VMware vSphere™ 4

The Best Platform for Building Cloud Infrastructures

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Potpuna virtualizacija od servera do desktopa

Saša Hederić

Senior Systems Engineer

VMware Inc.

VMware ESX: Even More Reliable than a Mainframe!

Redmondmag.com

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Feature

The 2008 Editors' Choice Awards

Here are our selections for the products we believe you just can't live without.

by Lafe Low
January 2008

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streamline operations,
opportunities.

For this Editors' Choice
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management tool. Inste
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Let us know how our ex
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Most Reliable

This is the "accidentally built a wall around it and forgot it was there" kind of reliable:

1. VMware ESX: The least stable part of ESX is usually the administrator. The code is virtually bomb-proof.

2. IBM mainframes: They've been running for more than 50 years, and probably will for another 50.

3. DOS 6.2: One company had a DOS machine with a terminal emulator connected to a remote customer. It downloaded thousands of invoices per month and delivered them to a file share. The box was never rebooted and was found behind a filing cabinet when the company moved.

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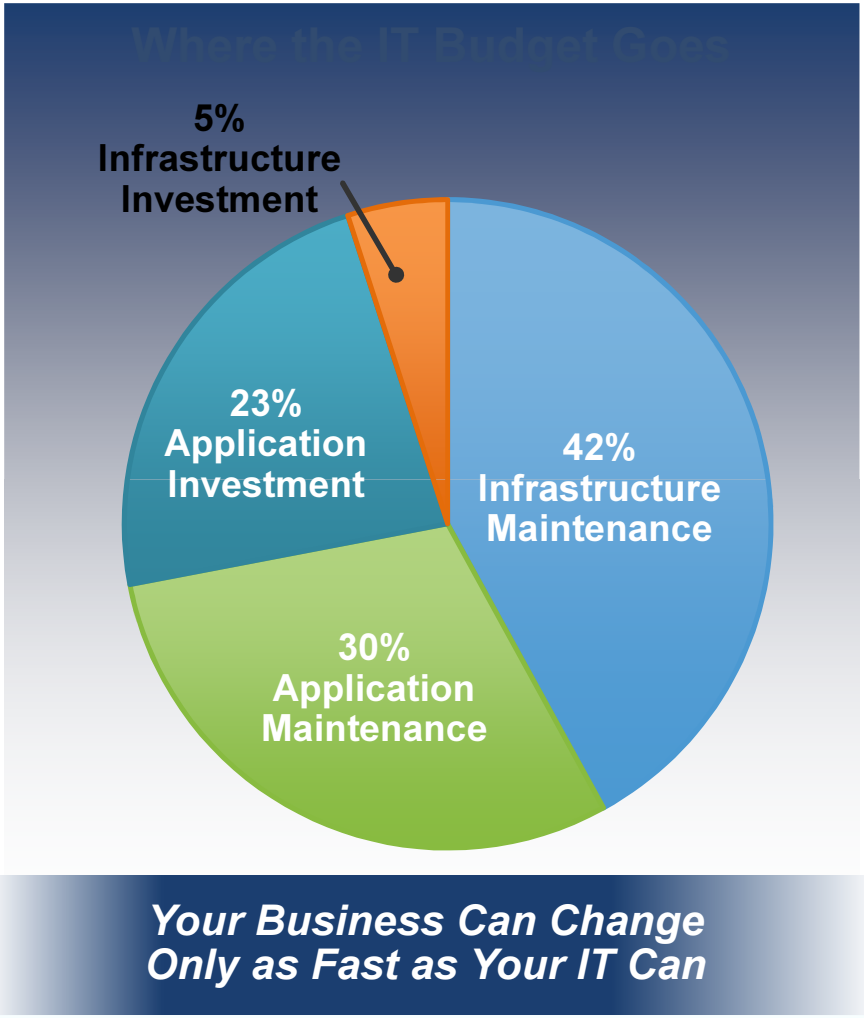
The Problem

