



What's New in vSphere 4.0: Technical Overview

Q2 2009

Introducing VMware vSphere™



vCenter Suite

Application Services

Availability	Security	Scalability
<ul style="list-style-type: none">VMotionStorage VMotionHAFault ToleranceData Recovery	<ul style="list-style-type: none">vShield ZonesVMSafe	<ul style="list-style-type: none">DRSHot Add

Infrastructure Services

vCompute	vStorage	vNetwork
<ul style="list-style-type: none">ESXESXiDRS/DPM	<ul style="list-style-type: none">VMFSThin ProvisioningVMFS Volume Grow	<ul style="list-style-type: none">Distributed Switch

VMware vSphere™ 4.0



Internal Cloud



External Cloud

*Note vCenter Server and its components are a separate purchase

Infrastructure Services Deliver CapEx and OpEx Savings

VMware vSphere™ 4.0

Infrastructure Services	vCompute	vStorage	vNetwork
NEW	<ul style="list-style-type: none"> Storage/network optimizations Power Management VMDirectPath I/O 	<ul style="list-style-type: none"> vStorage Thin Provisioning VMFS Volume Grow 	<ul style="list-style-type: none"> vNetwork Distributed Switch Third party distributed virtual switches
CURRENT	<ul style="list-style-type: none"> CPU/Memory optimization DRS 	<ul style="list-style-type: none"> vStorage VMFS 	<ul style="list-style-type: none"> vNetwork Standard Switch

Highest consolidation ratios in the industry
Most efficient use of hardware resources
Low operational overhead

vSphere 4.0 Infrastructure Services: vCompute

VMware vSphere™ 4.0

Infrastructure
Services

vCompute

vStorage

vNetwork

NEW

- ESX Service Console updates
- Enhanced cluster resource usage views
- Expanded DRS information
- Expanded support for Distributed Power Management

CURRENT

- CPU/Memory optimization
- DRS

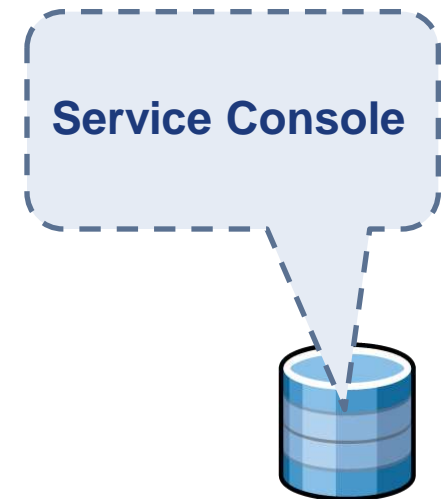
ESX 4 Service Console

64-bit, 2.6-based Linux kernel compatible with RHEL 5.2 and CentOS 5.2

- > Supports both 32-bit and 64-bit applications
- > Console root file system is a VMDK file
- > VMkernel runs and owns device drivers
- > Network interfaces fully support IPv6
- > Provides enhanced security via Address Space Layout Randomization (ASLR)

Some features no longer supported

- > No longer a development environment




New Resource Distribution Charts

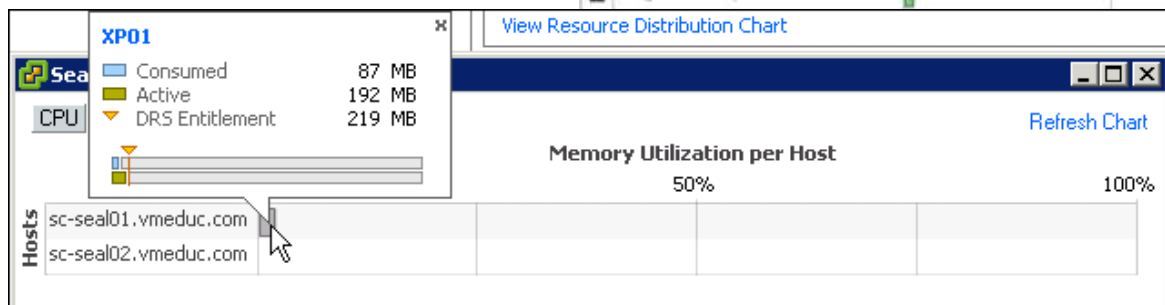
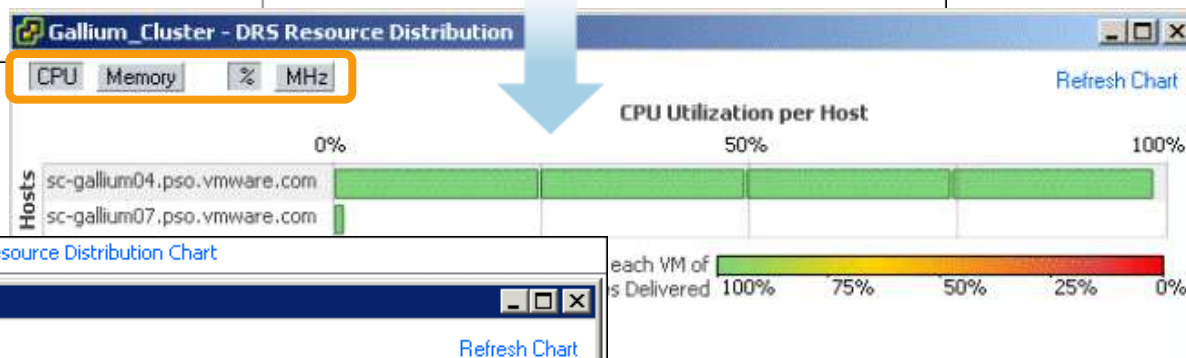
Seal1&2

Getting Started | Summary | Virtual Machines | Hosts | DRS | Resource Allocation | Performance | Tasks & Events | Alarms | Permissions | Ma

General	
VMware DRS:	Enabled
VMware HA:	Disabled
VMware EVC Mode:	Disabled
Total CPU Resources:	24 GHz
Total Memory:	8 GB
Number of Hosts:	2
Total Processors:	8
Virtual Machines and Templates:	7
Total Migrations using VMotion:	1

VMware DRS	
Migration Automation Level:	Fully Automated
Power Management Automation Level:	Off
DRS Recommendations:	0
DRS Faults:	0
Migration Threshold:	Apply priority 3 or higher recommendations
Target host load standard deviation:	<= 0.2
Current host load standard deviation:	0.063 ( Load balanced)

[View Resource Distribution Chart](#)



New DRS Management Pages

Seal1&2

Getting Started Summary Virtual Machines Hosts DRS Resource Allocation Performance Tasks & Events Alarms Permissions

View: Recommendations Faults History Last updated: 2/28/2009 12:21:52 AM Run DRS

Cluster properties

Migration Automation Level: **Partially Automated**

Power Management Automation Level: **Off**

Migration Threshold: **Apply all recommendations**

Power Management Threshold: N/A

DRS Recommendations

Apply	Priority	Recommendation
<input checked="" type="checkbox"/>	4	Migrate VMS-W2K3 from
<input checked="" type="checkbox"/>	5	Migrate VM1-W2K8 from

Override DRS recommendations

Recommendations page

Seal1&2

Getting Started Summary Virtual Machines Hosts DRS Resource Allocation Performance Tasks & Events Alarms

View: Recommendations Faults History Last updated: 2/28/2009 1:09:26 AM Run DRS

Problem or Target contains: Clear

Time	Problem	Target
2/28/2009 1:09:26 AM	Could not fix anti-affinity rule violation.	sc-seal01....

Problem Details

Fault

Faults page

Faults view displays issues that prevented DRS from providing

Seal1&2

Getting Started Summary Virtual Machines Hosts DRS Resource Allocation Performance Tasks & Events Alarms

View: Recommendations Faults History Last updated: 2/28/2009 1:14:44 AM Run DRS

DRS Actions or Time contains: Clear

DRS Actions	Time
Migrate VMS-W2K3 from sc-seal01.vmeduc.com to sc-seal02.vme...	2/28/2009 1:14:37 AM

History tab

Actions taken based on recommendations

Customize the display

Scheduled Task to Change Resource Settings

Change resource settings of Resource Pool or Virtual Machine

Select CPU Settings
Select which CPU Settings that task should set and adjust their values.

[Select Entity](#)
Select CPU Setting
Select Memory Setting
Schedule Task
Notification
Ready to Complete

Shares

Don't change
 Change

High 8000

Reservation

Don't change
 Change

11168 MHz

Expandable Reservation

Limit

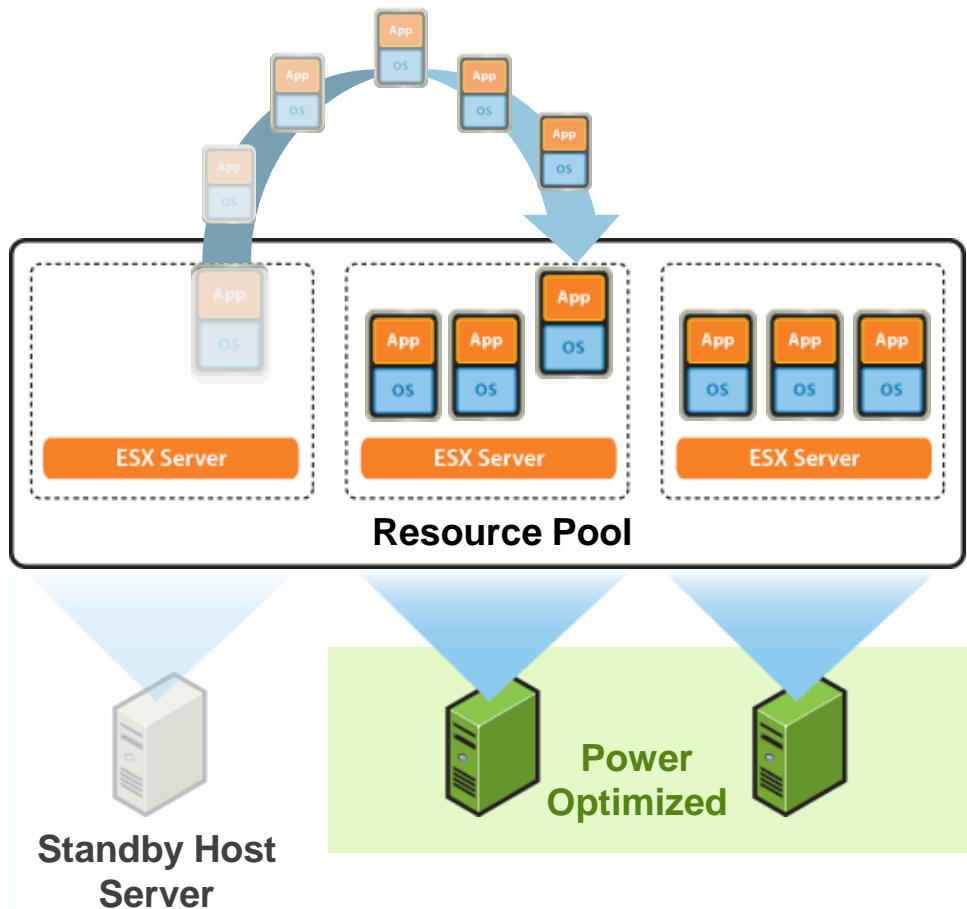
Don't change
 Change

Unlimited

Home > Management >
Scheduled Tasks > Add

To accommodate business priorities that change over time, schedule tasks to change resource settings.

VMware DPM Expanded Support



DPM consolidates workloads to reduce power consumption

- > Cuts power and cooling costs
- > Automates management of energy efficiency

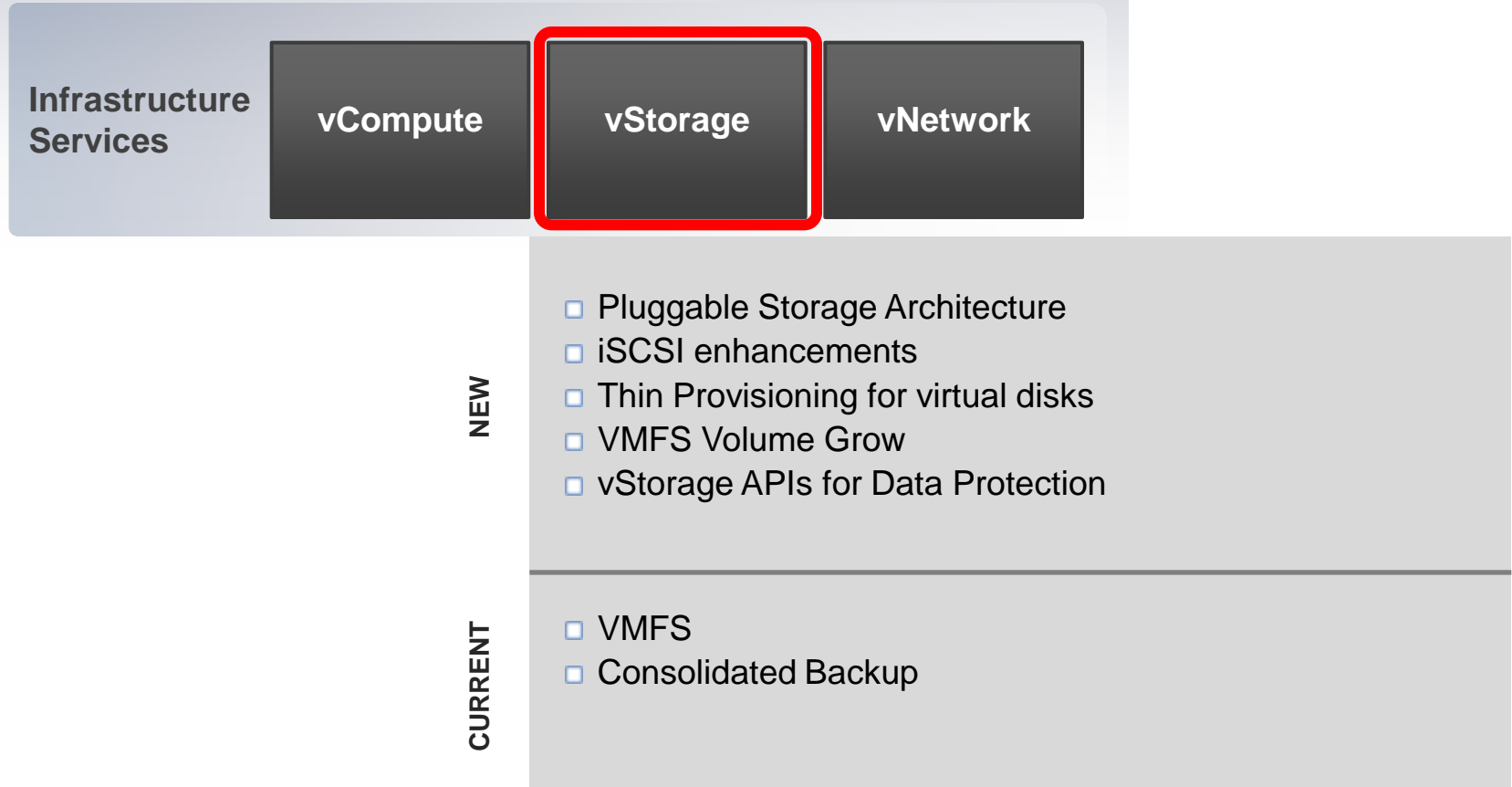
Supports three wake protocols:

- > Intelligent platform management interface (IPMI)
- > Integrated Lights-Out (iLO)
- > Wake-On-LAN (WOL)

