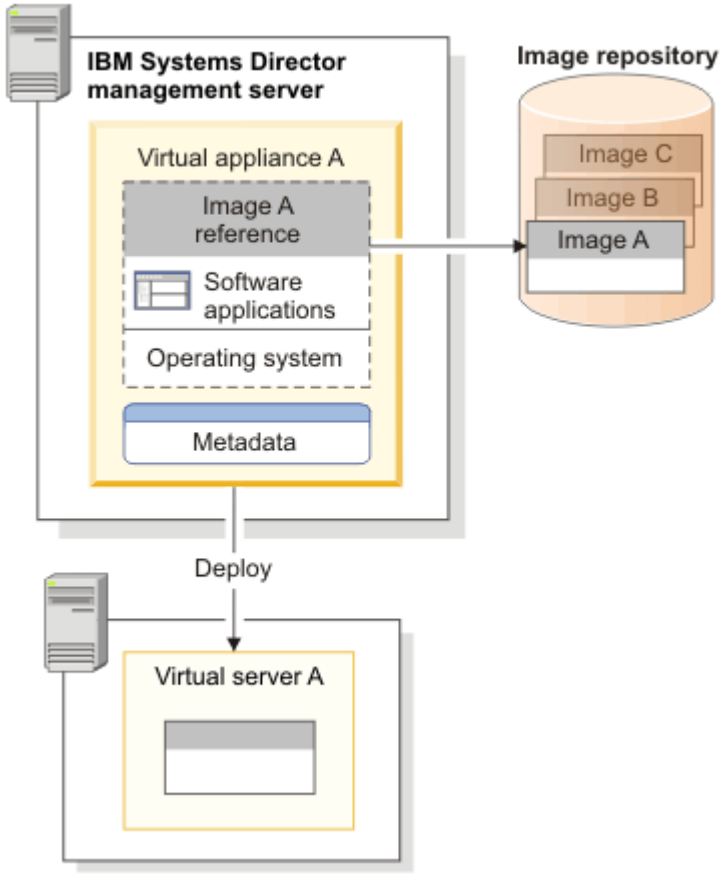


Deploying a Virtual Appliance Example

IBM Systems Director VMControl

Deploying A Virtual Appliance – Overview

- Deploy a virtual appliance to a host or system pool, existing virtual server.
- Customize various attributes for the resulting virtual server, such as network settings.
- Deploy virtual appliances that have been captured or imported into IBM® Systems Director VMControl
- Deploy requirements found at http://publib.boulder.ibm.com/infocenter/director/pubs/index.jsp?topic=%2Fcom.ibm.director.vim.helps.doc%2Ffsd0_vim_r_power_virtualization.html



IBM Systems Director VMControl

Deploy – Steps

The steps to deploy a Virtual Appliance are as follows:

WHAT

- Select a **virtual appliance** to deploy, *virtual appliance A*, from the virtual appliances that are stored on IBM Systems Director Server.
  - *Virtual appliance A* contains a reference to *Image A* that is stored in the image repository. *Image A* contains an operating system and software applications.