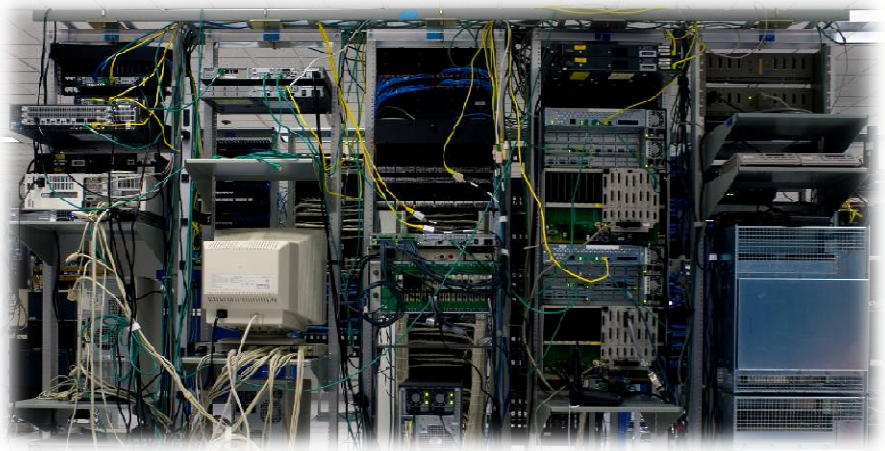


Your Business Can Change Only as Fast as Your IT Can

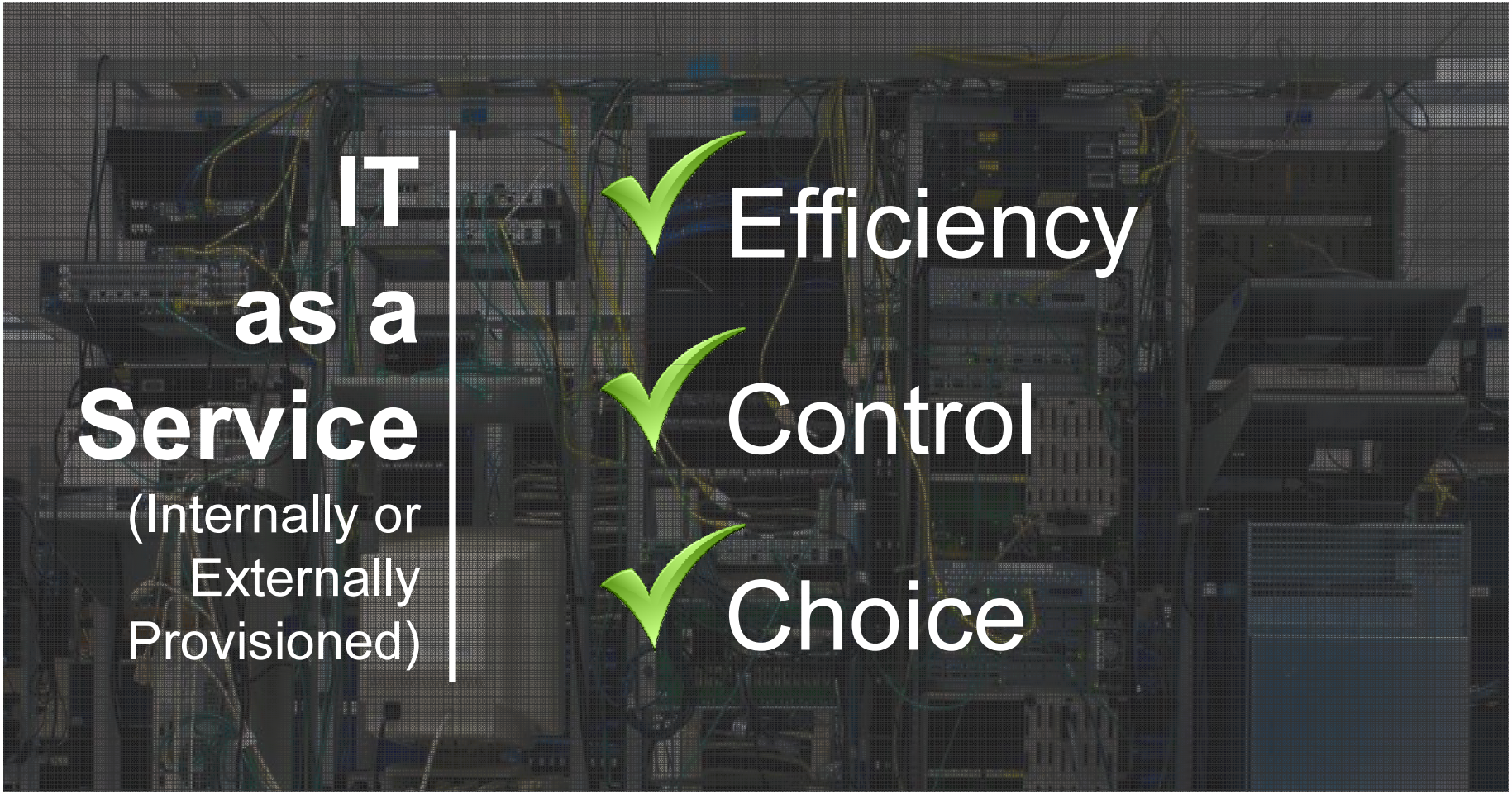
Overwhelming complexity

>70% of IT budgets just to keep the lights on

<30% of IT budgets goes to innovation and competitive advantage



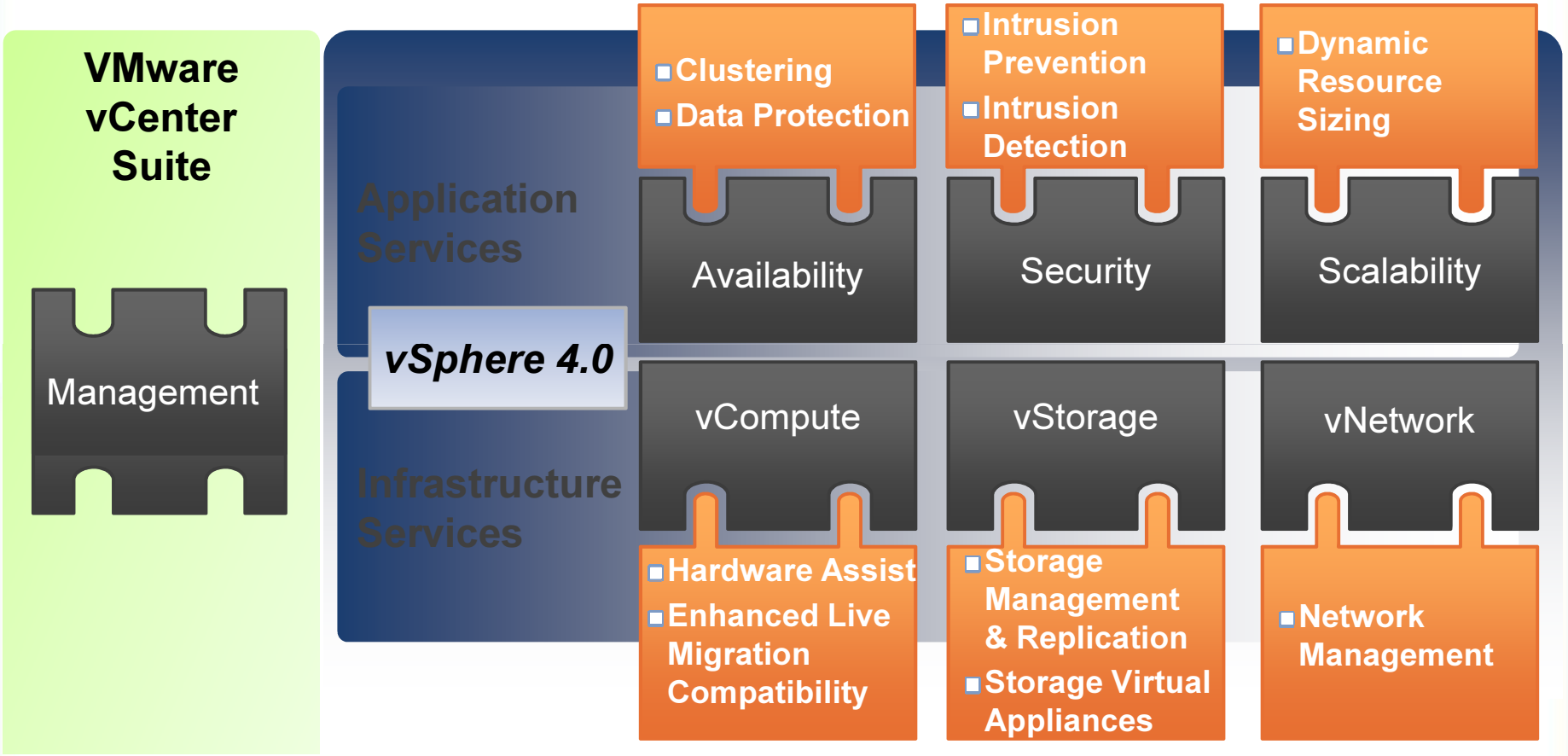
The Goal



VMware vSphere™ 4.0 Delivers

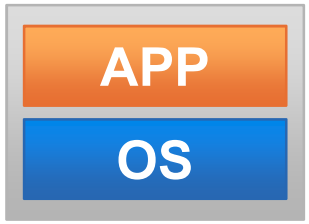
Efficiency	*Control*	*Choice*
Cut capital and operational costs by over 50%. for all applications..	***…while automating quality of service…***	***…and remaining independent of hardware, operating system, application stack, and service providers***

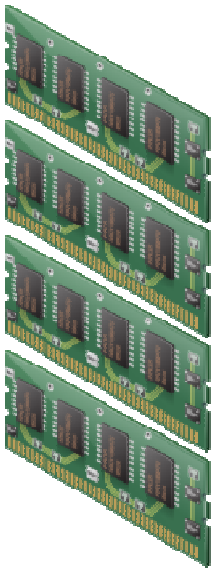
VMware vSphere™ – The Industry's First Cloud Operating System



Scalability Improvements in VMware vSphere 4

VMware vSphere 4 Dramatically Improves VM Scalability





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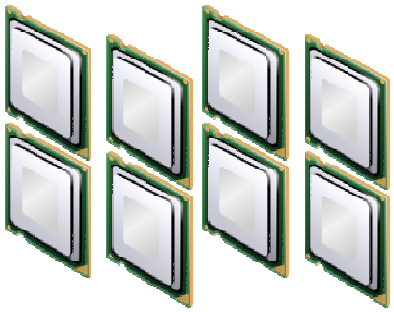