Configure and test wake on every host in cluster

vSphere 4.0 Infrastructure Services: vStorage

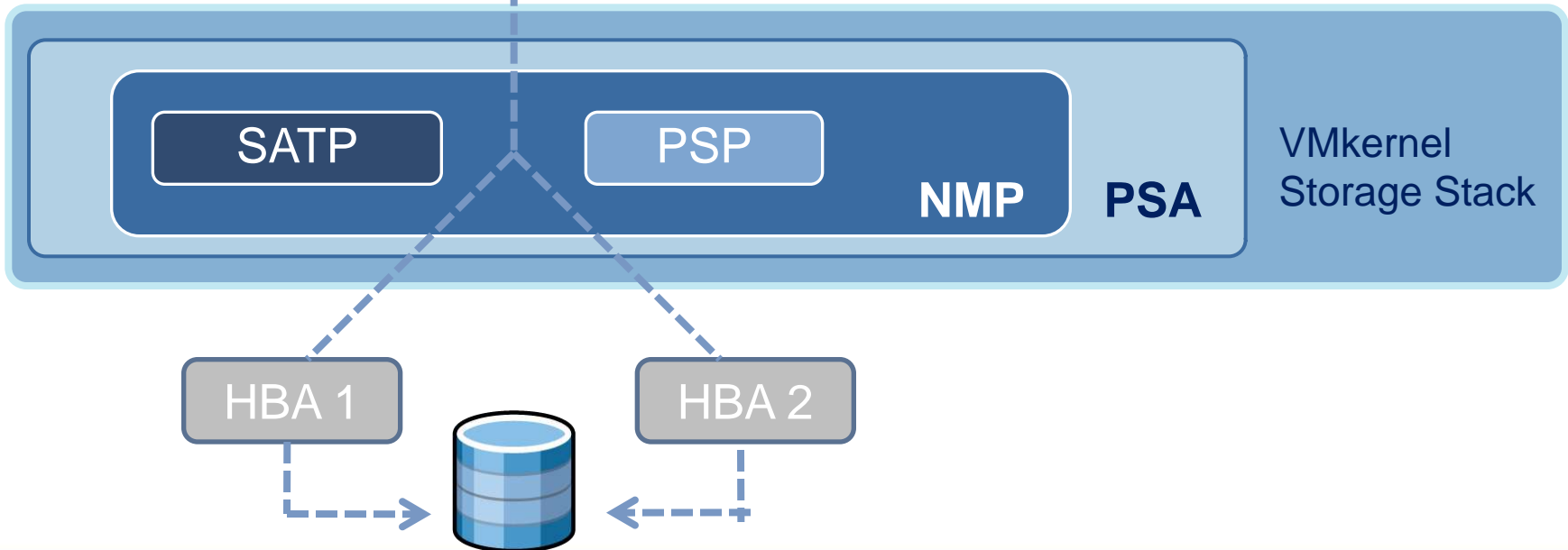
VMware vSphere™ 4.0



Enhanced Multipathing with Pluggable Storage Architecture (PSA)



- **Storage Array Type Plugins (SATPs)** handle path failover, monitors path health, and reports changes to NMP.
- **Path Selection Plugins (PSPs)** choose the best path.



vStorage APIs for Multipathing

Pluggable Storage Architecture (PSA)

Third-Party
MPP

Third-Party
MPP

VMware NMP

VMware SATP

VMware PSP

VMware SATP

VMware PSP

VMware SATP

VMware PSP

Third-Party SATP

Third-Party PSP

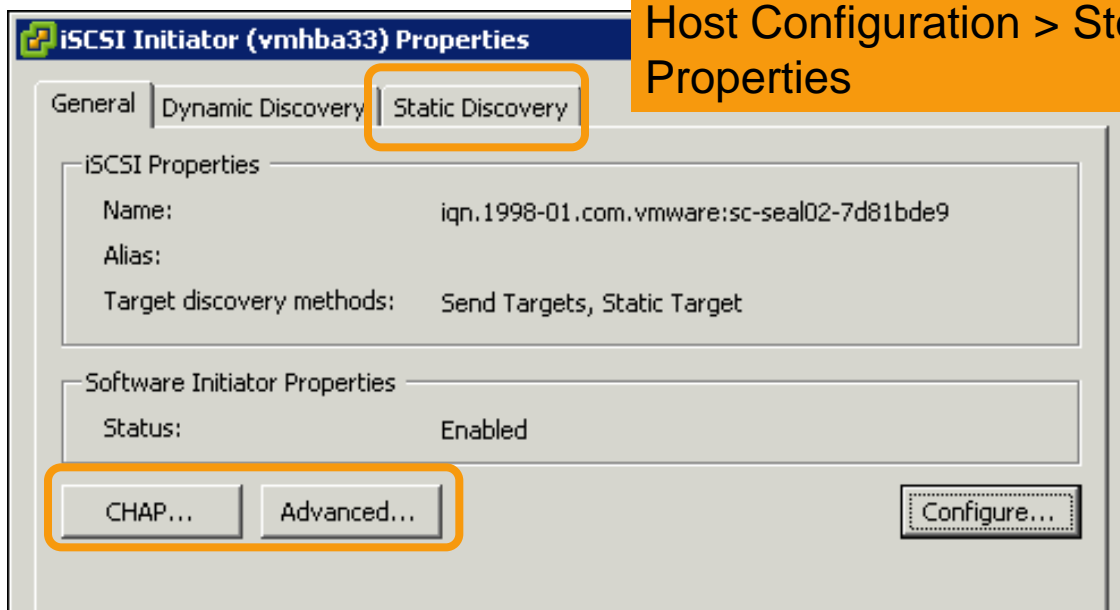
For unique performance
and fault-tolerance
behavior

To accommodate
specific storage
arrays

For more complex
I/O load balancing
algorithms

Updated iSCSI Stack

- > Significant performance improvements
- > No longer requires service console connection to communicate with an iSCSI target
- > New iSCSI initiator features



Host Configuration > Storage Adapters > Properties

New iSCSI Initiator Configuration Options

Improved security

CHAP...

Advanced...

Performance fine-tuning

CHAP Credentials

All iSCSI targets are authenticated using these credentials unless otherwise specified in the target's own CHAP settings.

The CHAP secret and Mutual CHAP secret must be different.

CHAP

Select option: **Prohibited**

Name:

Secret: *****

Mutual CHAP

Select option: **Prohibited**

Use initiator name

Name:

Secret: *****

OK Cancel Help

Advanced Settings

Header Digest: **Prohibited**

iSCSI adapter option : Header Digest

Data Digest: **Prohibited**

iSCSI adapter option : Data Digest

ErrorRecoveryLevel: 0

iSCSI option : Error Recovery Level

Min: 0 Max: 2

LoginRetryMax: 4

iSCSI option : Maximum Retries On Initial Login

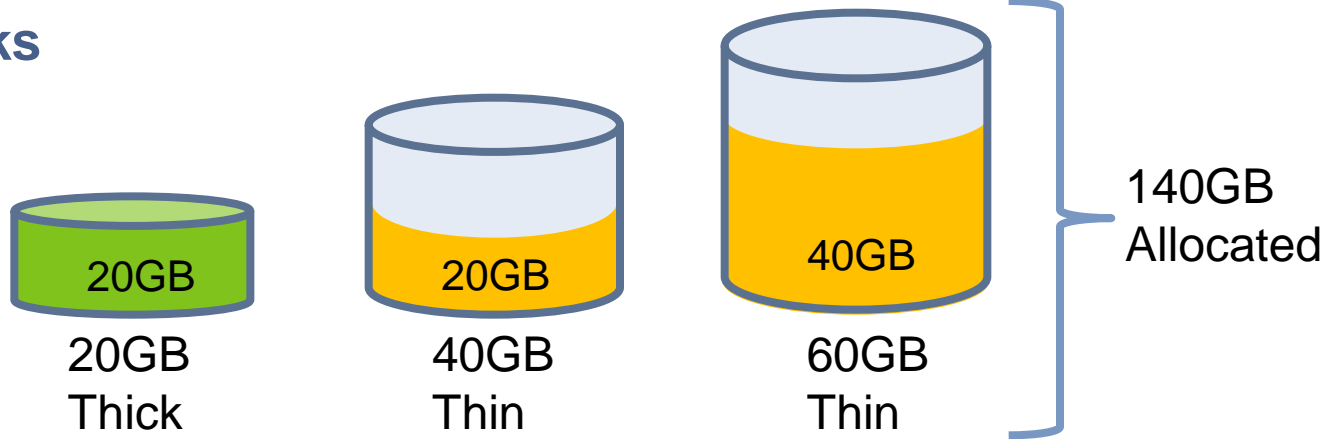
Min: 0 Max: 64

MaxOutstandingR2T: 1

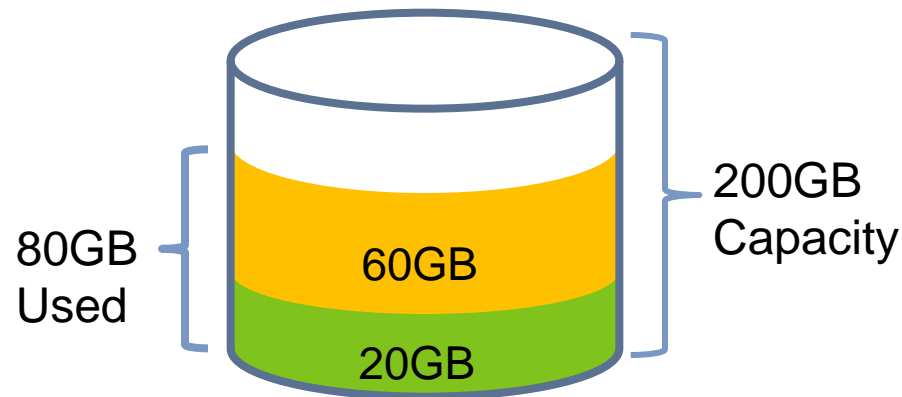
iSCSI option : Maximum Outstanding R2T

vStorage Thin Provisioning

Virtual Disks



Datastore



Thin Disk Provisioning Operations

A thin-disk option is available when you:

- Create a virtual machine
- Clone to a template
- Clone a virtual machine
- Migrate virtual machine storage (Storage VMotion)

Create New Virtual Machine Wizard

Datastore: SharedStorage

Available space (GB): 15.7

Virtual disk size: 8 GB

Allocate and commit space on demand (Thin Provisioning)
The virtual disk file starts small and grows as more virtual disk space is used.

Support clustering features such as Fault Tolerance
Selecting this option will increase the time it takes to create the virtual machine.

Select a format in which to store the virtual machine's virtual disks

Same format as source

Use the same format as the original disks.

Thin provisioned format

Allocate full size now and commit on demand. This is only supported on VMFS-3 and newer datastores. Other types of datastores may create thick disks.

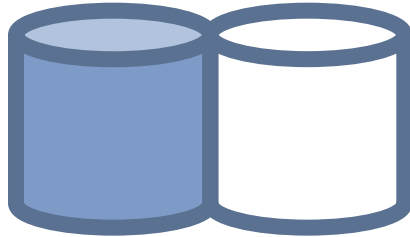
Thick format

Allocate and commit the full size now.

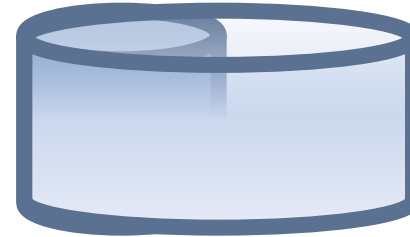
Clone and Migrate Virtual Machine Wizards

VMFS Volume Grow Option

Add Extent



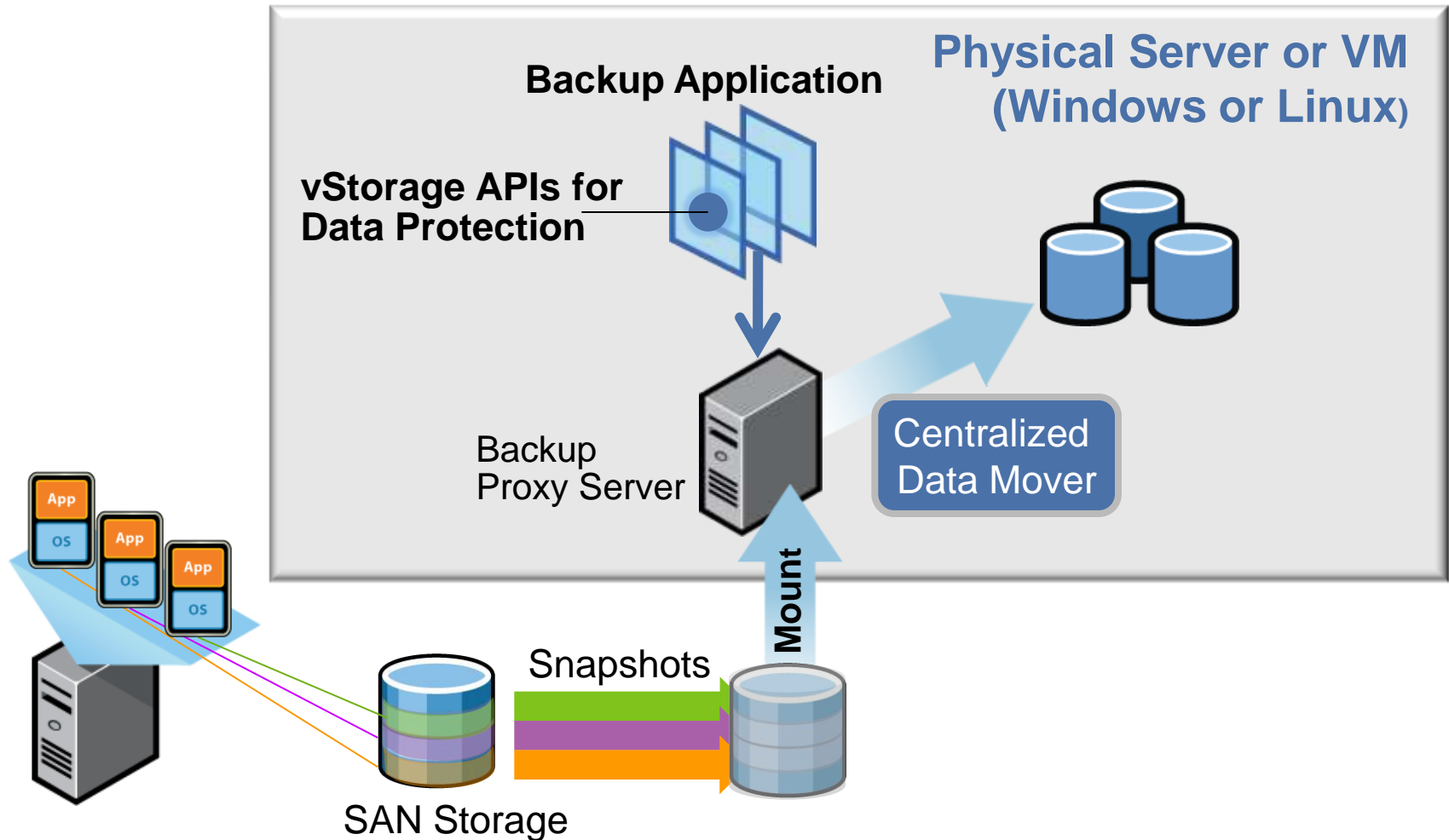
Volume Grow



Volume Grow expands an extent so that it fills the available adjacent capacity.