WHERE

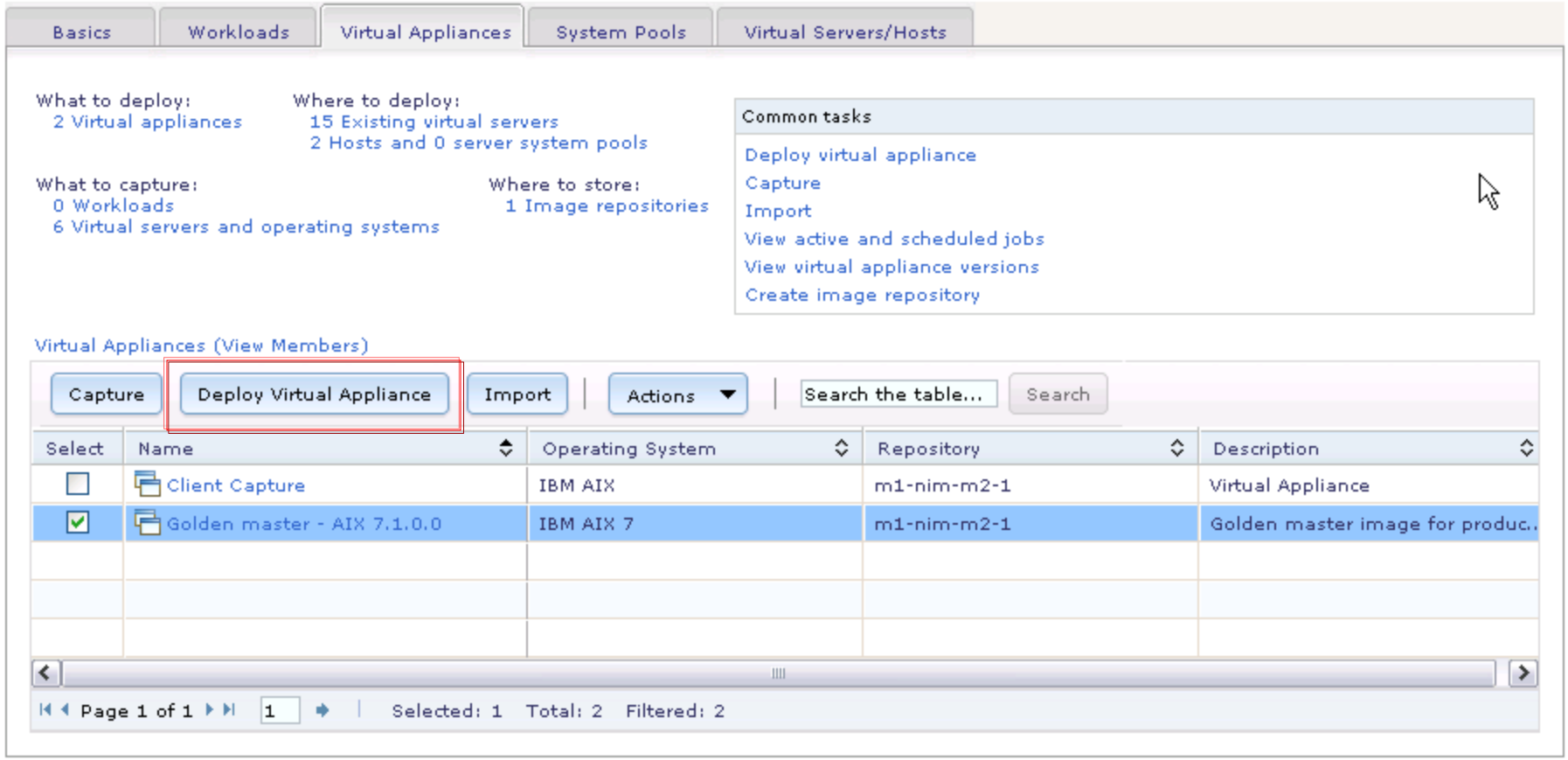
- The user specifies a **Host, System Pool** or **existing virtual server** where he wants to deploy *virtual appliance A*.
  - When *virtual appliance A* is deployed, *virtual server A* is created with the definitions detailed in *virtual appliance A*. If the user selects to deploy *virtual appliance A* to existing *virtual server A*, the existing virtual server is filled with the operating system and software applications defined in *virtual appliance A*.

IBM Systems Director VMControl

Deploy

Select WHAT to deploy:

- Virtual appliance

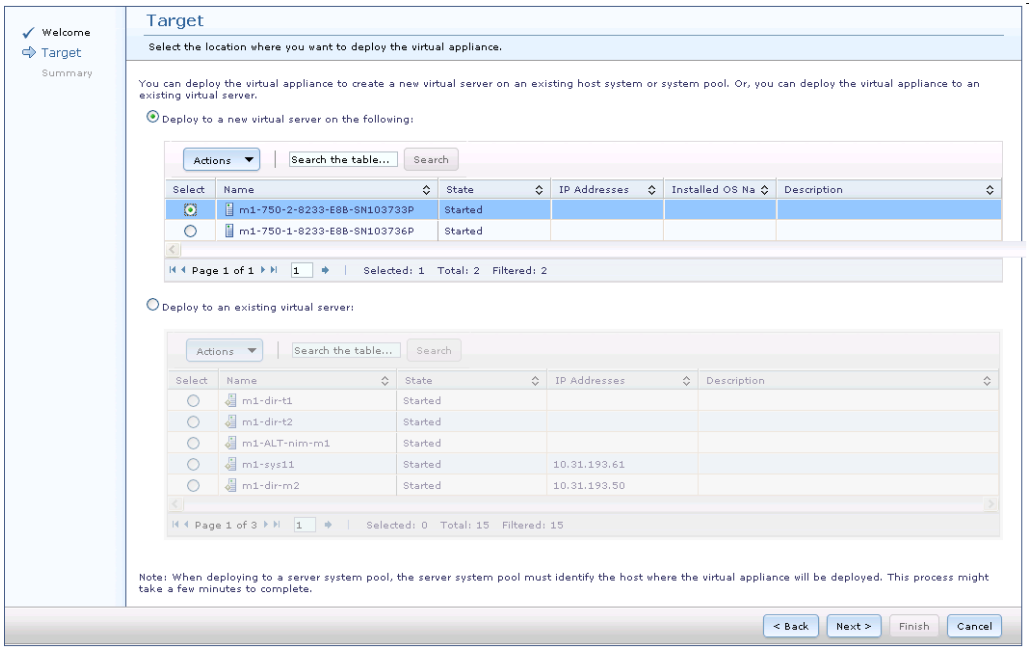


IBM Systems Director VMControl

Deploy > Virtual Appliance

Select WHERE to deploy:

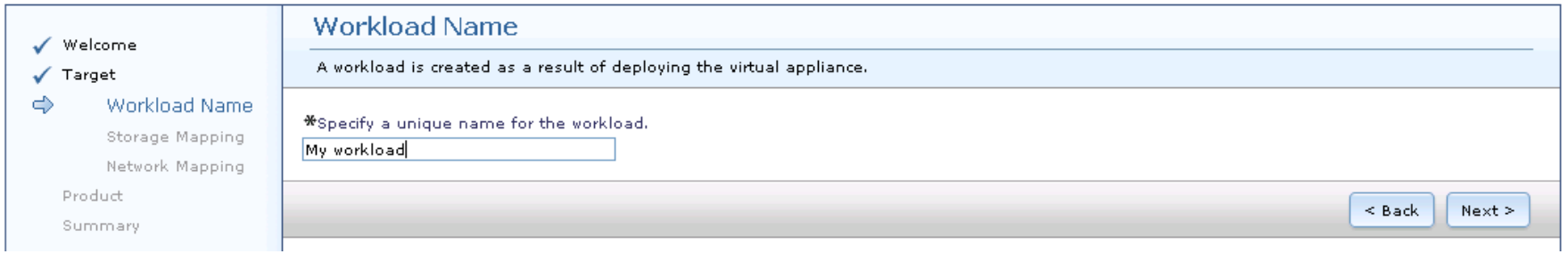
- Target
  - The virtual appliance is deployed to a new virtual server on the selected host or system pool
- Existing virtual server
  - The virtual appliance is deployed to the selected existing server