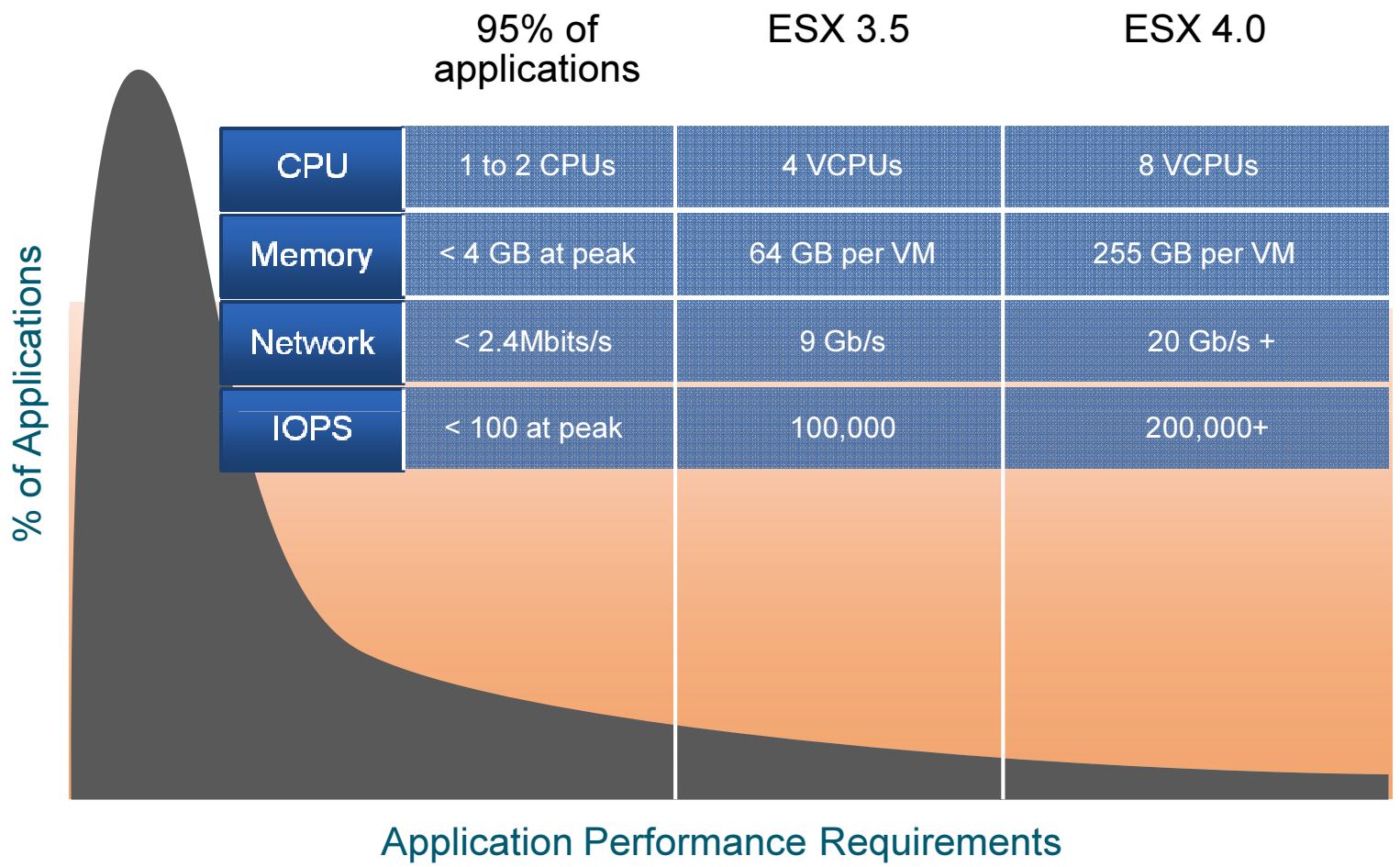
8 vCPUs

- Scalable virtual machines
- Hot add of
  - CPU
  - Memory
- Hot add and remove
  - Storage devices
  - Network devices
- Hot Extend virtual disks
- Zero downtime scale out of virtual machines

DRS Ensures Capacity on Demand

- Shrink and grow of applications based on demand and priority
- Dynamic and responsive load balancing

vSphere 4 Delivers Performance for Demanding Applications

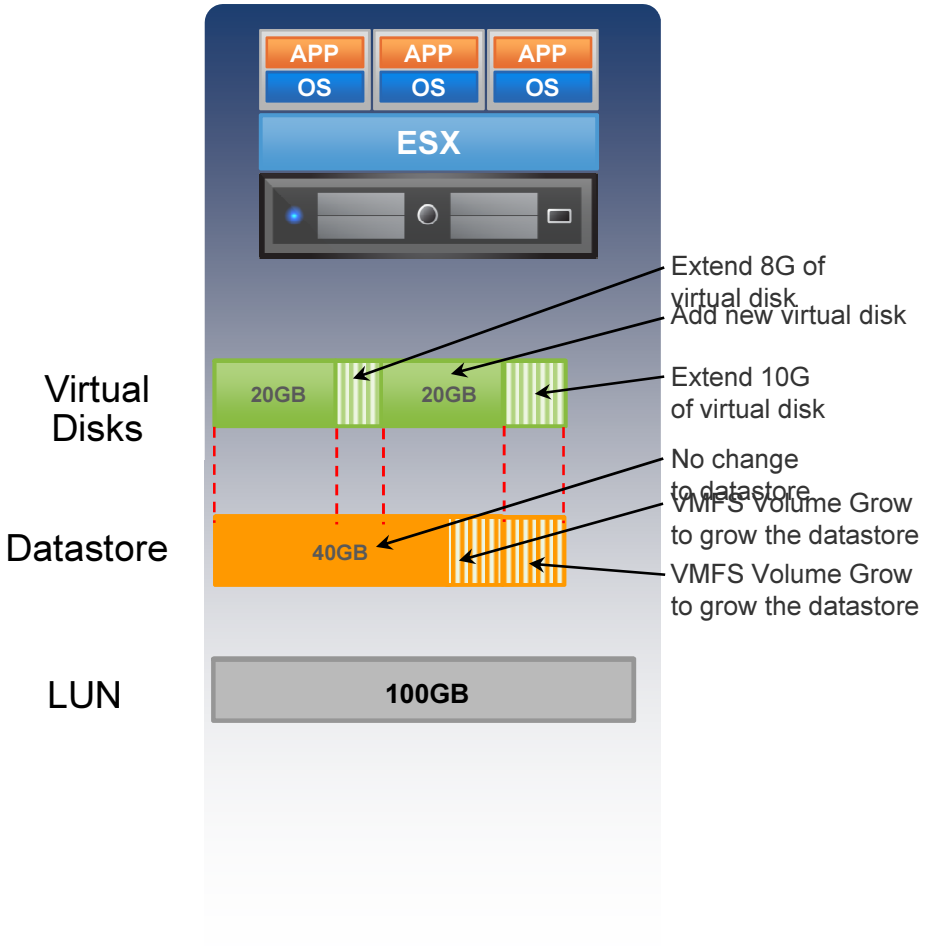


1. Source: VMware Capacity Planner assessments

Comparison to VISA

Enhanced Storage Capabilities

Efficient Storage Abstraction with VMFS



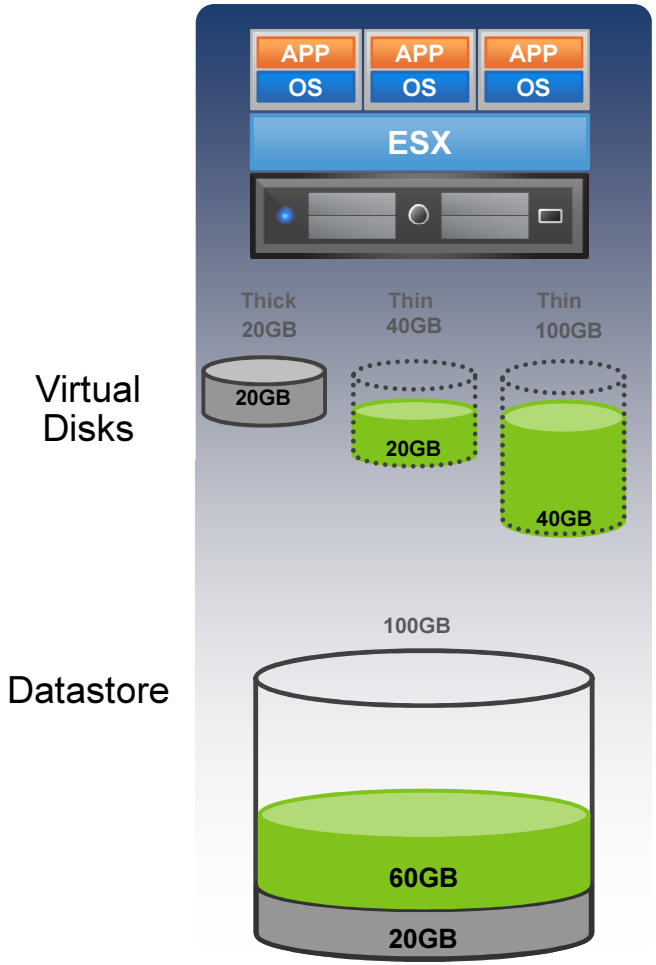
Hot Virtual Disk Extend

- Expand virtual disks online
- Respond quickly to growing requirements without downtime

VMFS Volume Grow

- Expand VMFS Volume on the same LUN it was created
- Facilitate adding more virtual machines to an existing volume
- Facilitate data growth for the virtual machines
- Increase flexibility to simplify capacity planning

vStorage Thin Provisioning

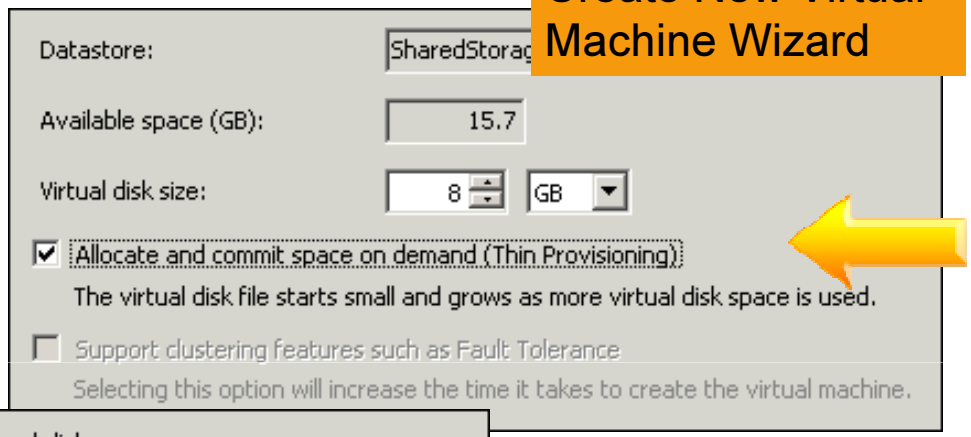


- Virtual machine disks consume only the amount of physical space in use
  - Virtual machine sees full logical disk size at all times
  - Full reporting and alerting on allocation and consumption
- Significantly improve storage utilization
- Eliminate need to over-provision virtual disks
- Reduce storage costs by up to 50%