- > Single partition provides improved virtual machine availability
- > Can grow a volume any number of times up to size for a VMFS volume
- > Must grow LUN backing VMFS datastore first
- > Extent immediately after must have free space in LUN

vStorage APIs for Data Protection



Features in vStorage APIs for Data Protection

Includes All VCB features

Also supports:

- > All storage architectures for backup and restore, LAN and SAN
- > Full, incremental, and differential file-level backup options
- > File-level backup and restore
- > Windows and Linux guests
- > Snapshots and Volume Shadow-Copy Service Quiescing

Additional New vStorage Features Summary

Optimized Storage Capabilities

- > SCSI-3 Compliant
- > Modular Pluggable Storage Architecture (PSA)
- > Updated iSCSI stack
- > Native SATA support
- > MS Server 2008 Failover Clustering support
 - Persistent reservations in VMkernel
 - LSI Logic SAS (virtual SAS controller)
- > New storage virtual devices
 - Paravirtual SCSI adapter
 - IDE virtual device



vSphere 4.0 Infrastructure Services: vNetwork

VMware vSphere™ 4.0

Infrastructure
Services

vCompute

vStorage

vNetwork

NEW

- IPv6 support
- VMDirectPath I/O
- vNetwork Distributed Switch
- Third-party distributed virtual switches

CURRENT

- vNetwork virtual switch

IPv6 Support

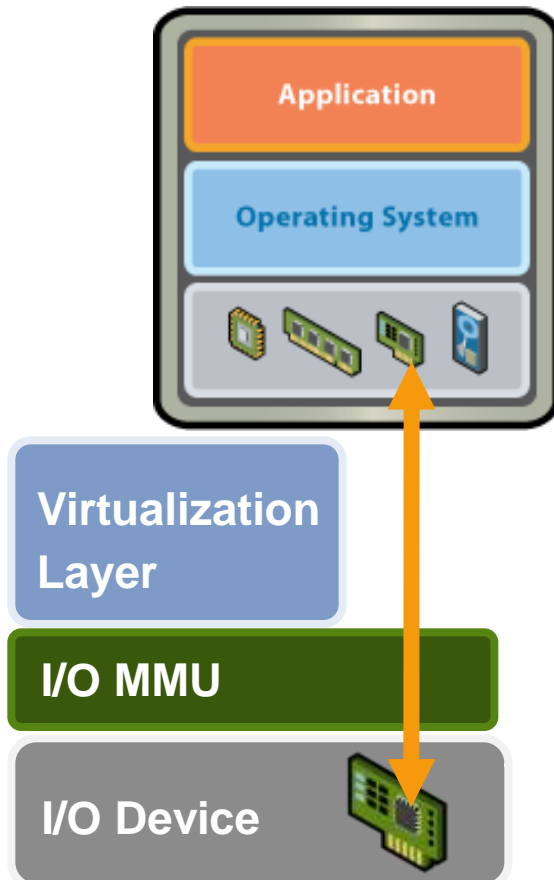
Successor to IPv4

- > 128-bit addresses (vs. 32-bit in IPv4)
- > Link-local addresses that appear as the interface is initialized
- > Addresses set by router advertisements
- > Ability to have multiple IPv6 addresses on an interface

Supported Components

- > Virtual machines (as of ESX 3.5)
- > VMware Tools to display addresses in vCenter Server
- > Service console
- > VMkernel
- > vSphere Client connection to vCenter Server not supported

VMDirectPath I/O



I/O Device Driver Directly Accesses Physical Device

> Full network support with:

- Intel 82598 10 Gigabit Ethernet Controller
- Broadcom 57710 10 gigabit network adapter

> Experimental storage I/O device support with:

- QLogic QLA25xx 8Gb Fibre Channel
- LSI 3442e-R and 3801e (1068 chip based) 3Gb SAS adapters

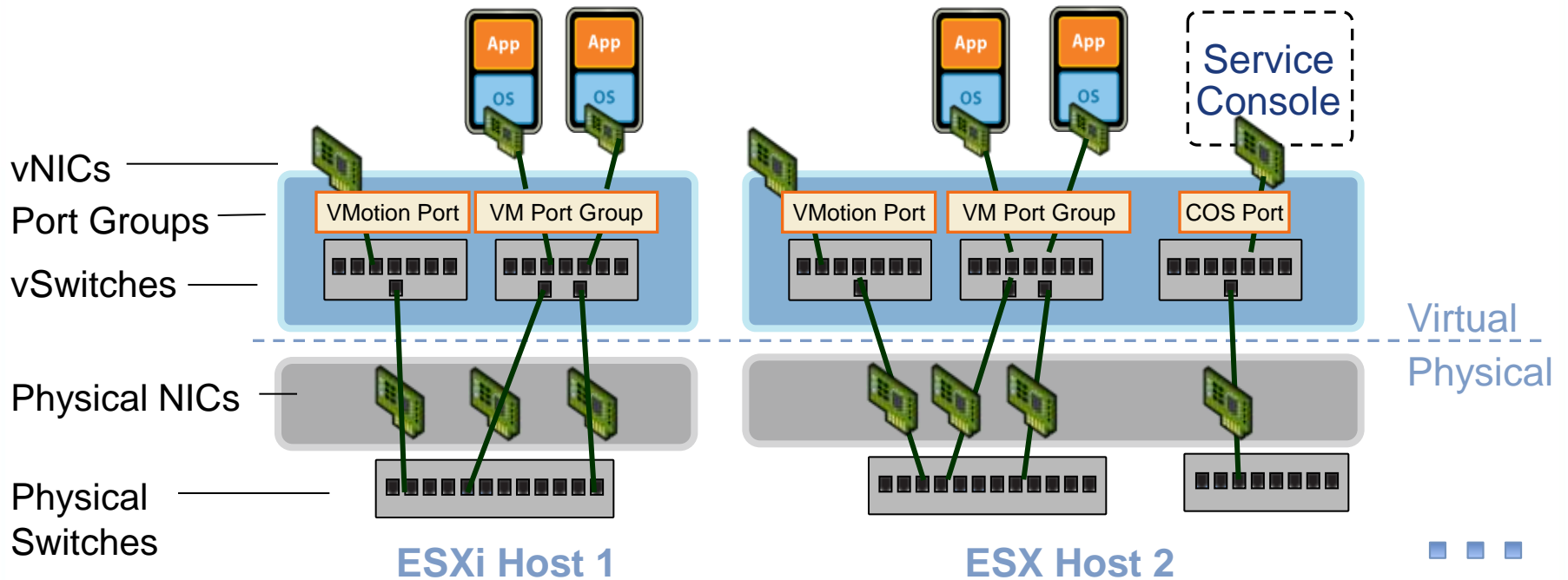
> Each virtual machine can connect to up to two passthrough devices

> Increases performance but trades off losing several virtualization features

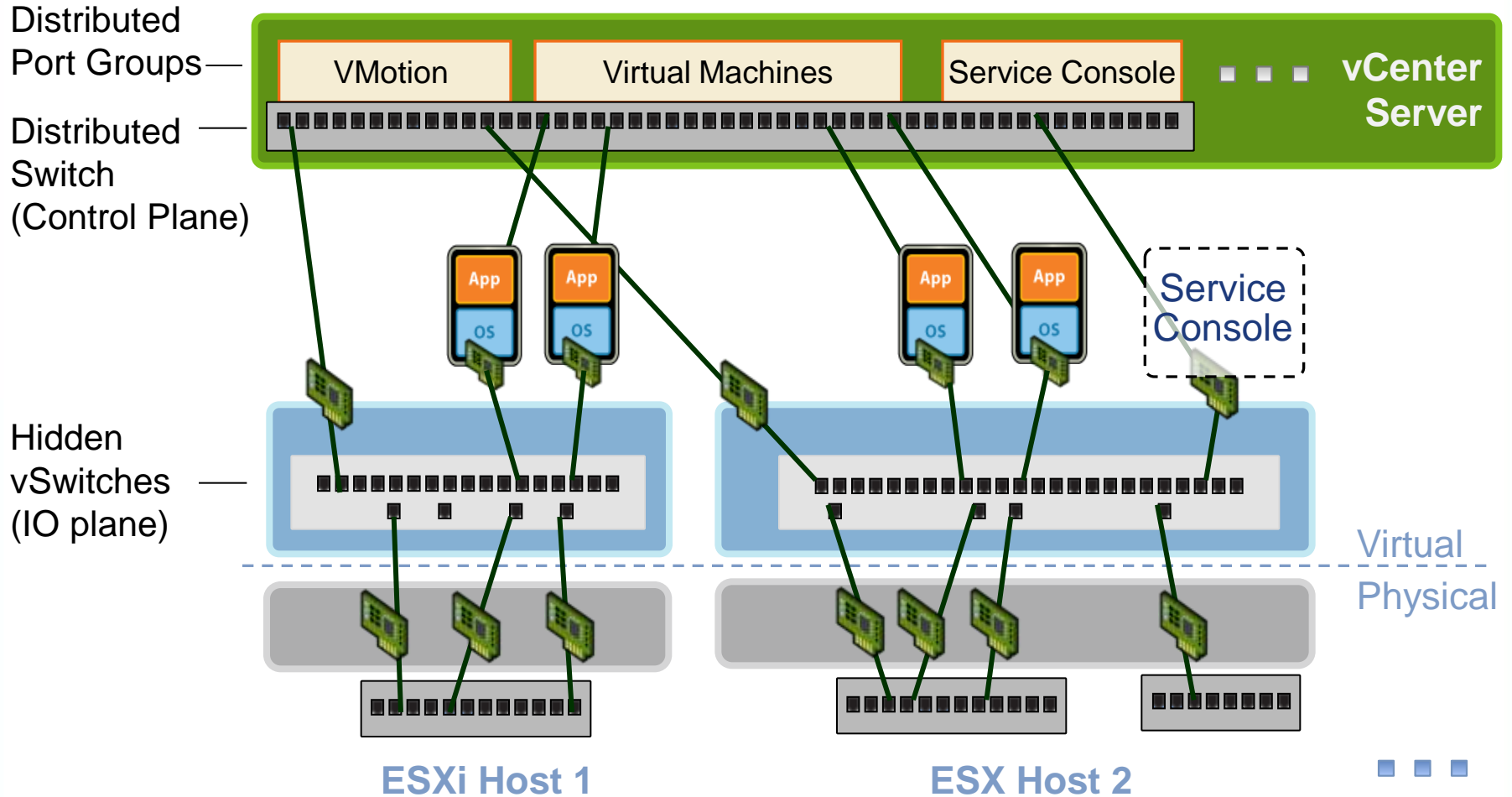
- VMotion, Hot add/remove of virtual devices, Suspend and Resume, Record and Replay, Fault Tolerance, High Availability, Memory Over-commitment and page sharing

Standard Switch Architecture

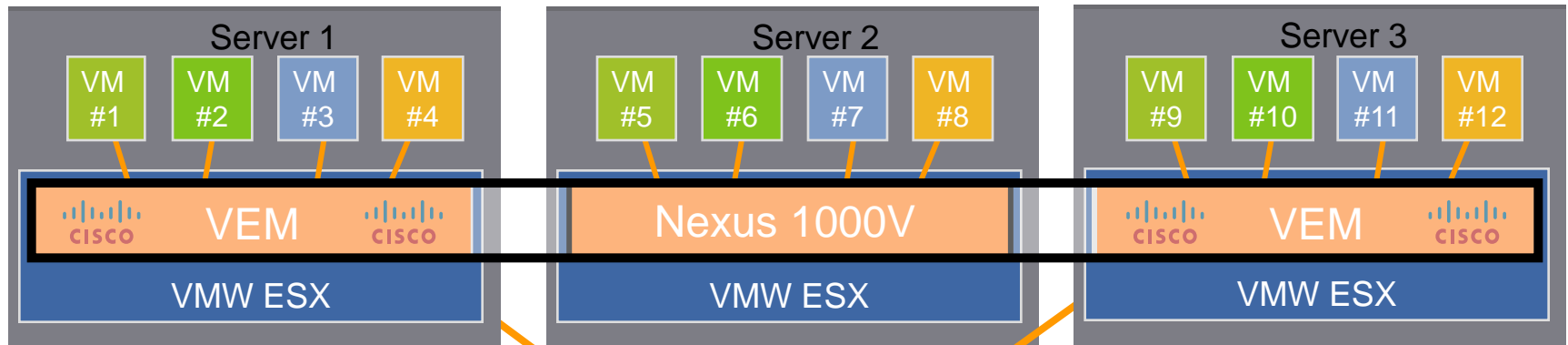
Network configuration at the host level



Distributed Switch Architecture



Cisco Nexus 1000V Architecture

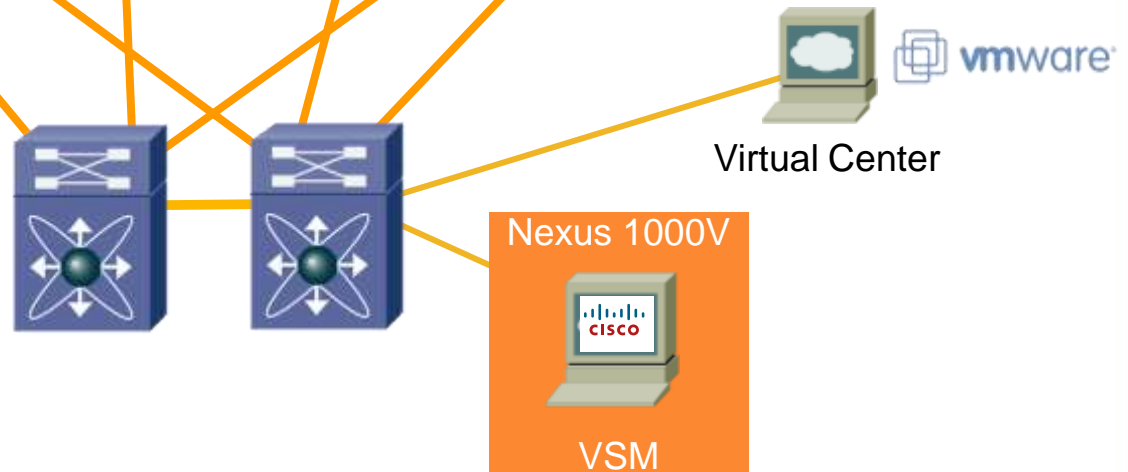


Virtual Supervisor Module (VSM)

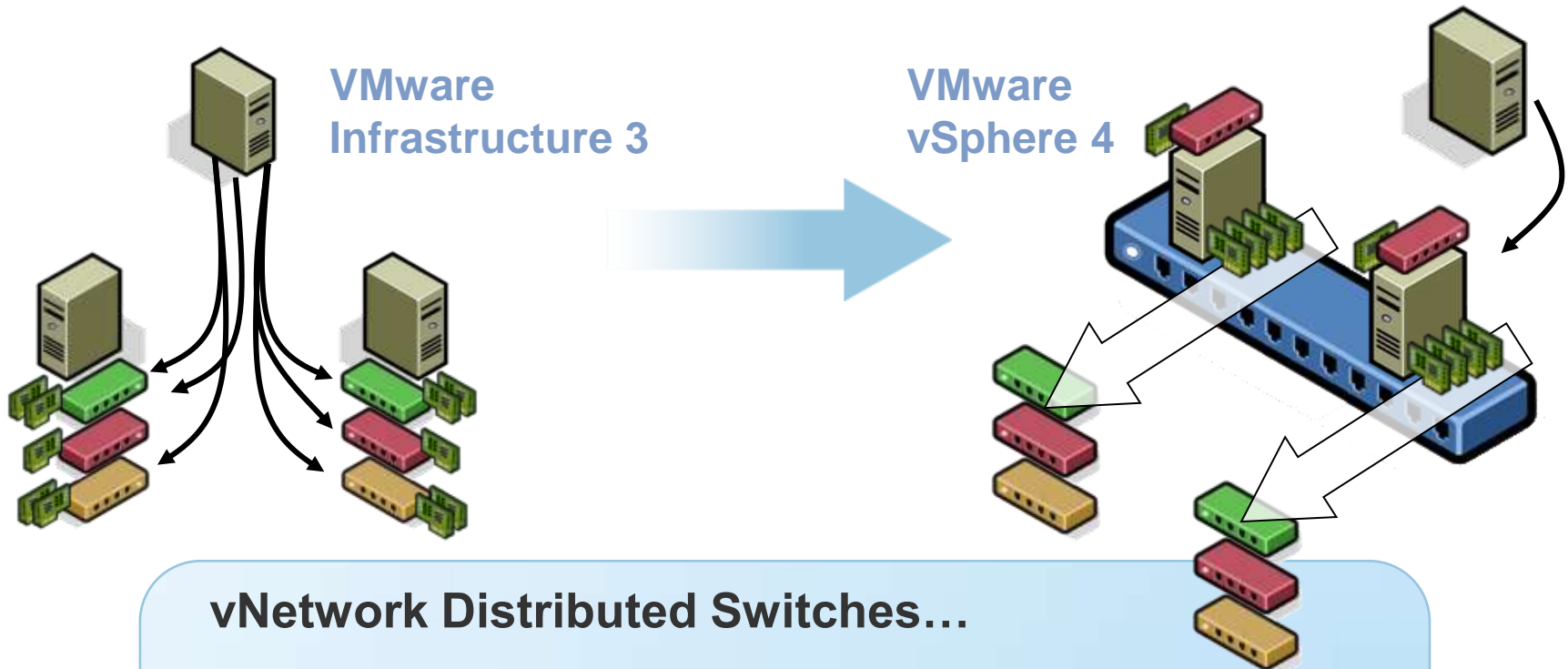
Virtual Ethernet Module (VEM)

Cisco Nexus 1000V Enables:

- Policy Based VM Connectivity
- Mobility of Network & Security Properties
- Non-Disruptive Operational Model



Benefits of Distributed Switches



vNetwork Distributed Switches...