IBM Systems Director VMControl

Deploy > Virtual Appliance > PowerVM Host

➡ Specify a workload name

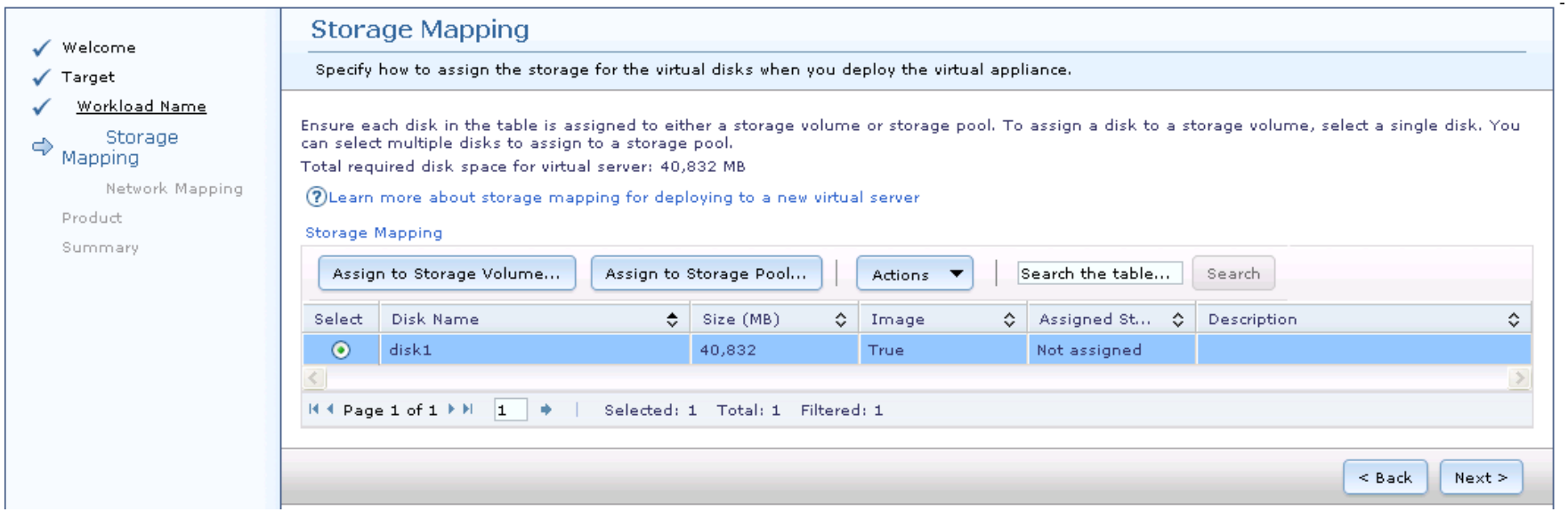


IBM Systems Director VMControl

Deploy > Virtual Appliance > PowerVM Host

Assign storage for the new Virtual Appliance

- – Select an existing storage volume
- – Create a storage volume from an existing storage pool

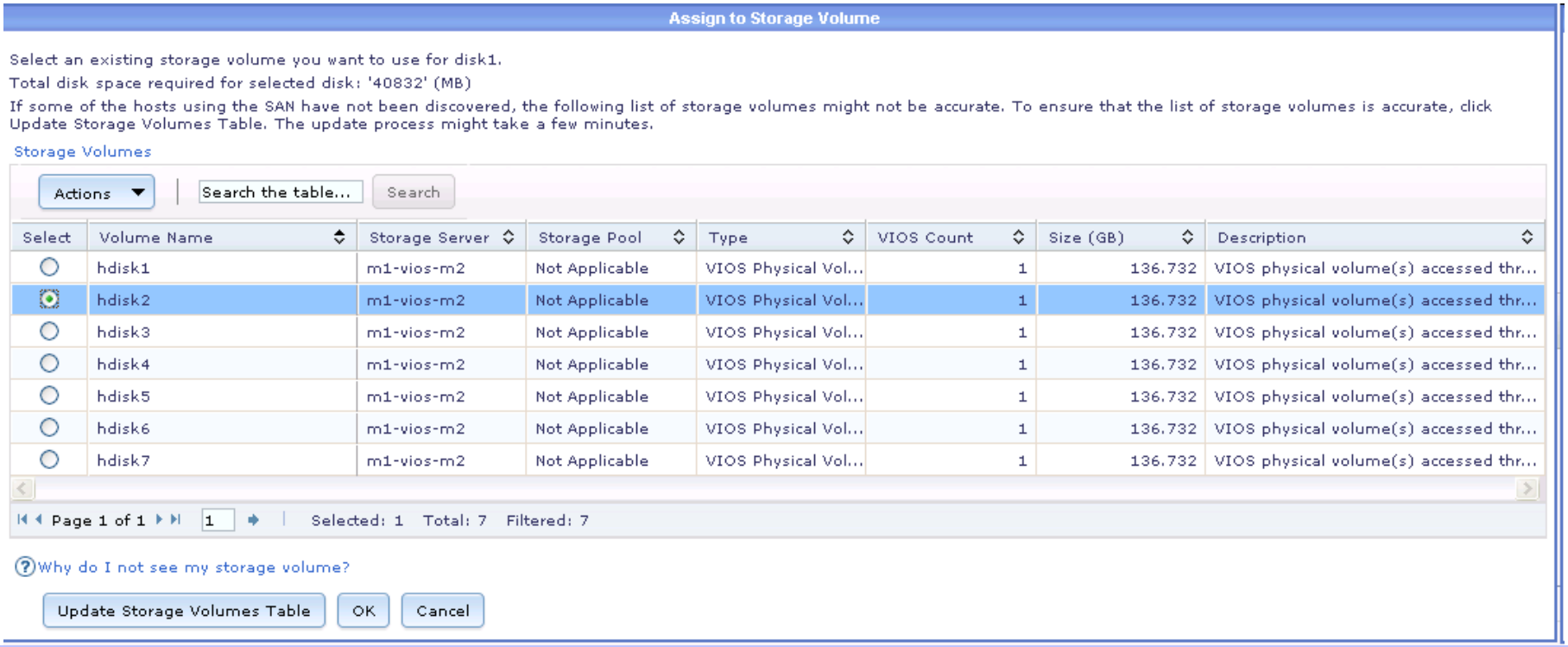


IBM Systems Director VMControl

Deploy > Virtual Appliance > PowerVM Host

Storage Mapping: Assign to existing storage volume

- Only hdisks not already in use are shown
- Only hdisks large enough for the Virtual Appliance are shown