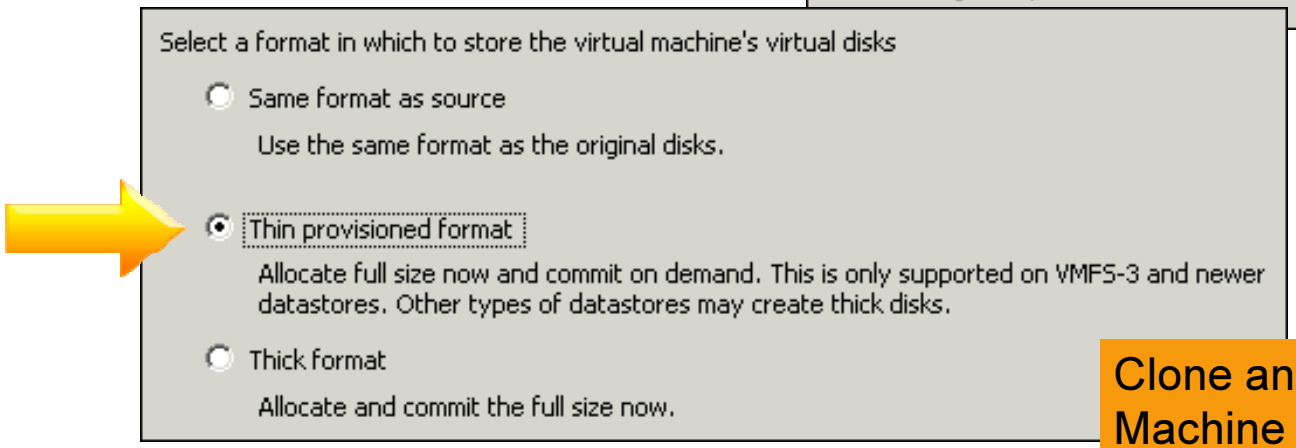
Thin Disk Provisioning Operations

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



Clone and Migrate Virtual Machine Wizards

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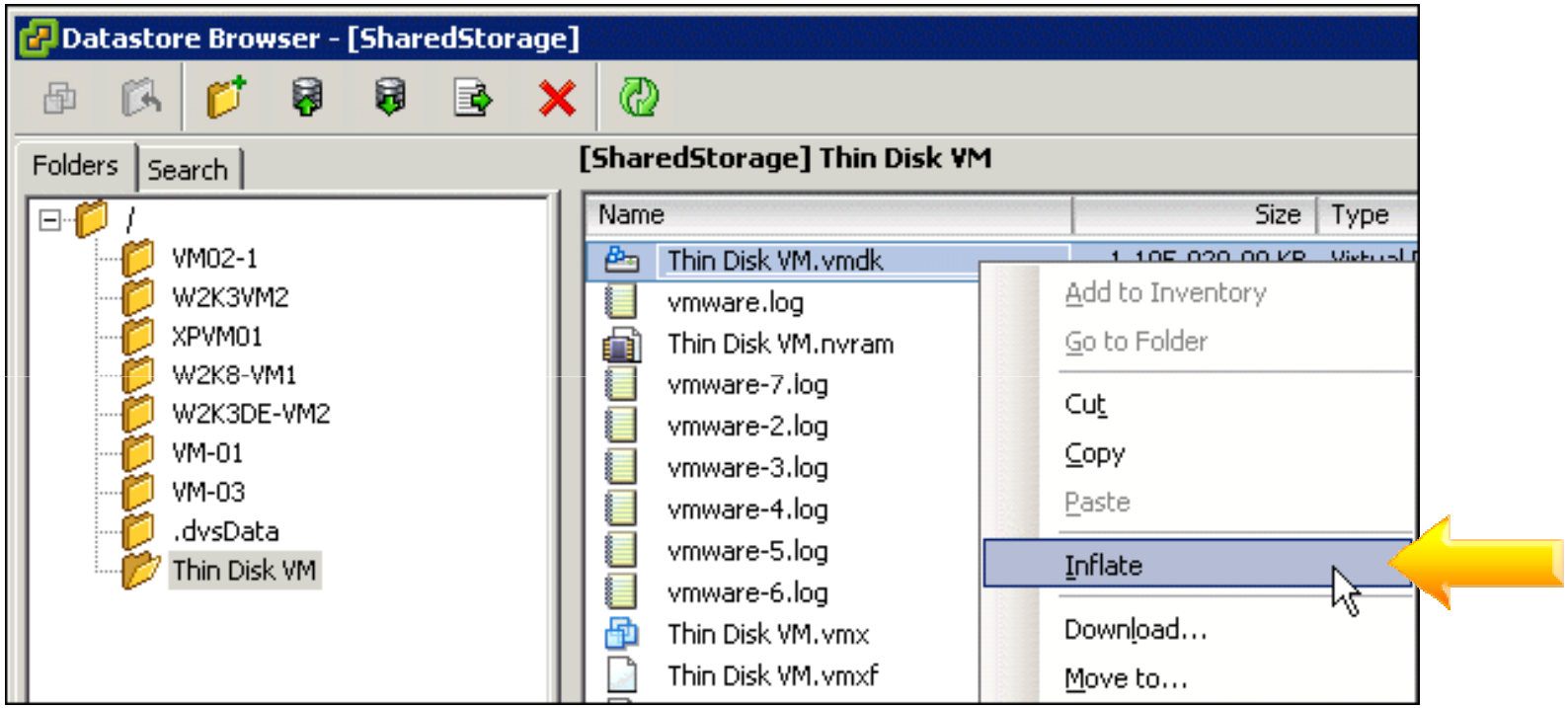
Converting Disks from Thin to Thick



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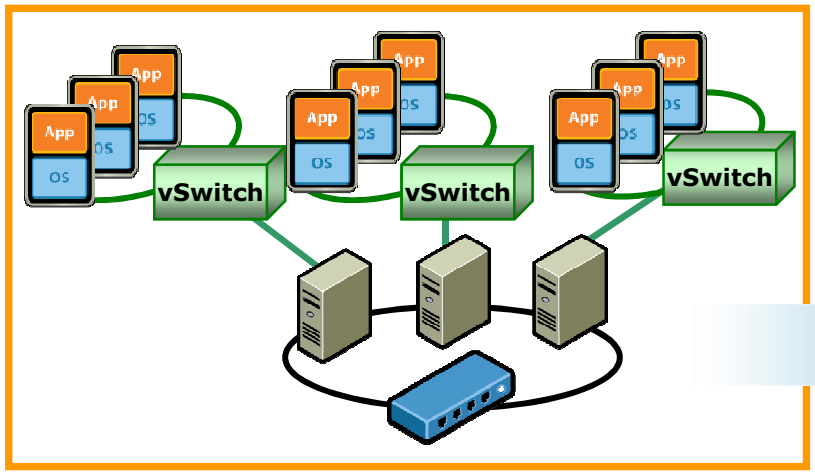
vStorage API Categories

vStorage API	Toolkit name	Details
Management	**vSphere SDK**	• For storage management vendors • Provide end-to-end mapping from VM to disk drive for troubleshooting, trending, utilization, monitoring
Data Protection	**Virtual Disk Dev Kit (VDDK), vSphere SDK**	• Targeted at backup software vendors • Enable scalable LAN-free backups
Site Recovery Manager	**SRM Adapter**	• Leverage array-based replication in automated DR solution • Detect which VMs are getting replicated, automated LUN promotion
Multipathing	**PSA Kernel Module Dev Kit (PSA KMDK)**	• For array vendors • Enable array compatibility, multipath i/o optimization
Array Integration	**vStorage APIs for Array Integration (VAAI)**	• Speed up common vStorage operations by leveraging array-based copy & clone operations • Improve storage management experience for thin-provisioned LUNs