- > Simplify datacenter administration
- > Enable networking statistics and policies to migrate with virtual machines (Network VMotion)
- > Provide for customization and third-party development

vSphere 4.0 Application Services: Availability

VMware vSphere™ 4.0

Application Services

Availability

Security

Scalability

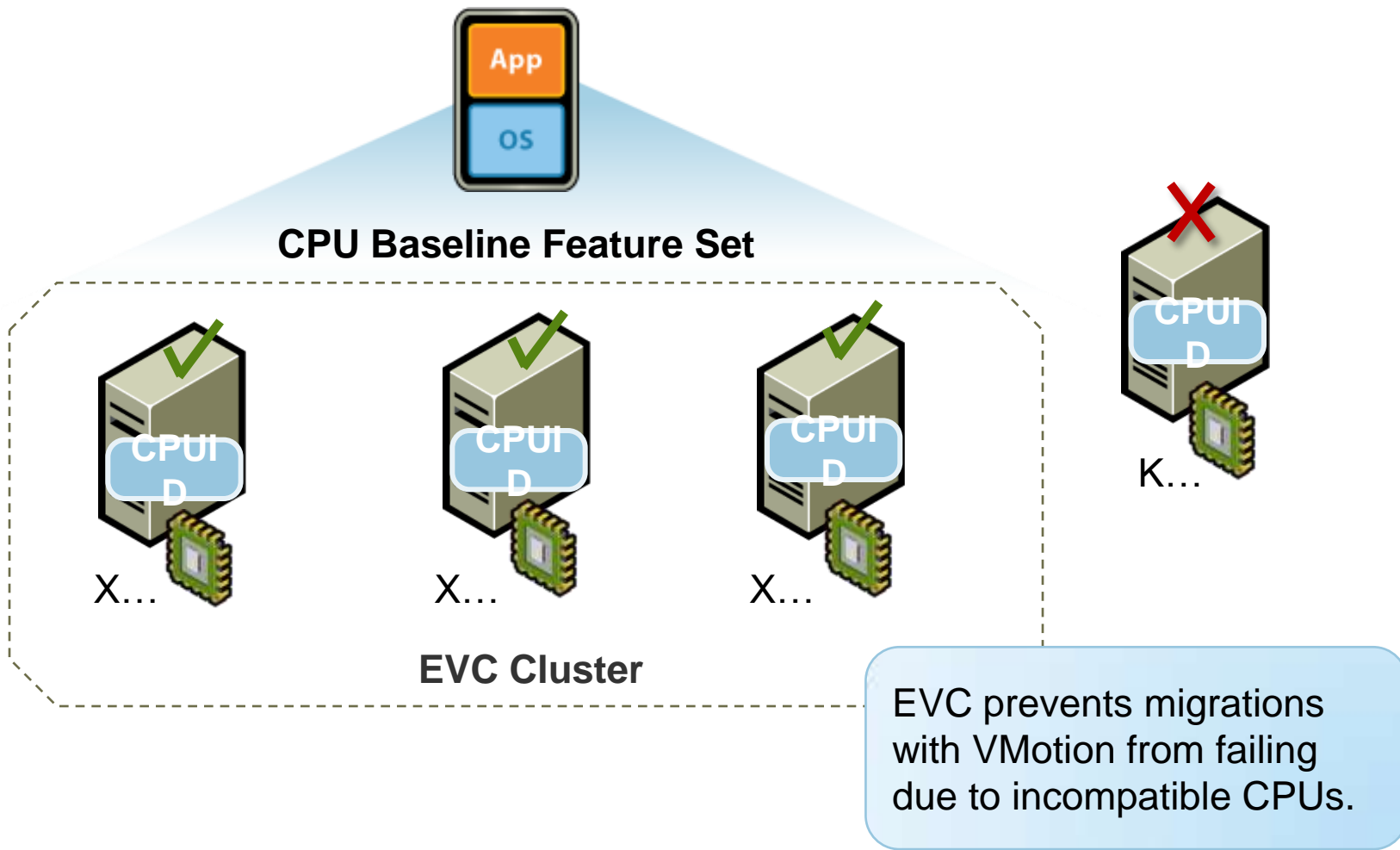
NEW

- Enhanced VMotion compatibility
- Storage VMotion enhancements
- VMware HA enhancements
- VMware Fault Tolerance
- VMware Data Recovery

CURRENT

- VMware HA
- VMotion
- Storage VMotion
- NIC/HBA teaming

Enhanced VMotion Compatibility (EVC)



EVC Cluster Requirements

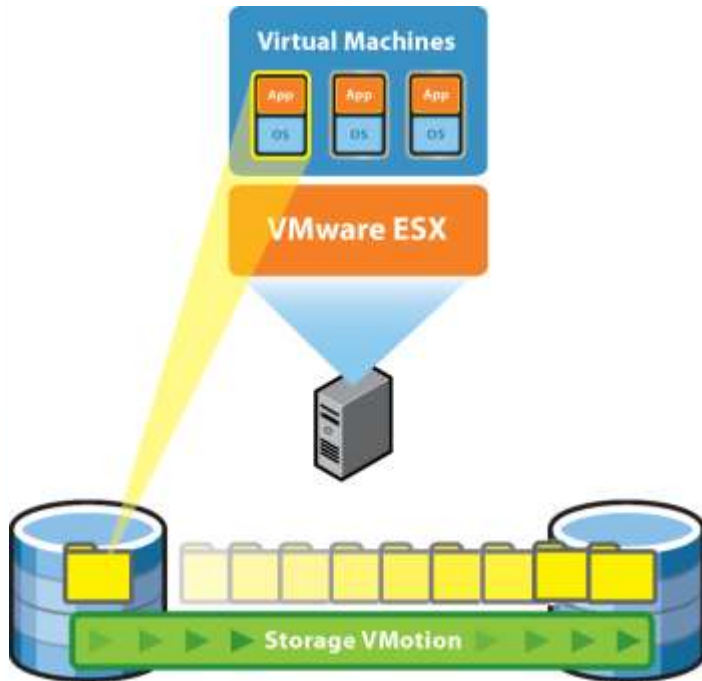
Hosts

- > CPUs from a single vendor, either Intel or AMD
- > Running ESX Server 3.5 Update 2 or later
- > Connected to vCenter Server
- > Hardware virtualization support (AMD-V or Intel VT) enabled
- > AMD No eXecute (NX) or Intel eXecute Disable (XD) technology enabled
- > Support hardware live migration (AMD-V Extended Migration or Intel FlexMigration) or have baseline processor of intended feature set

Virtual Machines

- > Powered off or migrated out of cluster when EVC is enabled
- > Applications on virtual machines must use CPUID instructions

Storage VMotion in vSphere 4



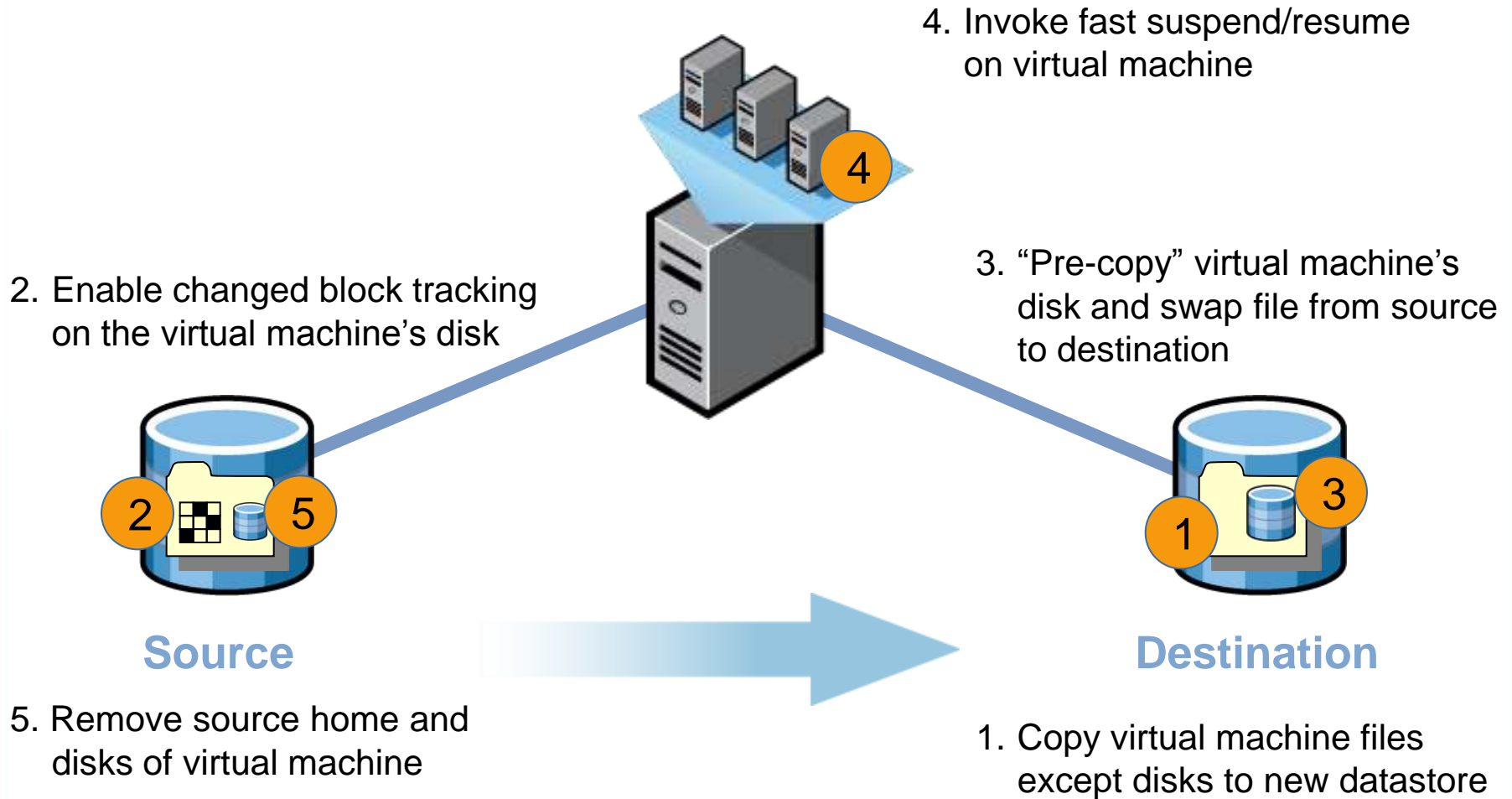
Enhancements

- > Can administer via vSphere Client
- > Supports NFS, Fibre Channel, and iSCSI
- > No longer requires 2 x memory
- > Supports moving VMDKs from thick to thin formats
- > Can migrate RDMs to RDMs and RDMs to VMDKs (non-passthrough)
- > Leverages new vSphere 4 features to speed migration

Limitations

- > Virtual machine cannot include snapshots
- > VM must be powered off to simultaneously migrate both host and datastore

Storage VMotion in vSphere 4



New HA Cluster Settings

The screenshot shows the 'My HA Cluster Settings' window with the following sections:

- Cluster Features:**
 - VMware HA (selected)
 - Virtual Machine Options
 - VM Monitoring
 - VMware EVC
 - Swapfile Location
- Host Monitoring Status:**
 - ESX hosts in this cluster exchange network heartbeats. Disable if performing network maintenance that may cause isolation responses.
 - Enable Host Monitoring
- Admission Control:**
 - Admission control is a policy used by VMware HA to ensure failover capacity within a cluster. Raising the number of potential host failures will increase the availability constraints and capacity reserved.
 - Prevent VMs from being powered on if they violate availability constraints
 - Allow VMs to be powered on even if they violate availability constraints
- Admission Control Policy:**
 - Specify the type of policy that admission control should enforce.
 - Host failures cluster tolerates:
 - Percentage of cluster resources reserved as failover spare capacity: %
 - Specify a failover host:

Advanced Options...

Ability to suspend host monitoring

Choice of three admission control strategies

VM Monitoring

My HA Cluster Settings

Cluster Features

- VMware HA
- Virtual Machine Options
- VM Monitoring**
- VMware EVC
- Swapfile Location

VM Monitoring Status

VM Monitoring restarts individual VMs if their VMware tools heartbeats are not received within a set time.

Enable VM Monitoring

Default Cluster Settings

Monitoring sensitivity: Low High Custom

Failure interval: 30 seconds

Minimum uptime: 120 seconds

Maximum per-VM resets: 3

Maximum resets time window: No window Within: 1 hours

Virtual Machine Settings

Cluster settings can be overridden for specific virtual machines.

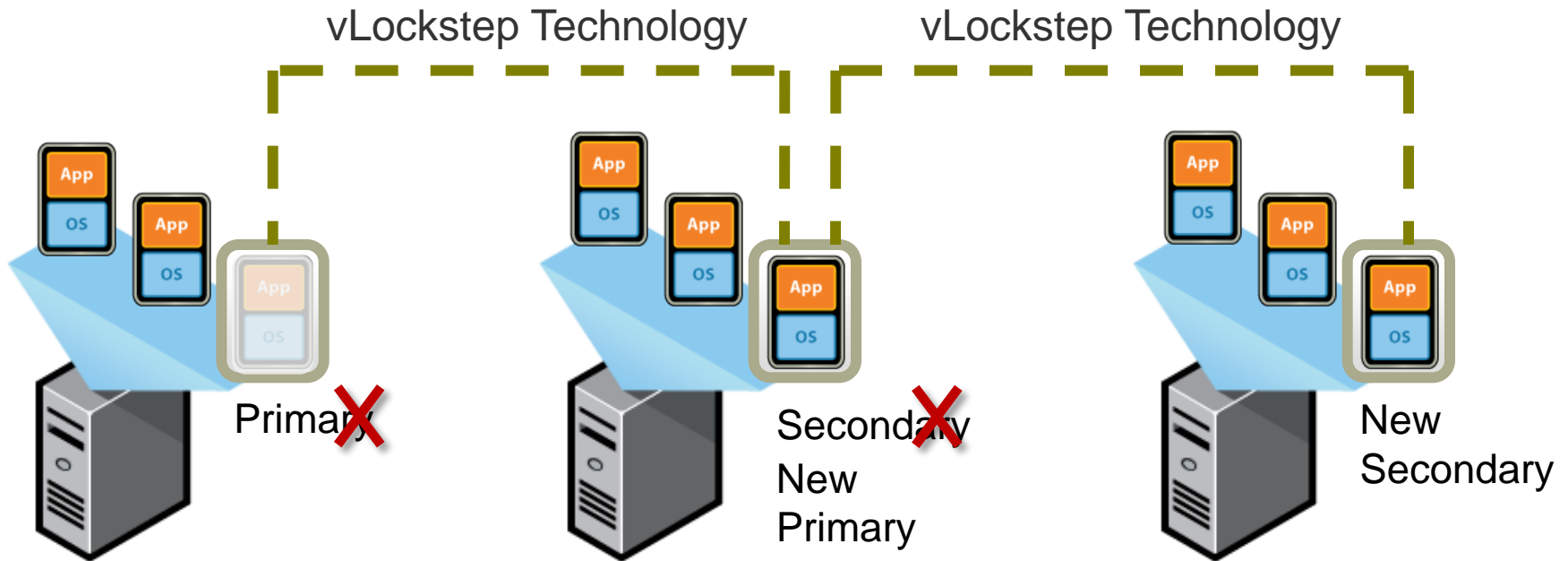
Virtual Machine	VM Monitoring
W2K8-VM1	Custom...
W2K3DE-VM2	Use cluster settings
XPVM01	Use cluster settings
W2K3VM2	High
Thin Disk VM	Medium
	Low
	Disabled
	Custom...