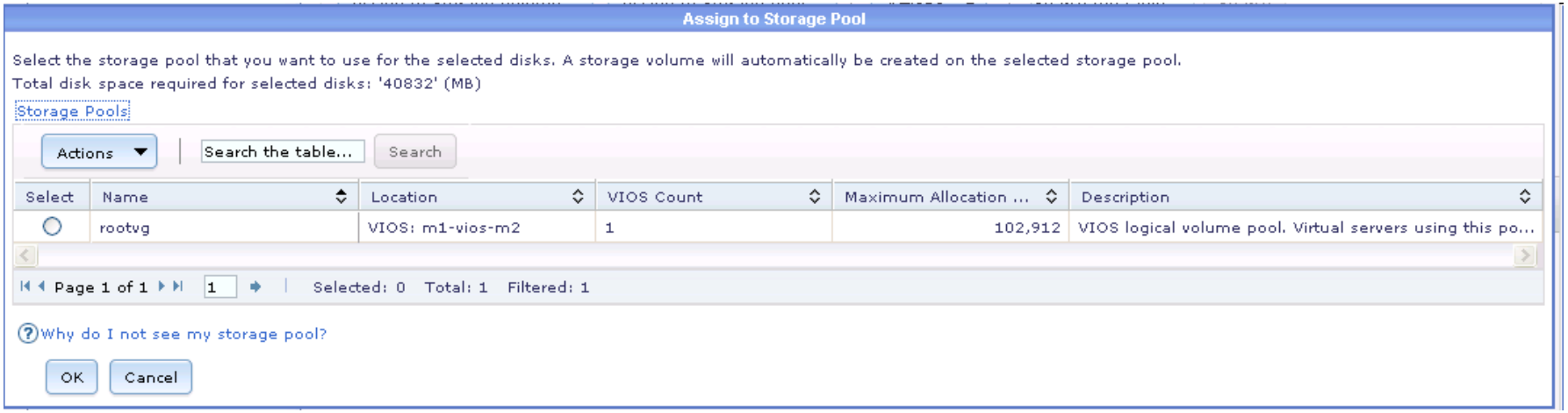


IBM Systems Director VMControl

Deploy > Virtual Appliance > PowerVM Host

Storage Mapping: Create new Storage volume from existing pool

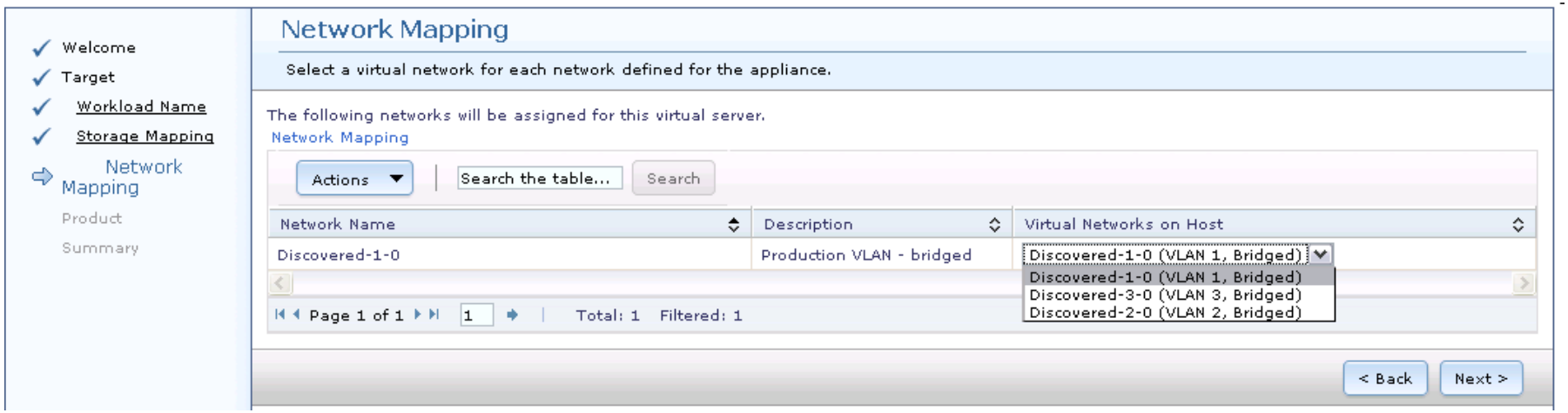
- Only pools large enough for the Virtual Appliance are shown