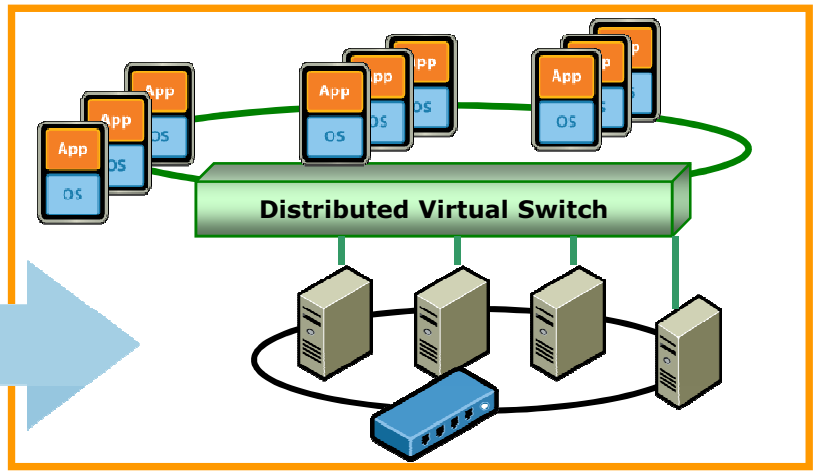
VMware vSphere 4 Networking Improvements

vNetwork Distributed Switch Benefits

VI3 Networking



vSphere 4 Networking



- Dramatically simplifies datacenter administration
- Enables networking statistics and policies to migrate with virtual machines (Network VMotion)
- Provides for customization and third-party development

Third-Party Distributed Switches

- Aggregated datacenter level virtual networking
- Simplified setup and change
- Easy troubleshooting, monitoring and debugging
- Enables transparent third party management of virtual environments

CISCO

vNetwork Appliance APIs allow third-party developers to create distributed switch solutions.

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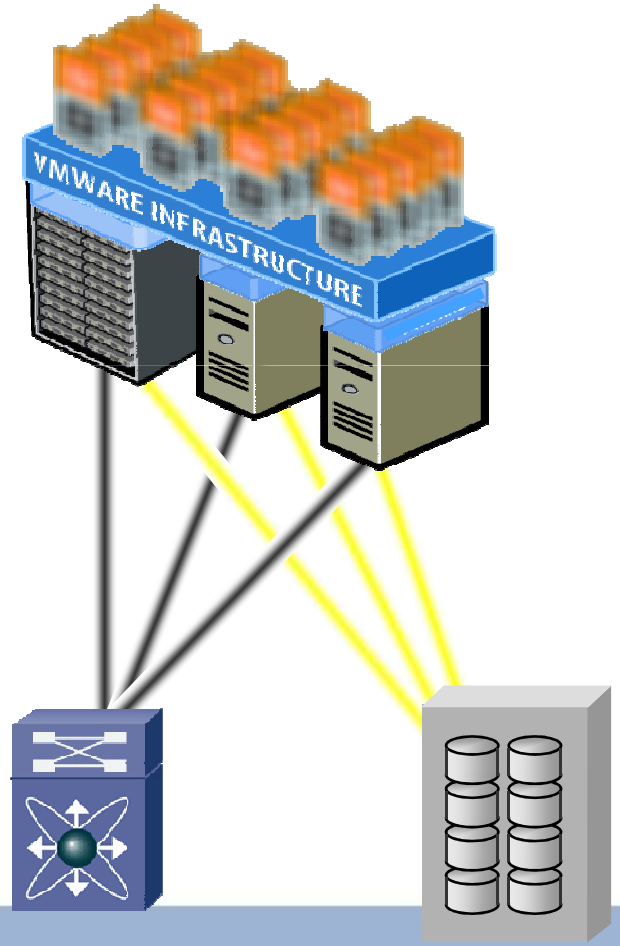
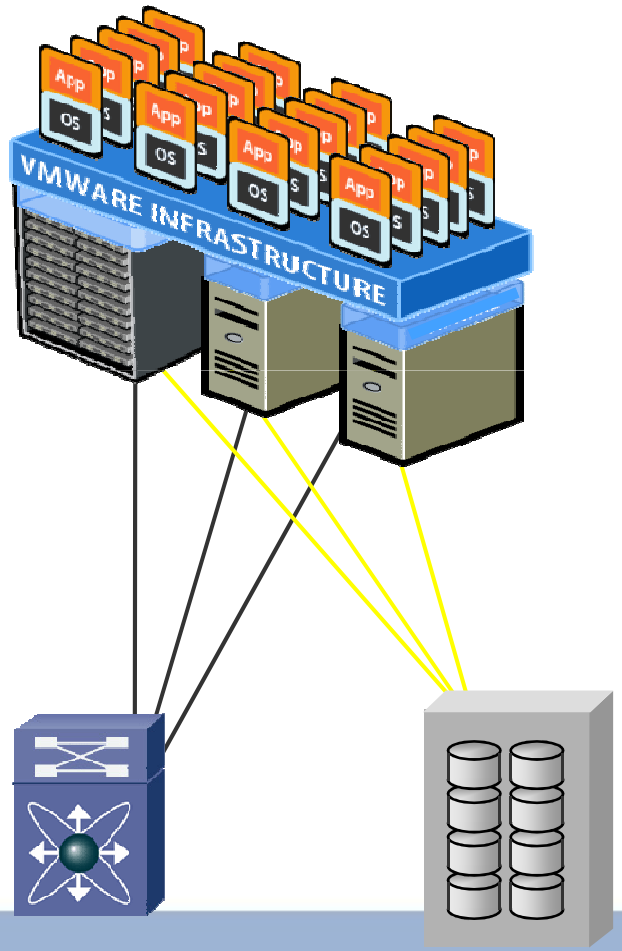
Transparency in the Eye of the Beholder



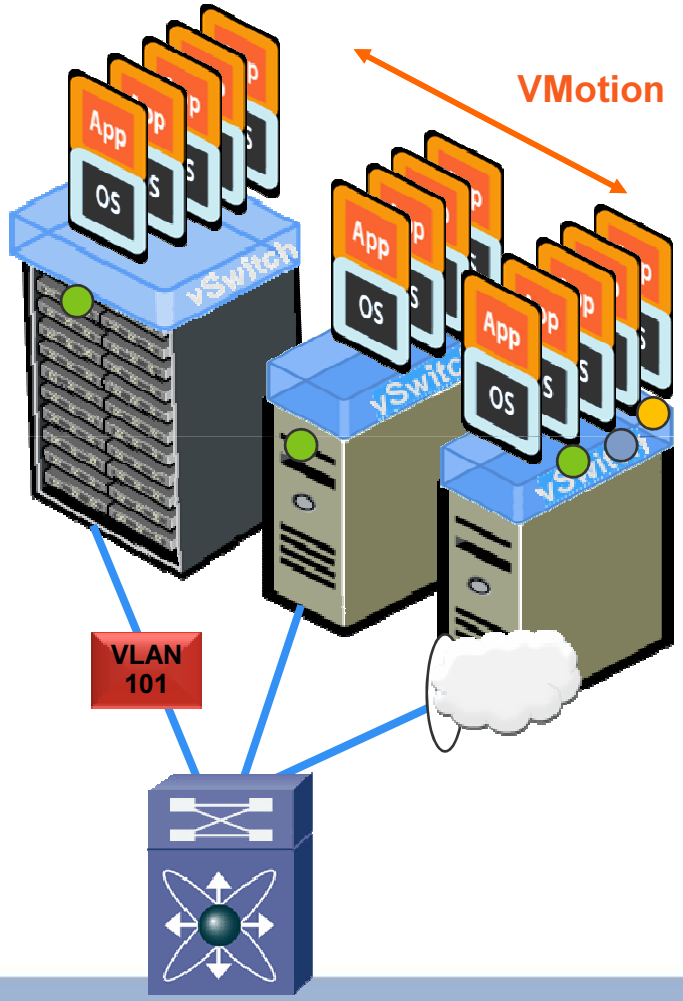
…but its difficult to monitor & apply network and storage policy back to virtual machines

Transparency in the Eye of the Beholder



Scaling globally depends on maintaining transparency while also providing operational consistency

VN-Link Brings VM Level Granularity



Problems:

- VMotion may move VMs across physical ports—policy must follow
- Impossible to view or apply policy to locally switched traffic
- Cannot correlate traffic on physical links—from multiple VMs

VN-Link:

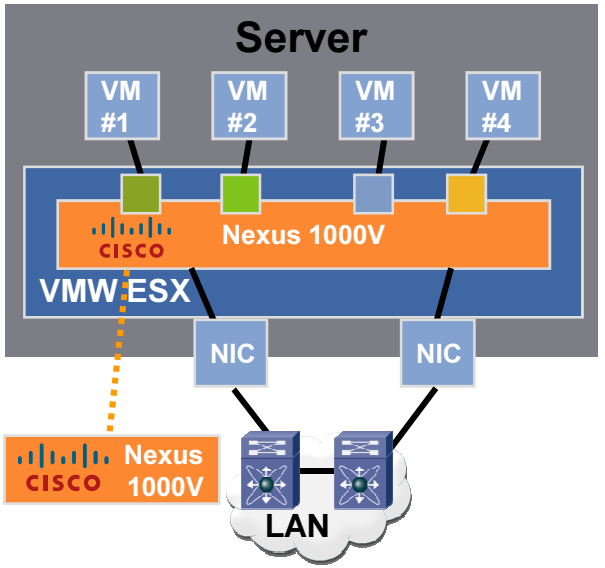
- Extends network to the VM
- Consistent services
- Coordinated, coherent management