Enable automatic restart due to failure of guest operating system

Determine how quickly failures are detected

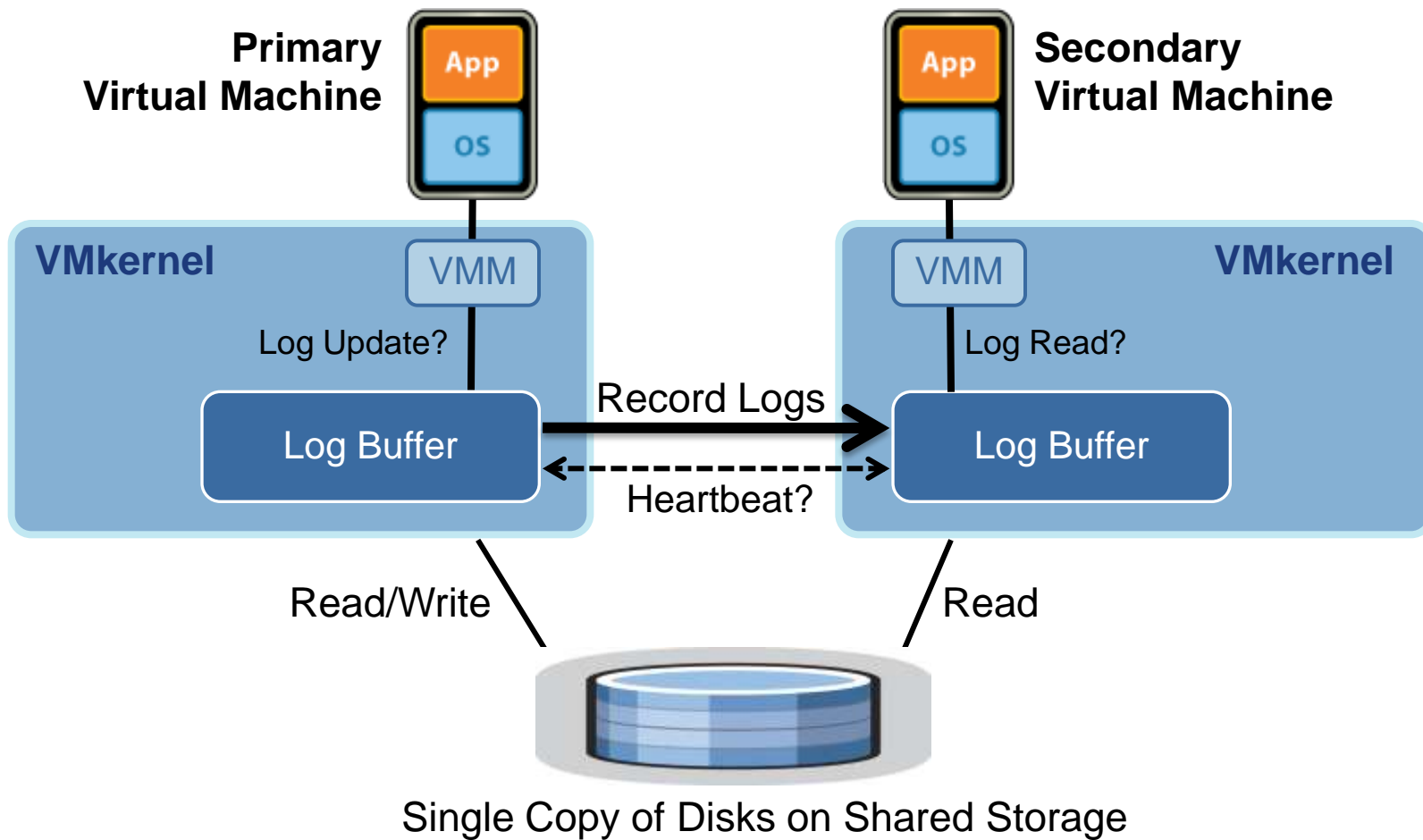
Set monitoring sensitivity for individual virtual machines

VMware Fault Tolerance (FT)



VMware FT provides zero-downtime, zero-data-loss protection to virtual machines in an HA cluster.

How VMware FT Works



Enable Fault Tolerance with a Single Click

Primary Virtual Machine >
Summary Tab

Fault Tolerance

Fault Tolerance Status: **Protected**

Secondary Location: vcuiqa-ft09.eng.vmware.com

Total Secondary CPU: 59 MHz

Total Secondary Memory: 40.00 MB

Secondary VM Lag Time: 0.011 seconds

Log Bandwidth: 16 kbps

After you turn on Fault Tolerance, the Status tab on the primary virtual machine shows Fault Tolerance information.

VMware Data Recovery

ssschulze-esx.eng.vmware.com - VMware Infrastructure Client

File Edit View Inventory Administration Plugins Help

Inventory Administration VM Recovery

Restore Restore Rehearsal

ssschulze-esx.eng.vmware.com

Dev VMs

- BrowserAppliance
- CVS Server
- Nostalgia 1
- vicfg-rcli

Production VMs

- Database Server
- File Server
- Mail Server
- Web Server

Test VMs

- Bugzilla Server
- FileMaker Server
- Nostalgia 2
- Nostalgia 3
- Tools Server

VM Recovery - BackupAppliance 07/18/08 04:51 PM Pacific Daylight Time (GMT-07:00)

Getting Started Reports Backup Restore Configure Backup Appliance Logs

close tab X

What is VM Recovery?

VM Recovery backs up virtual machines during a predefined backup window, usually during off-peak hours. Any previously backed up virtual machine can then be restored in case it becomes unavailable due to data loss or corruption.

Each time a virtual machine is backed up, an additional restore point is created. Restore points can go back weeks, months, or even years. A virtual machine can be restored to any point in time for which a restore point is available.

Basic Tasks

- Create a backup job
- Restore a virtual machine
- See an overview of the current backup status

Recent Tasks

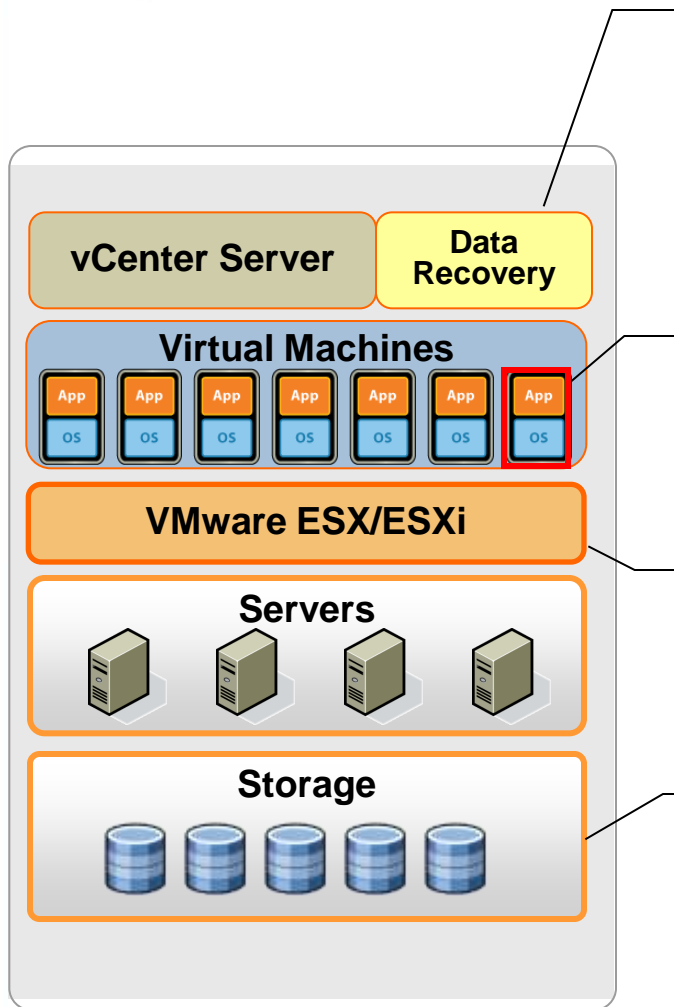
Name	Target	Status	Initiated by	Time	St
------	--------	--------	--------------	------	----

Tasks root

VMware's Backup/Recovery Solution based on APIs for Data Protection

- > Agentless disk-based backup and recovery
- > De-duplication and incremental backups to save disk space

VMware Data Recovery Key Components



vCenter Plug-in

- > With vSphere Client plug-in, allows configuration and management of backup/recovery appliance
- > Wizard driven backup and restore job creation
- > Storage of backup configuration in vCenter Server database and awareness of HA/VMotion/DRS

Backup and Recovery Appliance

- > OVF appliance
- > Leverages vStorage APIs for Data Protection to discover, manage backup and restore

VMware ESX/ESXi

- > Provides VSS support
- > Change block tracking functionality allows backups to be more efficient

Storage

- > Any VMFS storage: DAS, iSCSI or Fibre Channel storage plus NFS and CIFS shares as target
- > All backed up virtual machines are stored on disk in a deduplicated datastore

vSphere 4.0 Application Services: Security

VMware vSphere™ 4.0

Application Services

Availability

Security

Scalability

NEW

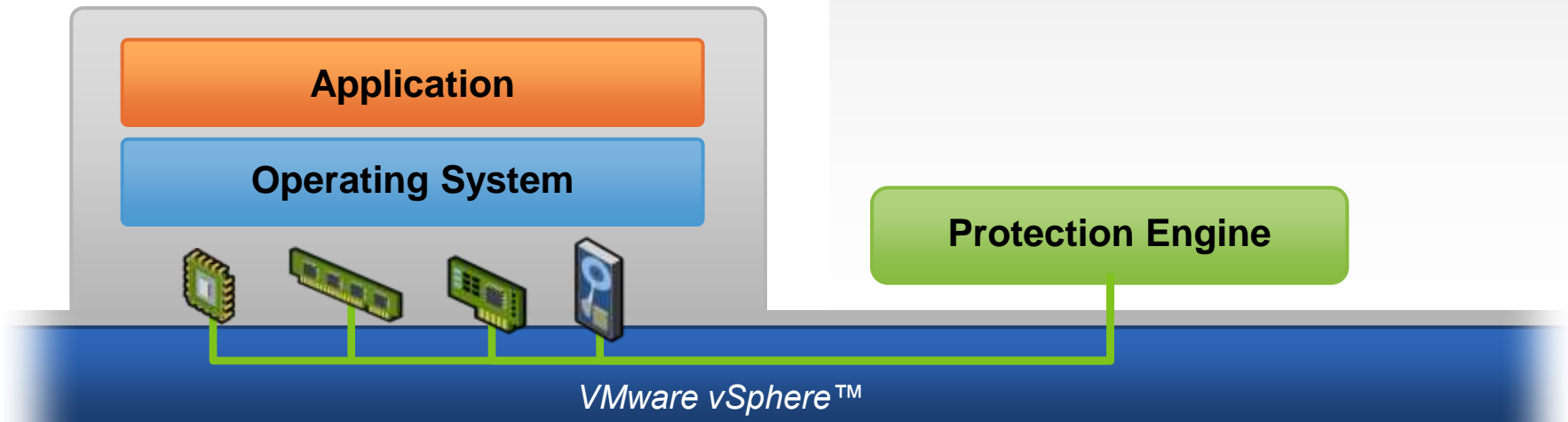
- VMware VMsafe
- VMware vShield Zones

CURRENT

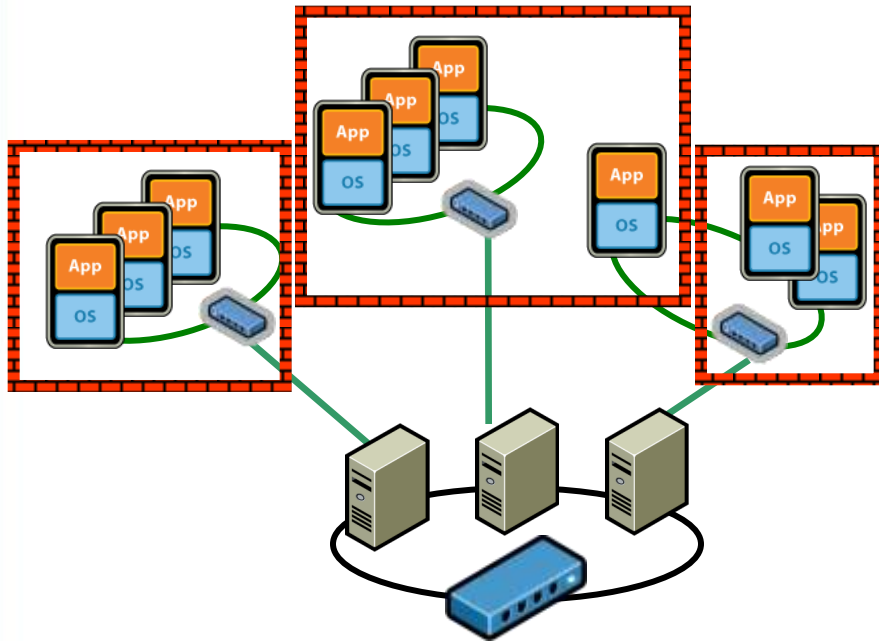
- Thin ESXi hypervisor with locked-down interfaces
- No dependence on general-purpose OS

VMware VMsafe

- > API that enables protection of VMs by inspection of virtual components in conjunction with hypervisor
- > Isolation of protection engine from malware
- > Broad ranging coverage of virtual machine CPU, memory, storage and network



vShield Zones



Capabilities

- > Bridge, firewall, or isolate VM zones based on familiar VI containers
- > Monitor allowed and disallowed activity by application-based protocols
- > One-click flow-to-firewall blocks precise network traffic

Benefits

- > Well-defined security posture within virtual environment
- > Monitoring and assured policies, even through Vmotion and VM lifecycle events
- > Simple zone-based rules reduces policy errors