IBM Systems Director VMControl

Deploy > Virtual Appliance > Existing PowerVM Virtual Server

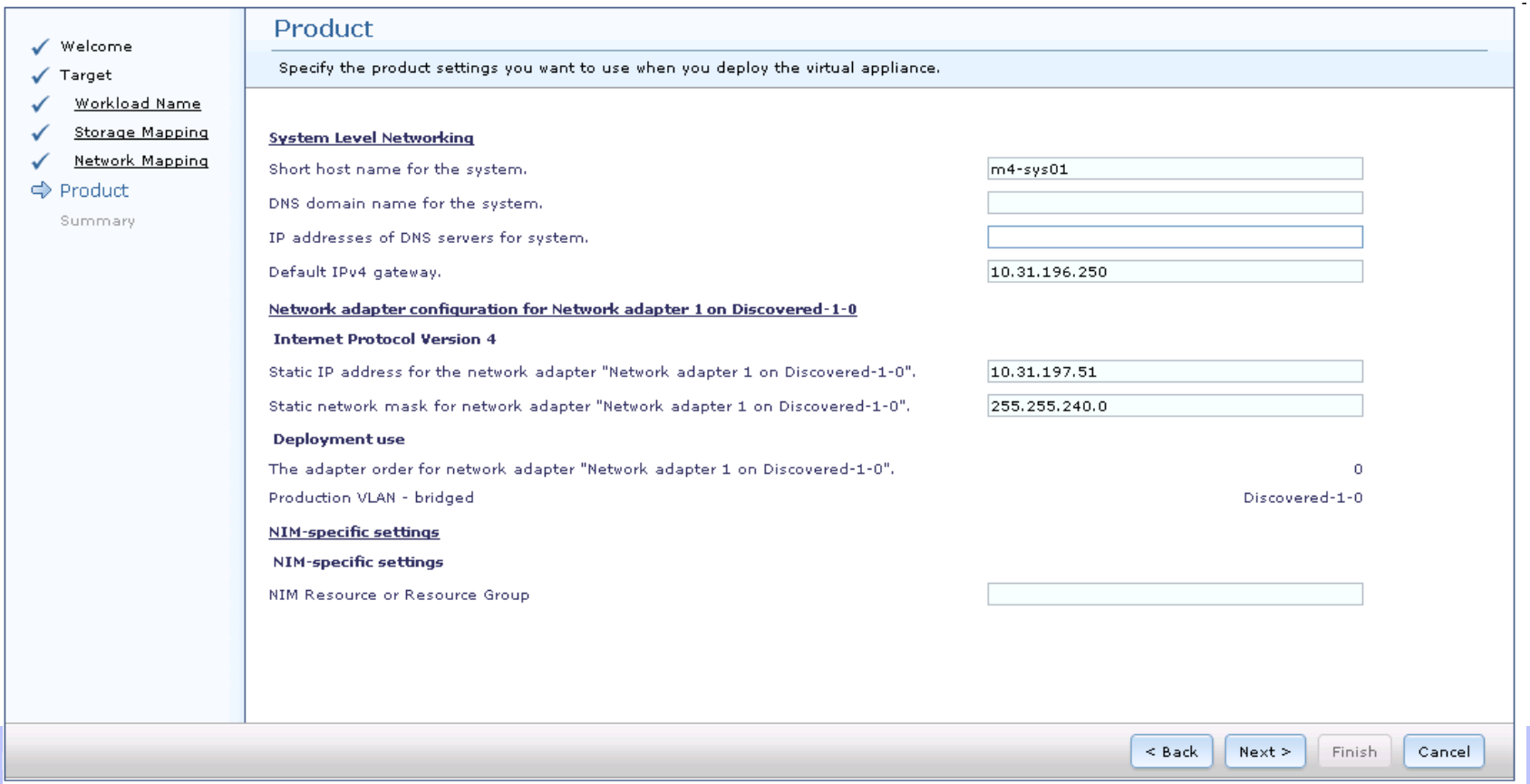
- Select optional network virtual server settings:
  - Network Mapping