VN-Link With the Cisco Nexus 1000V

Cisco Nexus 1000V
Software Based

- Industry's first third-party ESX switch
- Built on Cisco NX-OS
- Compatible with switching platforms
- Maintain VirtualCenter provisioning model unmodified for server administration but also allow network administration of Nexus 1000V via familiar Cisco NX-OS

Announced VMWorld 2008 Shipping 2Q09



BEST OF vmworld 2008

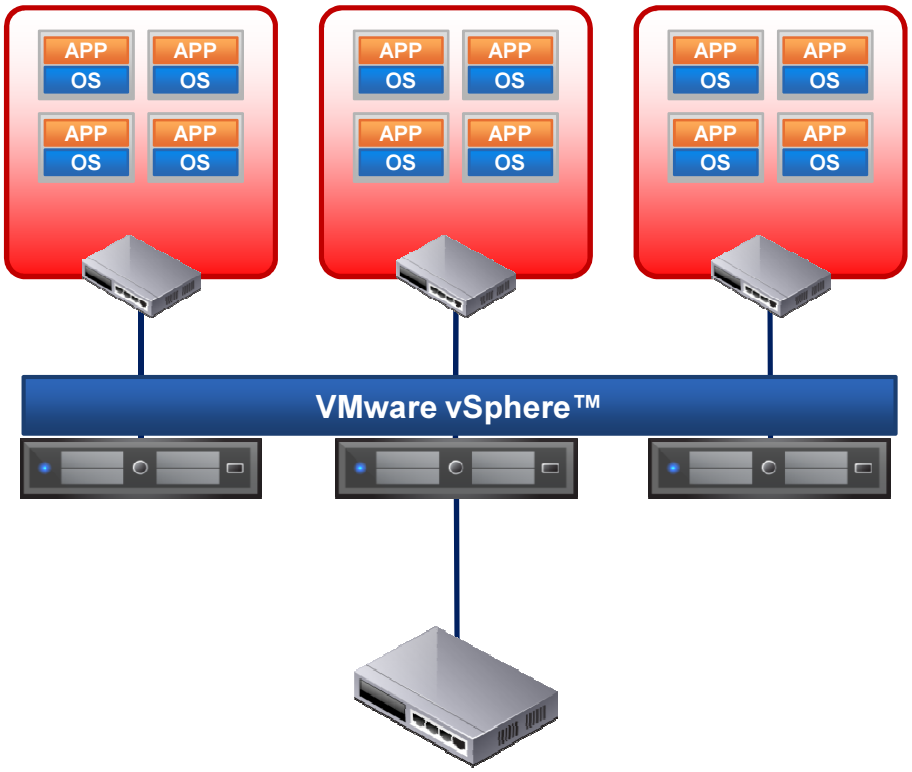
Policy-Based VM Connectivity

Mobility of Network and Security Properties

Non-Disruptive Operational Model

Security with vSphere 4

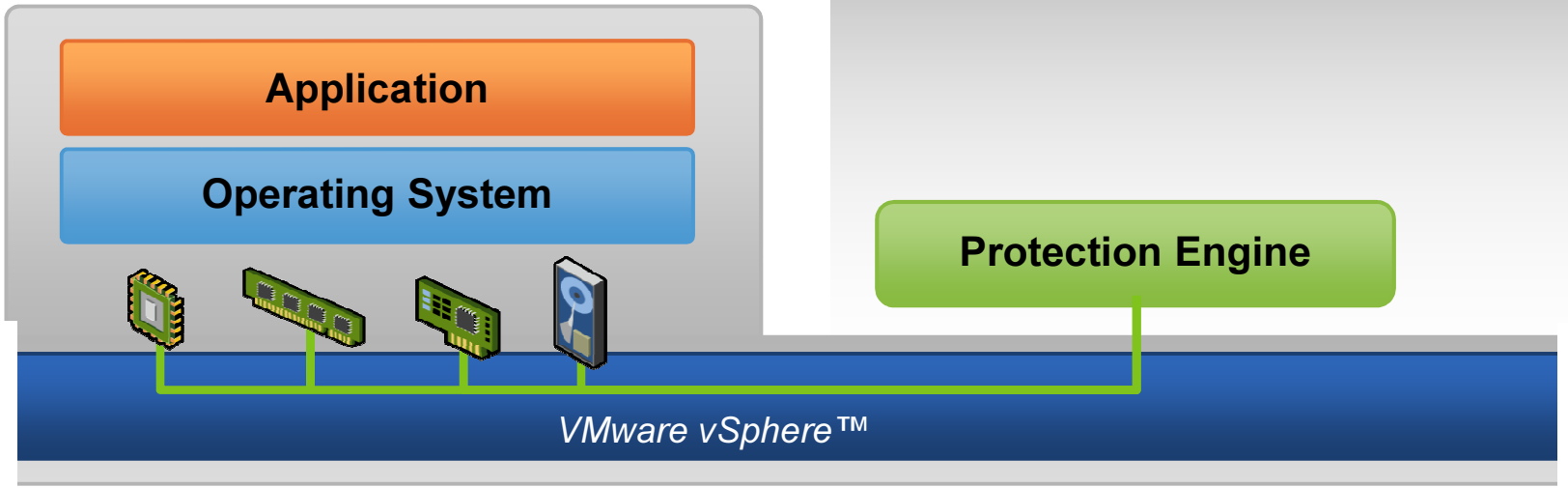
VMware vShield Zones



- Self-learning, self-configuring firewall Service
- VMotion and network-configuration aware trust zones
- Dynamic firewall policy using application protocol awareness
- Dynamic security capacity using infrastructure vServices
- Security policies auto-adapt to network reconfiguration or upgrades