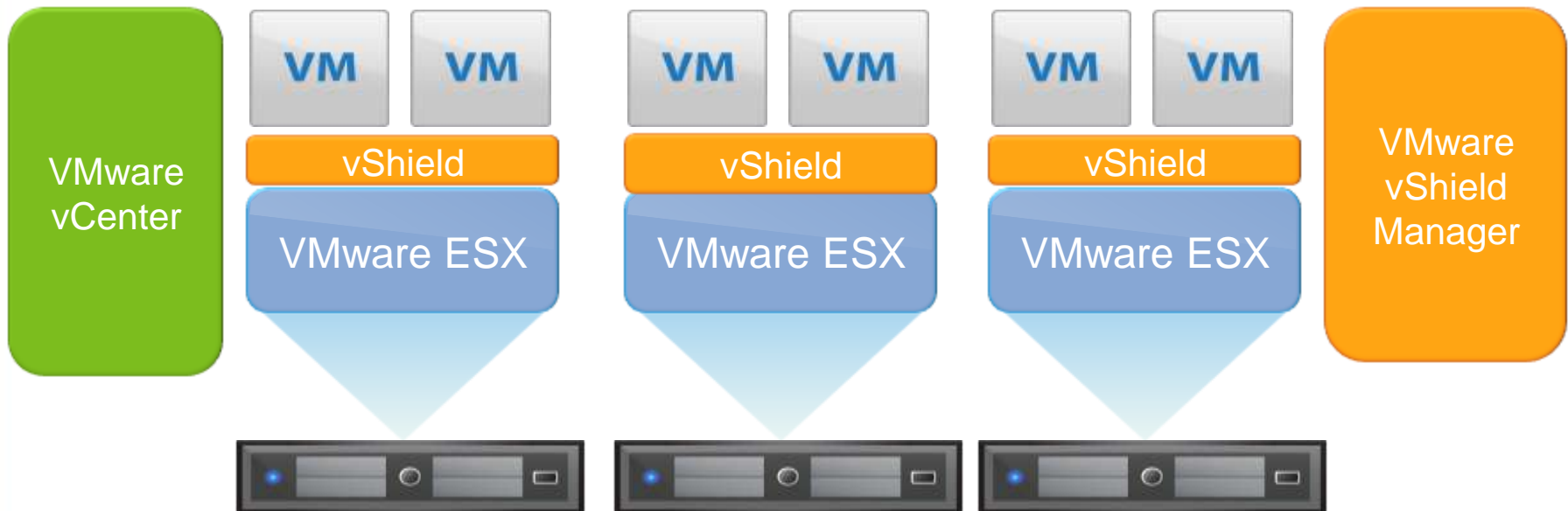
VMware vShield Zones Architecture

vShield Host Gateway

- > Virtual Network Monitoring
- > Virtual Network Firewall
- > Transparently Managed

vShield Manager

- > Centralized Monitoring
- > Centralized Policy Assignment
- > Web-based interface



vSphere 4.0 Application Services: Scalability

VMware vSphere™ 4.0

Application Services

Availability

Security

Scalability

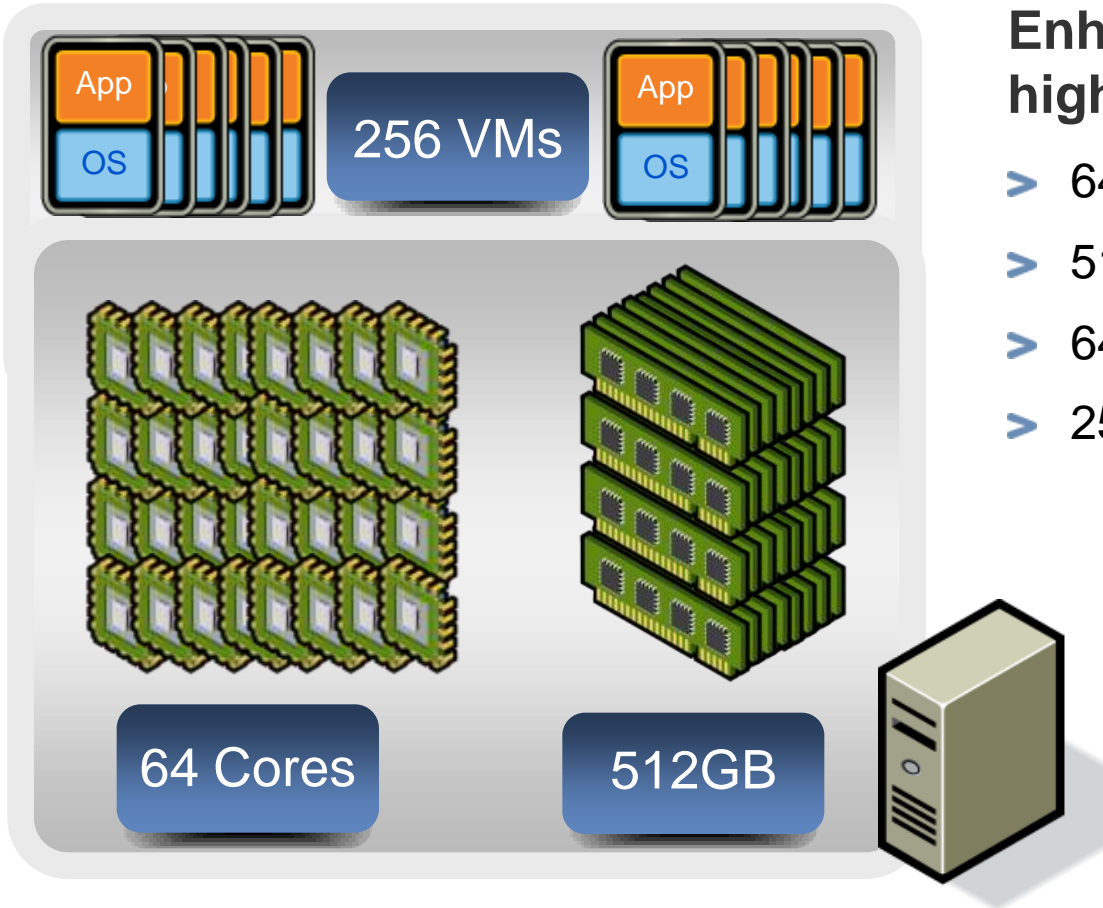
NEW

- ▣ Increased host scalability
- ▣ 8-way SMP and 255 GB of virtual machine RAM
- ▣ Hot add of virtual CPU and memory
- ▣ Hot plug devices
- ▣ Hot extend of virtual disks

CURRENT

- ▣ DRS shares and reservations allow apps to shrink and grow based on priority

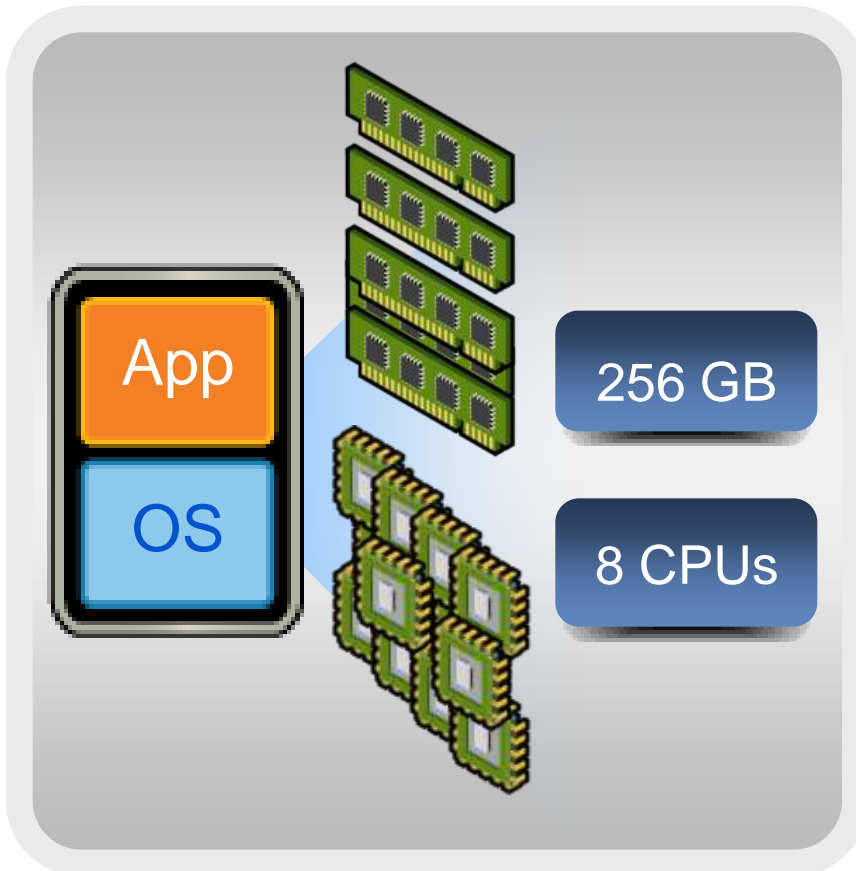
Host Scalability



Enhanced performance and higher consolidation rates

- > 64-bit VMkernel
- > 512GB host memory
- > 64 logical CPUs
- > 256 virtual machines per host

Virtual Machine Scalability



Dynamic scale-up supports much larger workloads

- > 8-Way Virtual SMP
- > 256GB RAM
- > Virtual Machine Hardware Version 7
 - New virtual devices
 - VMDirectPath I/O
 - Hot plug support

Hot Add for Memory and CPU

Virtual Machine > Edit Settings >
Options Tab > Memory/CPU Hotplug

VM3-W2K8 - Virtual Machine Properties

Hardware | Options | Resources | Virtual Machine Version: 7

Settings	Summary
General Options	VM3-W2K8
vApp Options	Disabled
VMware Tools	Shut Down
Power Management	Standby
Advanced	
General	Normal
CPUID Mask	Expose Nx flag to ...
Memory/CPU Hotplug	Enabled/Add Only
Boot Options	Delay 0 ms
Paravirtualization	Disabled
Fibre Channel NPIV	None
CPU/MMU Virtualization	Automatic
Swapfile Location	Use default settings

Memory Hot Add

This virtual machine is eligible for changing the memory configuration while it is powered on. Not all guest operating systems support memory hot add.

Disable memory hot add for this virtual machine.

Enable memory hot add for this virtual machine.

CPU Hot Plug

This virtual machine is eligible for changing the number of virtual CPUs while it is powered on.

This feature is experimental in this release. Very few guest operating systems support hot add of CPUs. Even fewer support hot remove of CPUs.

Disable CPU hot plug for this virtual machine.

Enable CPU hot add only for this virtual machine.

Enable CPU hot add and remove for this virtual machine.

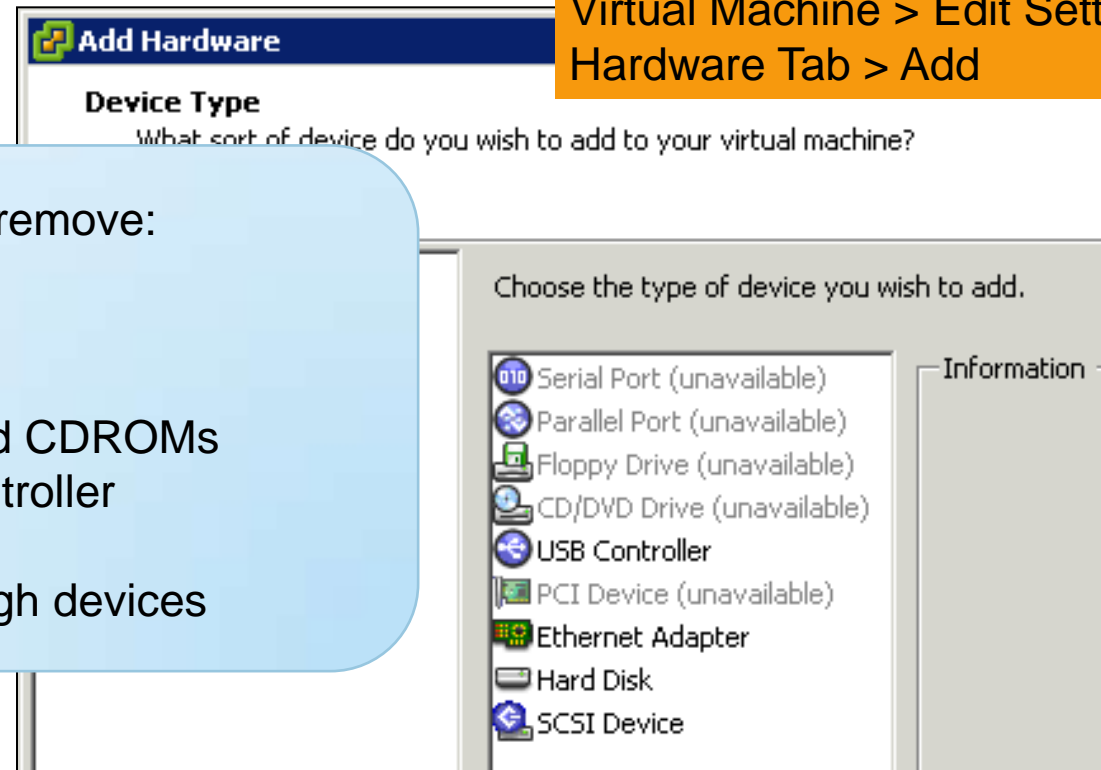
You must enable Memory and CPU Hot Add so that the options are available on the Hardware tab.

Hot Adding and Removing PCI Devices

Virtual Machine > Edit Settings >
Hardware Tab > Add

You can hot-add/remove:

- Network cards
- SCSI adapters
- Sound cards
- SCSI disks and CDRoms
- USB EHCI controller
- VMCI
- PCI passthrough devices



Hot Extending VMDKs

Virtual Machine > Edit Settings >
Hardware Tab

VM02-1 - Virtual Machine Properties

Hardware | Options | Resources

Show All Devices Add... Remove

Hardware	Summary
Memory	256 MB
CPUs	1
Video card	Video card
VMCI device	Restricted
Floppy drive 1	Client Device
CD/DVD Drive 1	Client Device
Network adapter 1	Production
SCSI controller 0	LSI Logic Parallel
Hard disk 1	Virtual Disk