IBM Systems Director VMControl

Deploy > Virtual Appliance > Target > Customize Appliance

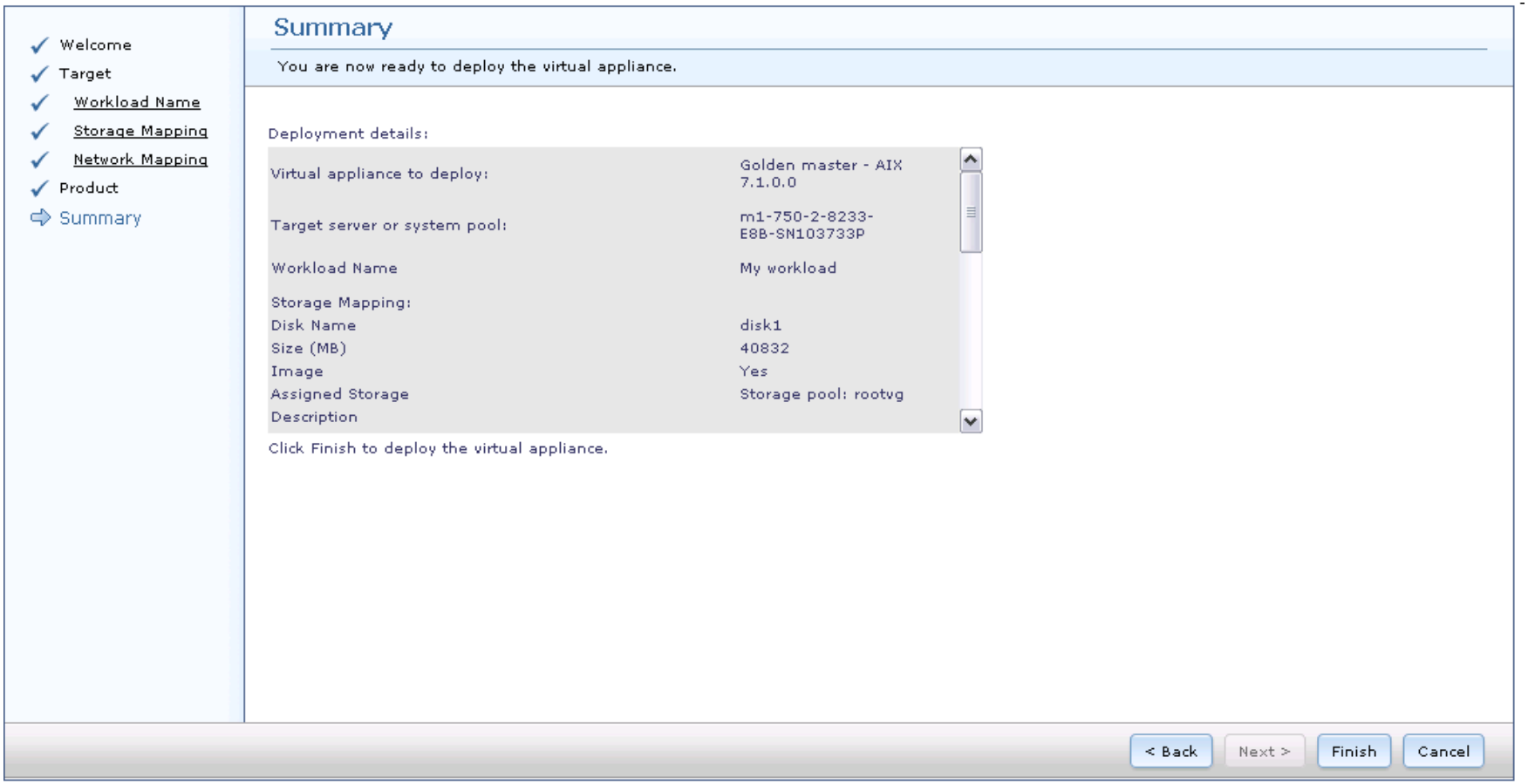
- Customize the virtual appliance
  - What the OS needs to run



IBM Systems Director VMControl

Deploy > Summary

- Run or Schedule the deploy



IBM Systems Director VM Control Deploy

- Active and Scheduled Jobs