VMware VMsafe API

- 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



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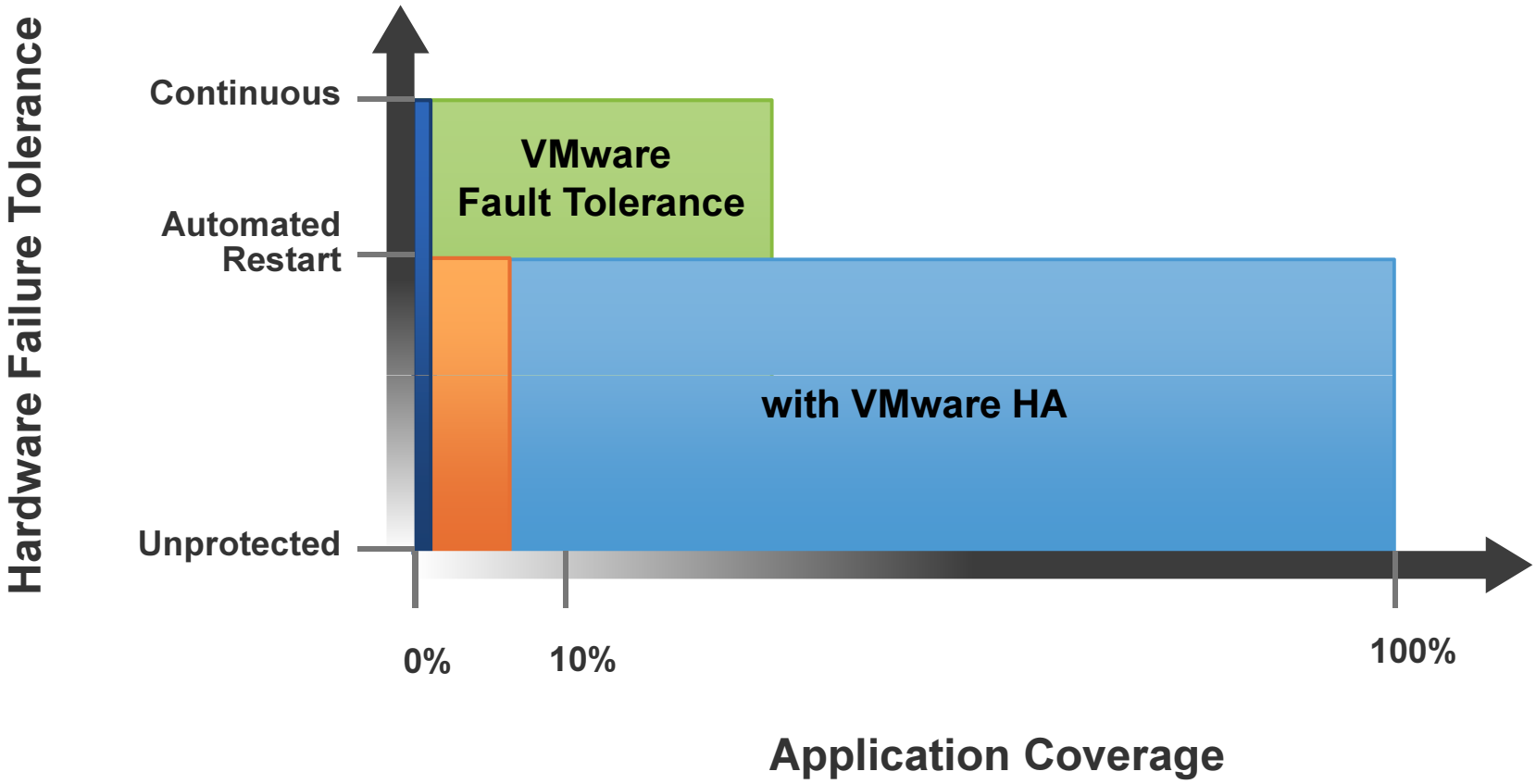
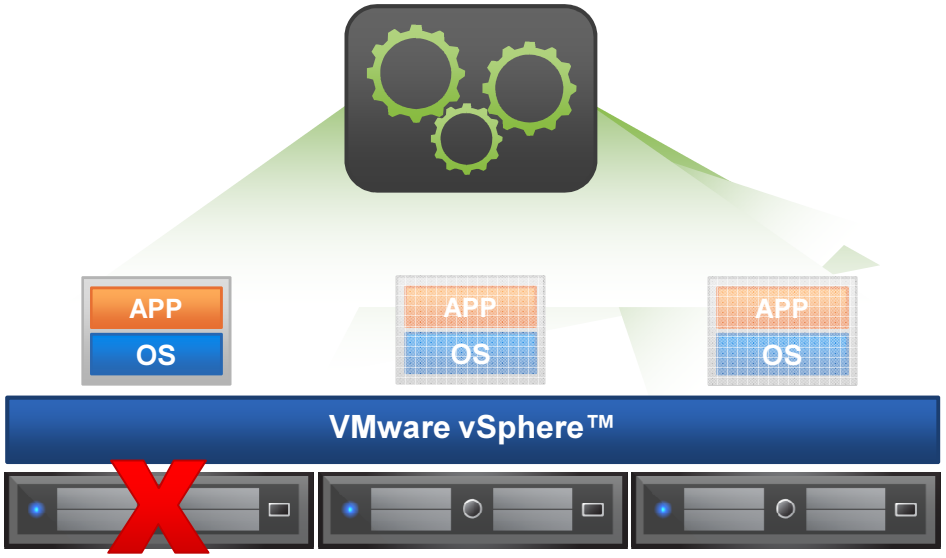
VMware vSphere 4
High Availability

Next Generation High Availability Service Levels



VMware Fault Tolerance

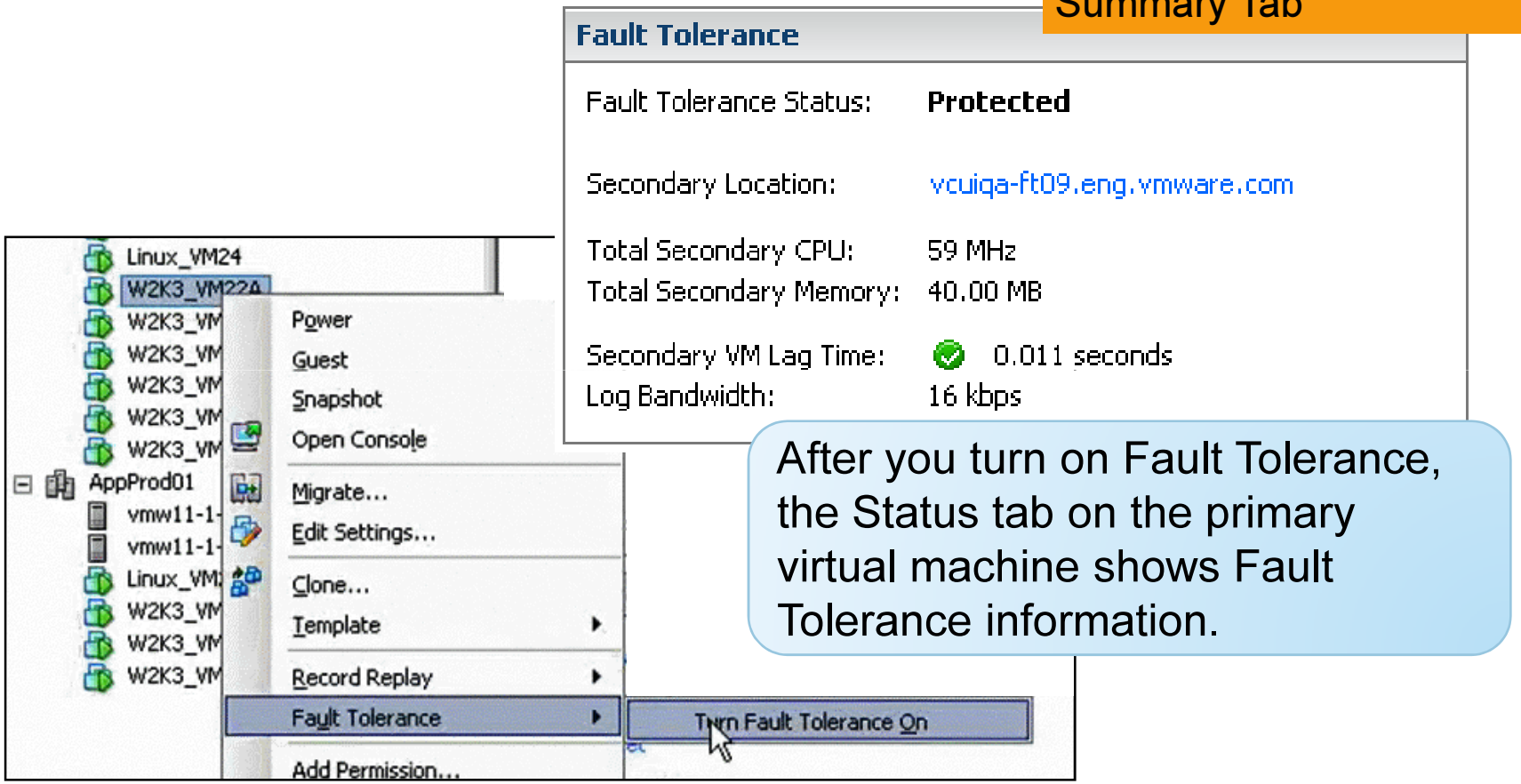


- Single identical VMs running in lockstep on separate hosts
- Zero downtime, zero data loss failover for all virtual machines in case of hardware failures
- Zero downtime, zero data loss
- No complex clustering or specialized hardware required
- Single common mechanism for all applications and OS-es