Virtual Machine Version: 7

Disk File: [SharedStorage] VM02-1/VM02-1.vmdk

Disk Provisioning

Type: Thick

Provisioned Size: 2 GB

Maximum Size (GB): 27.05

Virtual Device Node: SCSI (0:0) Hard disk 1

vCenter Server 4 Highlights

vCenter Server

Increased Scalability

- vCenter Server Linked Mode
- vCenter Orchestrator

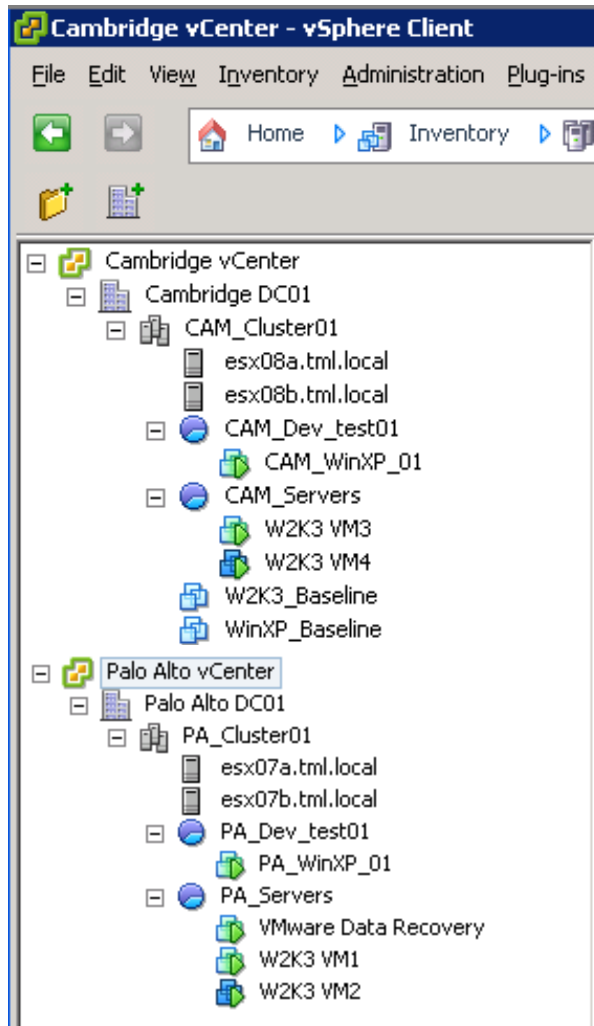
Streamlined Management

- Host Profiles
- vApps
- Centralized licensing
- vCenter Server plug-in updates

Resource Management

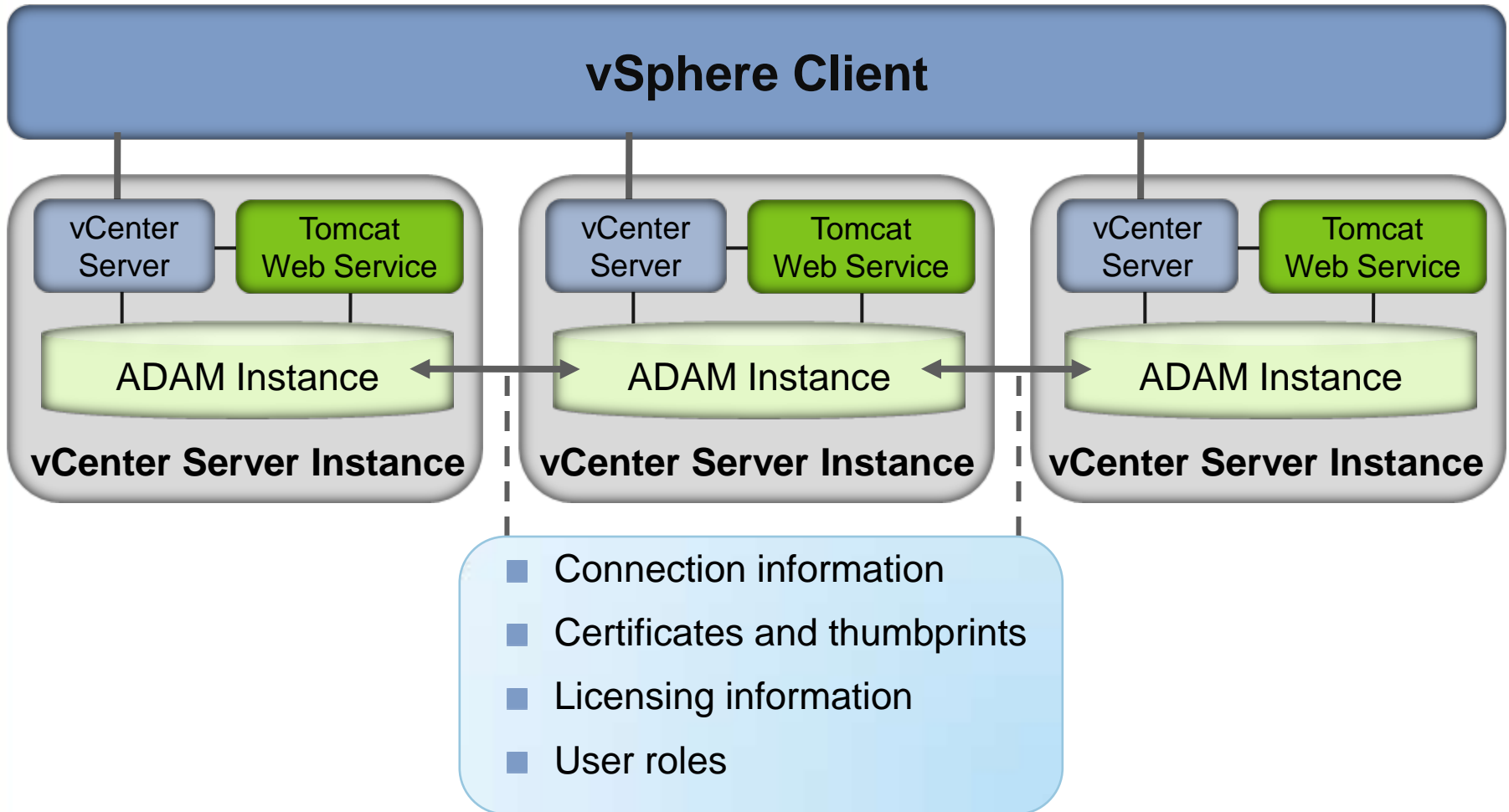
- Performance Charts Enhancements
- Storage Awareness Enhancements

vCenter Server Linked Mode Overview



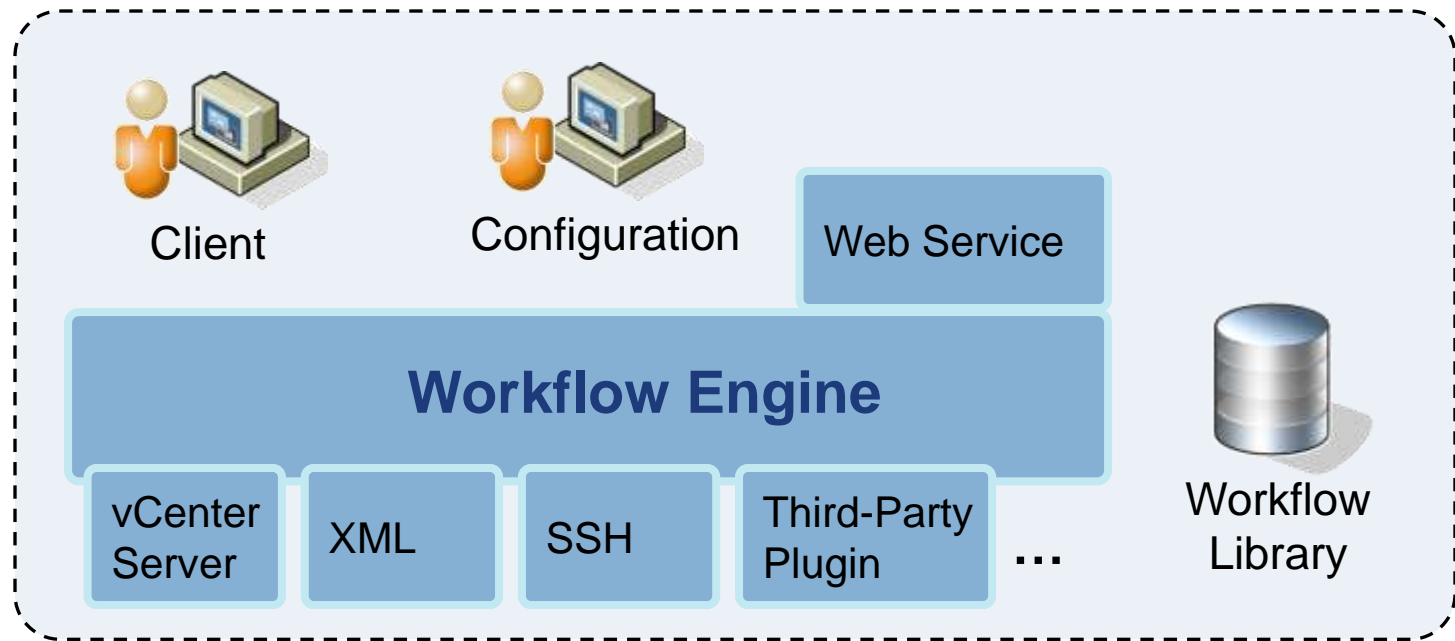
- > Standard vSphere Client can access inventory across multiple vCenters
- > View and search across combined inventory of a group of vCenter Servers
- > Shared roles and license configurations

vCenter Server Linked Mode Architecture



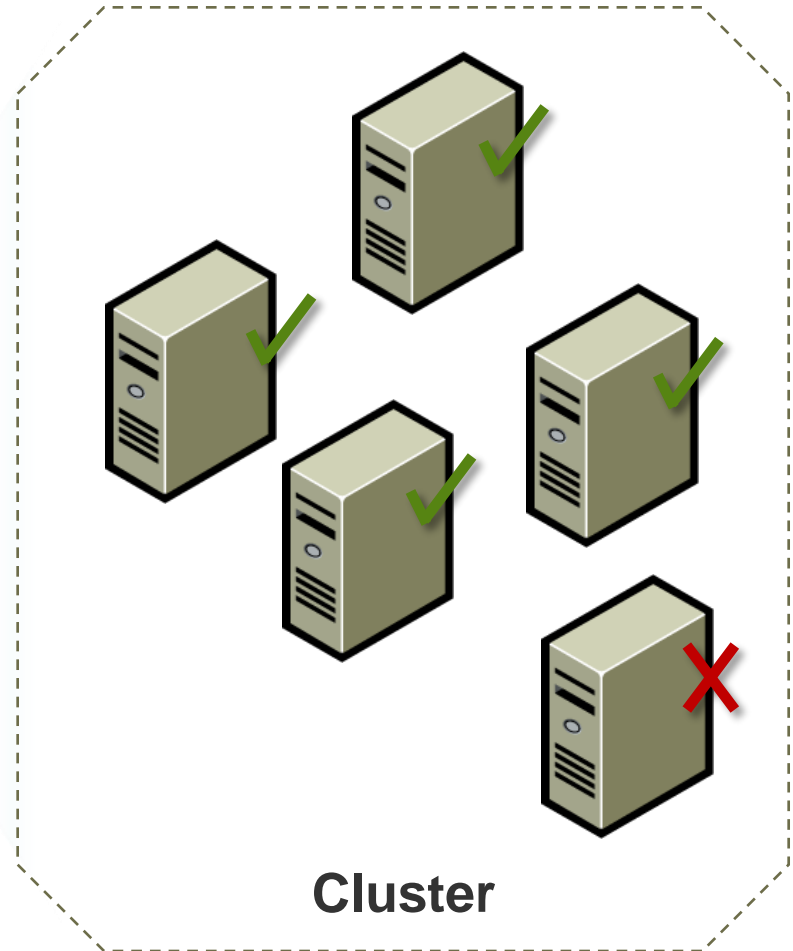
vCenter Orchestrator

Use Orchestrator to create and execute workflows that automate virtual infrastructure management processes

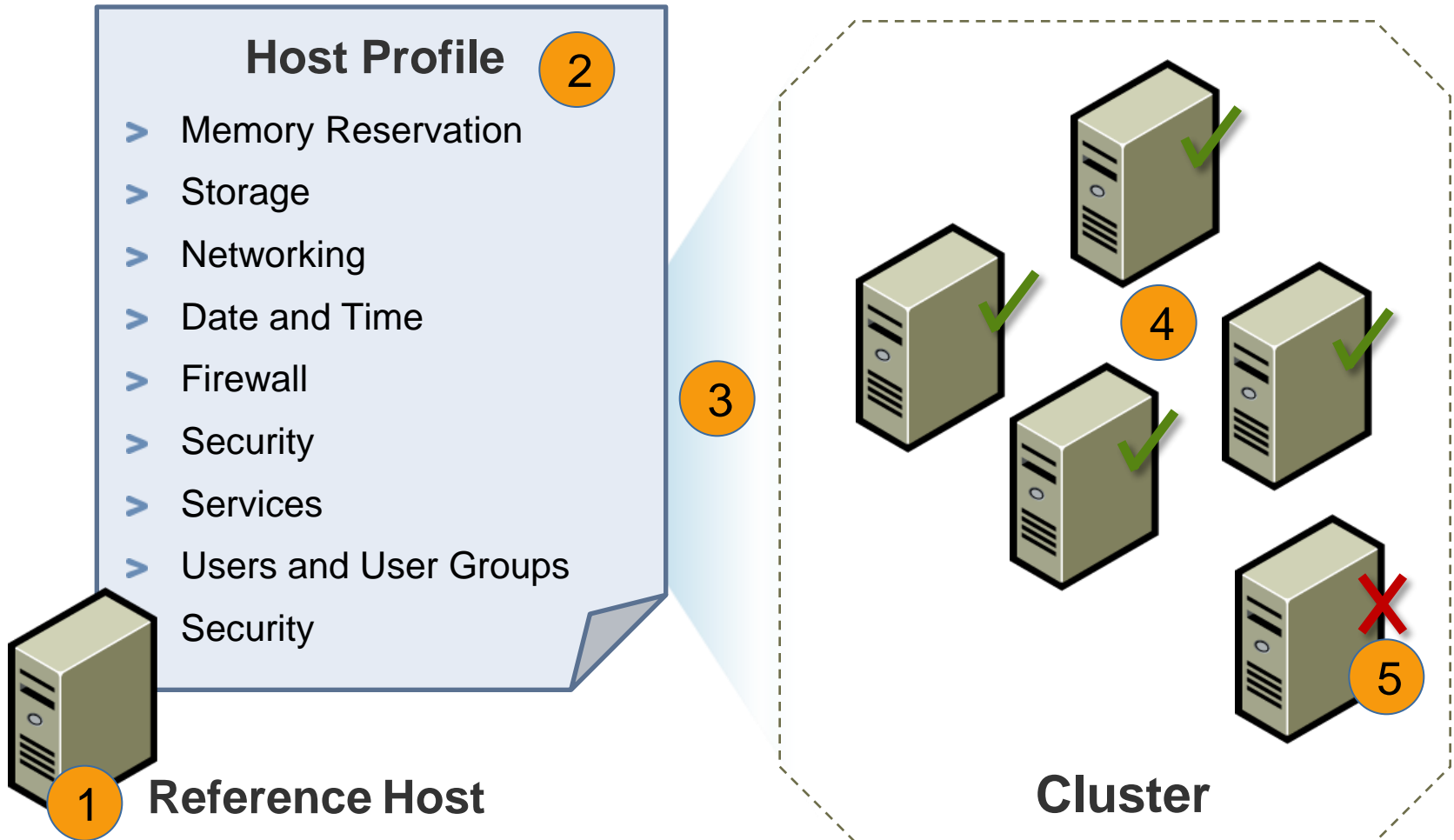


Host Profiles Overview

Host profiles reduce setup time and allow you to manage configuration consistency and correctness.



Basic Workflow to Implement Host Profiles



Working with Host Profiles

Home > Management > Host Profiles > VC-SEAL01

Search Inventory

Create Profile Edit Profile Delete Profile Attach Host/Cluster

Host Profiles

Example Host Profile

Example Host Profile

Getting Started Summary Hosts and Clusters

Select an entity below to view its compliance failures

Apply Profile... Check Compliance Now

Entity Name, Host Profile Compliance or Last Checked contains: Clear

Entity Name	Host Profile Compliance	Last Checked	Profile
sc-seal01.vmeduc.com	Non-Compliant	12/1/2008 1:41:29 AM	Example Host Profile
sc-seal02.vmeduc.com	Compliant	12/1/2008 1:41:30 AM	Example Host Profile
Cluster01	Unknown		Example Host Profile

Compliance Failures

Failures Against Host Profile

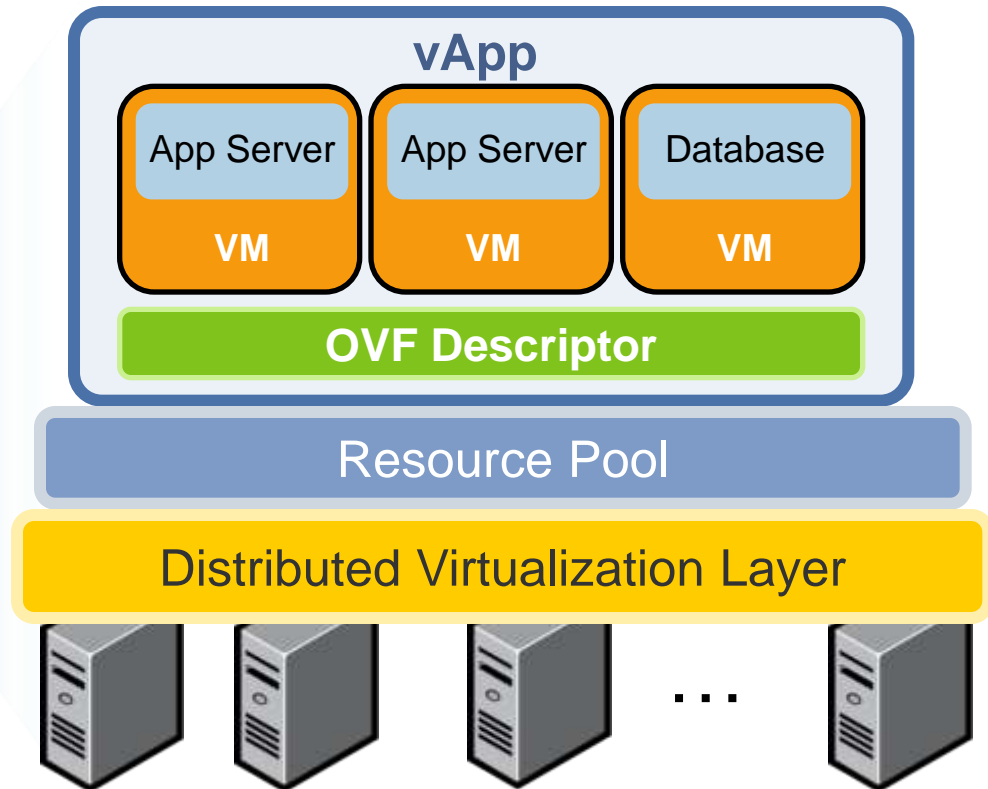
Required number of vSwitches not found.
Portgroup VM Network exists on vSwitch vSwitch1. Expected...

After you create the profile, attach it to hosts/clusters so that you can check compliance and apply it to hosts not in compliance.

vApp Overview

vApps are multi-tier application services that you can manage as a single inventory item.

- > Provides for single-step management
- > Eliminates complex setup and configuration



Deploying vApps

- File > Deploy OVF Template
- File > Browse VA Marketplace

Deploy OVF Template Wizard

Ready to Complete

Are these the options you want to use?

[Source](#)

[OVF Template Details](#)

[End User License Agreement](#)

[Name and Location](#)

[Deployment Configuration](#)

[Host / Cluster](#)

[Resource Pool](#)

[Datastore](#)

[Network Mapping](#)

[IP Address Allocation](#)

[Properties](#)

Ready to Complete

When you click Finish, the deployment task will be started.

Deployment settings:

Import file:	D:\source\voe-dev\vpX2x\vpX\yService\pyUnit\testdata\MyService\MyService
Download Size:	Less than 1 MB
Size on disk:	30 MB
Name:	My cool product2
Folder:	vm
Deployment Configuration:	Development
Host/Cluster:	MyCluster
Specific Host:	aar-dev05.eng.vmware.com
Datastore:	storage1 (1)
Network Mapping:	"VM Network" to "Virtual Machine Network"
IP Allocation:	Fixed
EmailAdmin:	developer@company.com
logourl:	MyCompanyLogo1.jpg
sugarcrmdbip:	=
sugarcrmwebip:	=

vApps from ISVs may include additional settings to configure.

Simplified License Management in vSphere 4

Simple license keys instead of flex

- 1 license per edition
- 1 key for many hosts

New centralized license key administration in vCenter

- No separate license server to manage or monitor
- Centralized host and license monitoring through vCenter enabling easy compliance

New license portal provides more accurate view of entitlement

Licensing

Report View by: Product License key Asset

Asset	Product	License Key
10.6.104.221	vSphere Enterprise (1-6 cores per CPU)	Y441Q-NAJ43-M89J5-AJ922-1RZK4
VCBETA2	vCenter Server	40M1K-40K7K-H8H05-0J0H6-800KH
10.6.104.222	Evaluation Mode	(No License Key)
10.6.104.223	Evaluation Mode	(No License Key)
WIN-25QD...	Evaluation Mode	(No License Key)

Change license key...

Copy to Clipboard Ctrl+C

Managing Licenses in vSphere 4

Administration > Licensing

Manage licenses

Manage vSphere Licenses...

Report View by: Product License key Asset Refresh | Export...

Product	Assigned	Capacity	Label	Expires
[-] Evaluation Mode	1	Unlimited		
[-] (No License Key)	1	Unlimited		
[-] VC-SEAL01				3/14/2009
[-] vCenter Server	0 instances	64 instances		
1N6TV-7X050-58EE9-01GK4-91...	0 instances	64 instances	VC (64)	1/6
[-] vSphere Enterprise (1-6 cores p...	4 CPUs	8 CPUs		
[-] 40MOL-502FH-N8101-051H4...	4 CPUs	8 CPUs	ESX Enterprise 8cpu...	1/6/2010
[-] sc-seal01.vmeduc.com	2 CPUs			
[-] sc-seal02.vmeduc.com	2 CPUs			

Key is a string, not a text file

Custom label

Export report

vCenter Server Plug-in Enhancements

VMware vCenter Guided Consolidation Service

Lower overhead and better scalability

- > Modular plugin
- > Analyzes up to 500 physical machines at a time

VMware vCenter Converter

More platforms supported

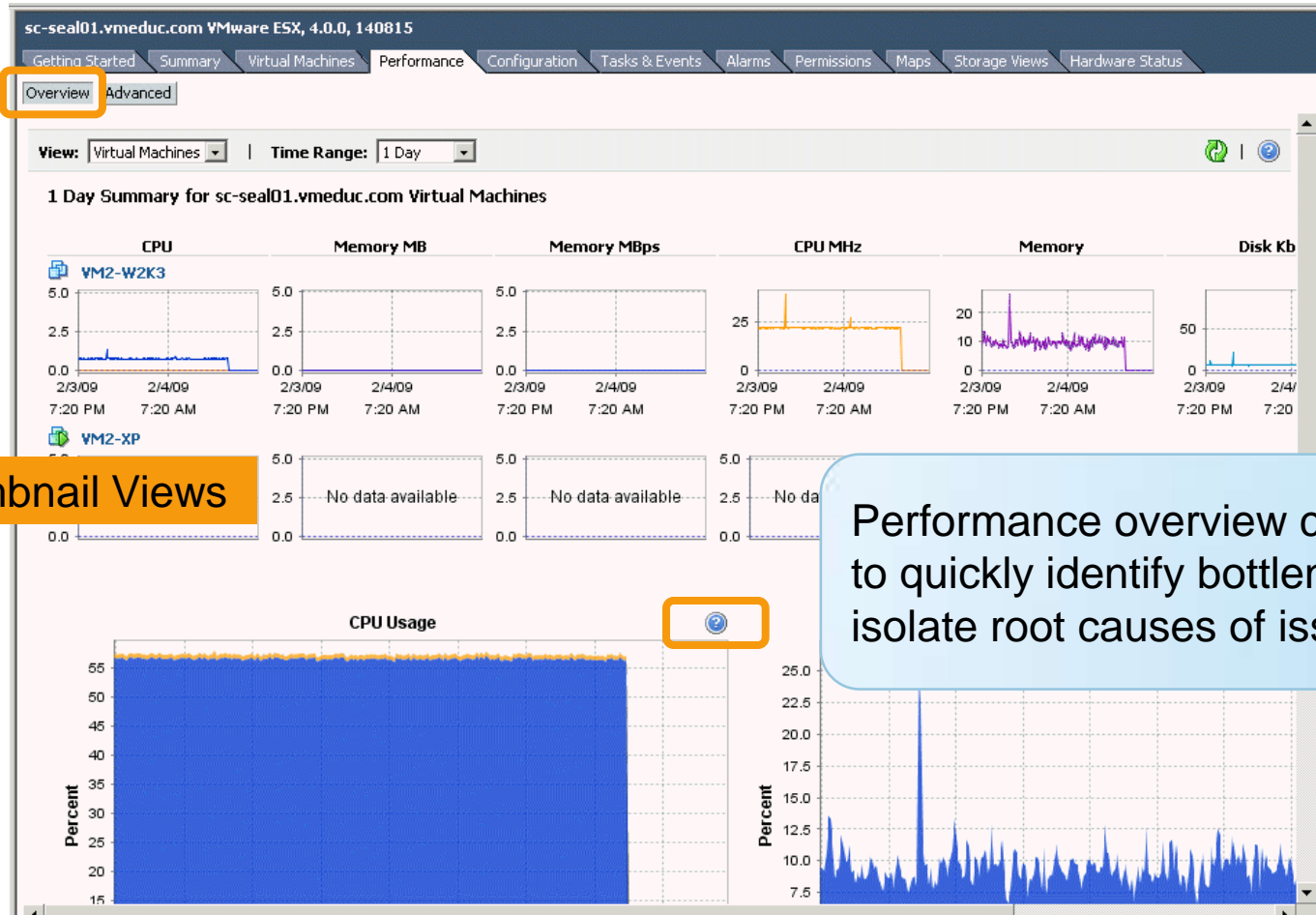
- > Ability to convert to new platforms supported in ESX/ESXi 4.0
- > Support for Windows Server 2008 as source and platform
- > Convert Microsoft Hyper-V VMs to VMware VMs

VMware vCenter Update Manager

Enhanced management and administration

- > ESX/ESXi hosts and virtual appliance upgrades
- > Baseline groups
- > Compliance dashboard
- > Patch staging

New Performance Charts



New Storage Views Tab Adds Insight into Storage Infrastructure

Plug-in Manager

Plug-in Name	Vendor	Version	Status
Installed Plug-ins			
VI Client Storage	VMware, Inc.	1.0.0.0	Enabled
VMware vCenter Update Mana...	VMware, Inc.	4.0.0....	Enabled

Virtual Machines Performance Configuration Tasks & Events Alarms Permissions Maps **Storage Views** Hard < >

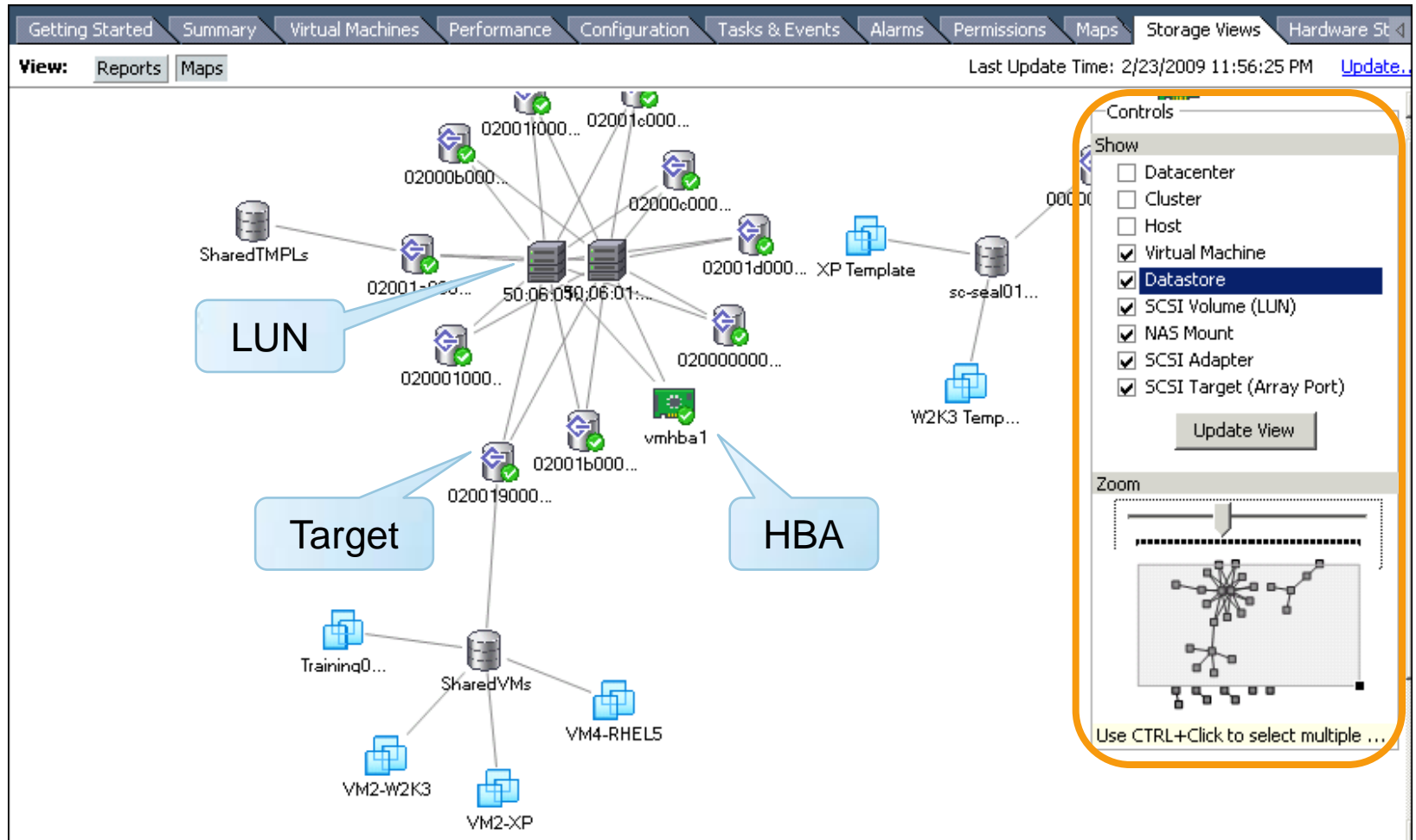
View: Reports Maps Last Update Time: 2/23/2009 11:16:05 PM [Update...](#)

Show all Virtual Machines ▾ VM or Multipathing Status contains: Clear

VM	Multipathing Status	Space Used	Snapshot Space	Disks
Train01_WindowsXP_01	Partial/No Redundancy	1.94 GB	0.00 B	1
VM2-XP	Partial/No Redundancy	3.38 GB	0.00 B	1
VM4-RHEL5	Partial/No Redundancy	8.10 MB	0.00 B	1
VM2-W2K3	Partial/No Redundancy	4.50 GB	256.07 MB	1
		4.00 GB	0.00 B	1
		3.00 GB	0.00 B	1

The new Storage Views tab provides greater insight into capacity utilization and storage connectivity.

Maps View



VMware vSphere™ Integrates with Solutions from Leading Partners

Application Services

vSphere 4.0

Infrastructure Services

- Clustering
- Data Protection

Availability

- Firewall
- Anti-virus
- Intrusion Prevention
- Intrusion Detection

Security

- Dynamic Resource Sizing

Scalability

vCompute

- Hardware Assist
- Enhanced Live Migration Compatibility

vStorage

- Storage Management & Replication
- Storage Virtual Appliances

vNetwork

- Network Management

Summary of VMware vSphere™



vCenter Suite

Application Services

Availability	Security	Scalability
<ul style="list-style-type: none"> VMotion Storage VMotion HA Fault Tolerance Data Recovery 	<ul style="list-style-type: none"> vShield Zones VMSafe 	<ul style="list-style-type: none"> DRS Hot Add

Infrastructure Services

vCompute	vStorage	vNetwork
<ul style="list-style-type: none"> ESX ESXi DRS/DPM 	<ul style="list-style-type: none"> VMFS Thin Provisioning VMFS Volume Grow 	<ul style="list-style-type: none"> Distributed Switch

VMware vSphere™ 4.0



Internal Cloud



External Cloud

*Note vCenter Server and its components are a separate purchase



What's New in vSphere 4.0: Technical Overview



Backup Slides

Guest Operating System Support

Support for over 45 guest operating systems



New in vSphere 4

- > Asianux 3.0
- > CentOS 4
- > Debian 4
- > FreeBSD 6
- > FreeBSD 7
- > OS/2
- > MS-DOS 6.22
- > Windows 3.1
- > Windows 95
- > Windows 98
- > OpenServer 5
- > Unixware 7
- > Solaris 8 (experimental)
- > Solaris 9 (experimental)
- > Solaris 10

VMware Solution Compatibility

- **vSphere 4.0 is a major new release that will require updates to most current VMware add-on products**
- **Most products will release updates that will provide vSphere 4.0 compatibility in 2H 2009**
- **Customers will still receive VI3 licenses for most bundles containing not-yet-compatible products, but can upgrade/downgrade their license keys at any time**

Compatible with vSphere 4 at GA	Compatibility with vSphere 4 planned for 2H 2009
vCenter Heartbeat	VMware View
VMware Capacity Planner	vCenter Site Recovery Manager
Converter 4.0	vCenter Lifecycle Manager
	vCenter Stage Manager
	vCenter Lab Manager