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

Turning On Fault Tolerance

Primary Virtual Machine > Summary Tab



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

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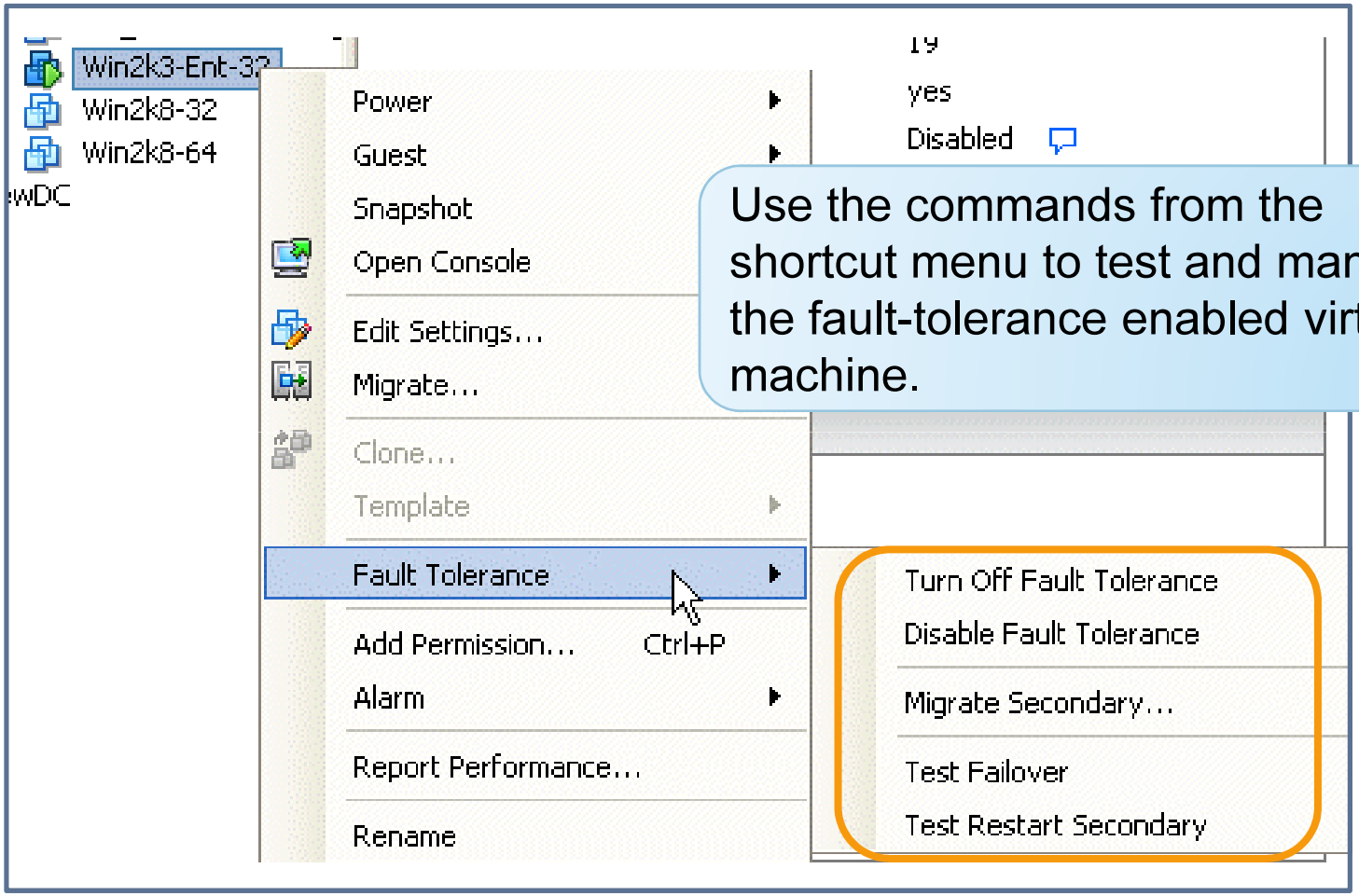
Managing FT-Enabled Virtual Machines



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VMware View 3

Take Control of Your Desktops and Applications

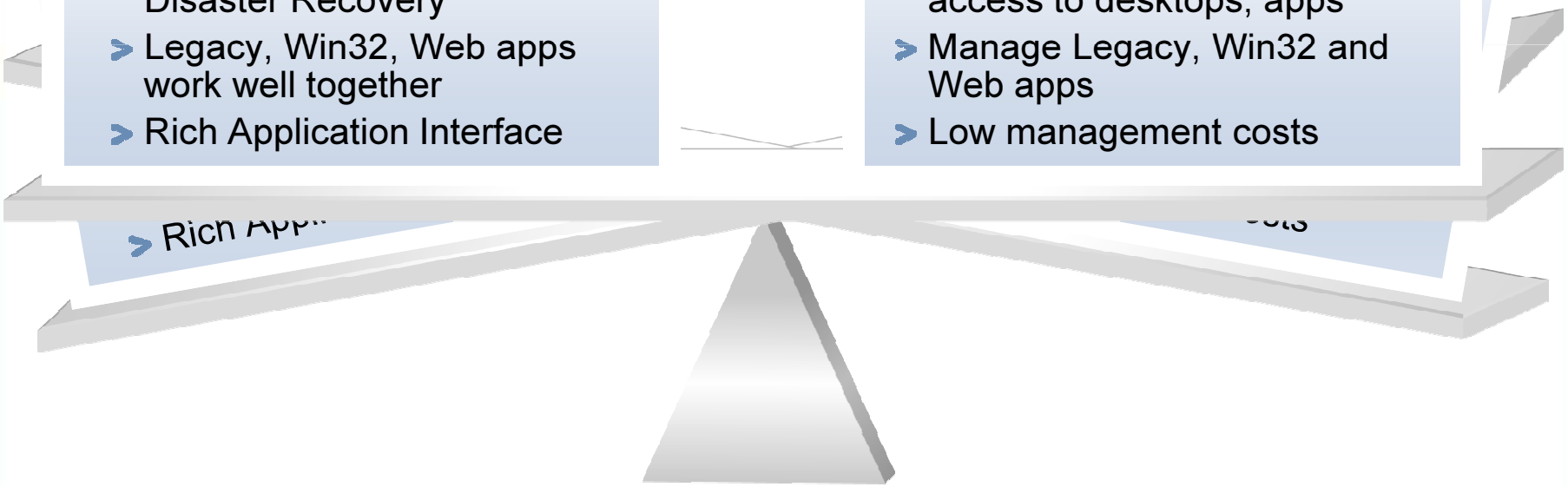
ktop Dilemma

User Requirements

- Personalized Desktops that follow them
- Flexible access anywhere using multiple devices
- Desktop Biz Continuity & Disaster Recovery
- Legacy, Win32, Web apps work well together
- Rich Application Interface

IT Requirements

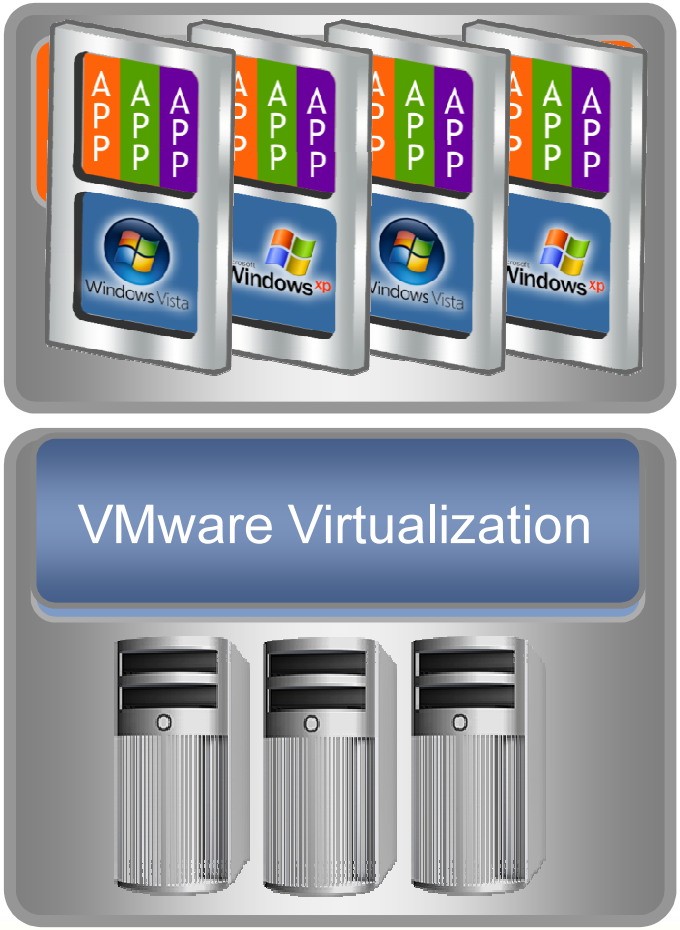
- Manage disparate desktop images easily
- Manage explosion in multitude of devices
- Provide secure, continuous access to desktops, apps
- Manage Legacy, Win32 and Web apps
- Low management costs



Virtualization is the Solution

Virtualization enables Isolation, Encapsulation & Mobility

- Run different operating systems side-by-side
- Run legacy Win32 apps next to web 2.0 applications
- Move OS, apps, desktop to different devices
- Separate user data and settings into a universally accessible VM



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Simplify by Centralizing Management

VMware decouples Desktop image from the PC

Desktops run in secure datacenter

Present Desktop into clients over Network

Meeting the Challenges of the Desktop

Benefits

- Streamlined and Simplified Desktop Management
- Reduced Desktop Maintenance and Support Costs
- Improved End User SLAs and Desktop Business Continuity
- Improved Security and Compliance

Hvala!