



# VMware vSphere 4 - Overview

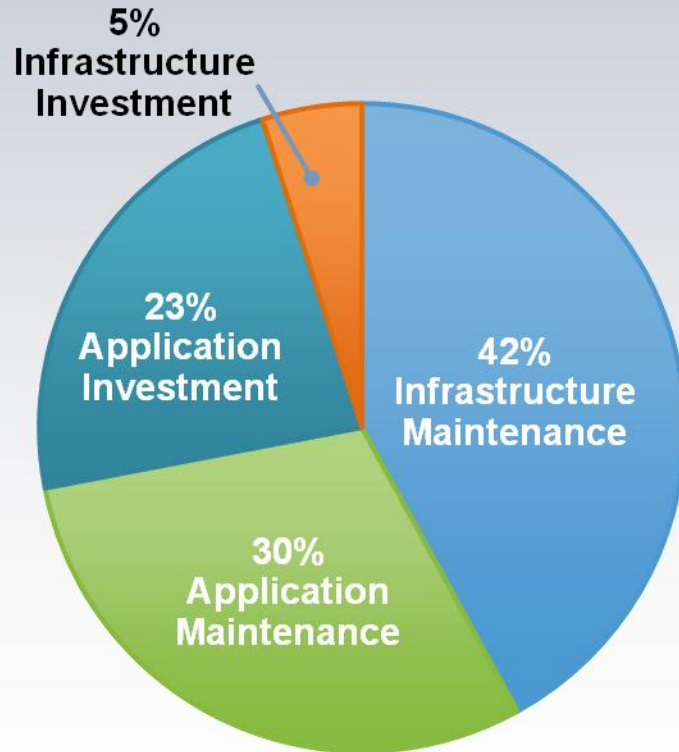
**Mario Zimmermann**

Sales Manager Software

Magirus Austria GmbH

## The Problem

### Where the IT Budget Goes

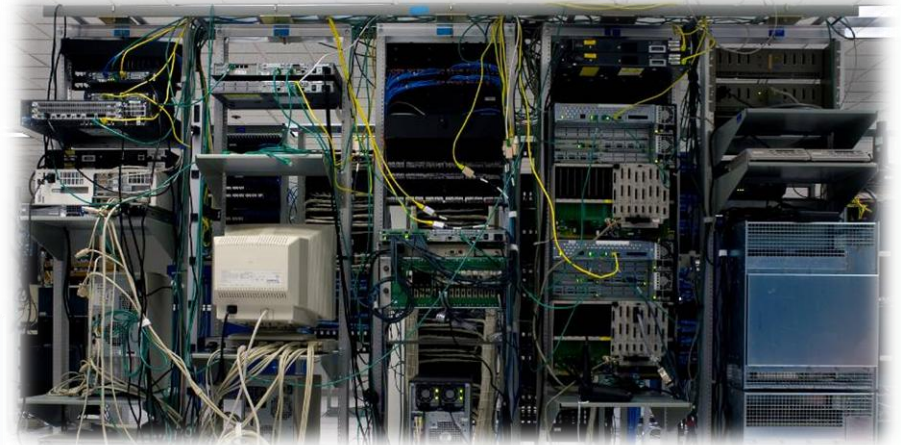


*Your Business Can Change  
Only as Fast as Your IT Can*

**Overwhelming complexity**

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

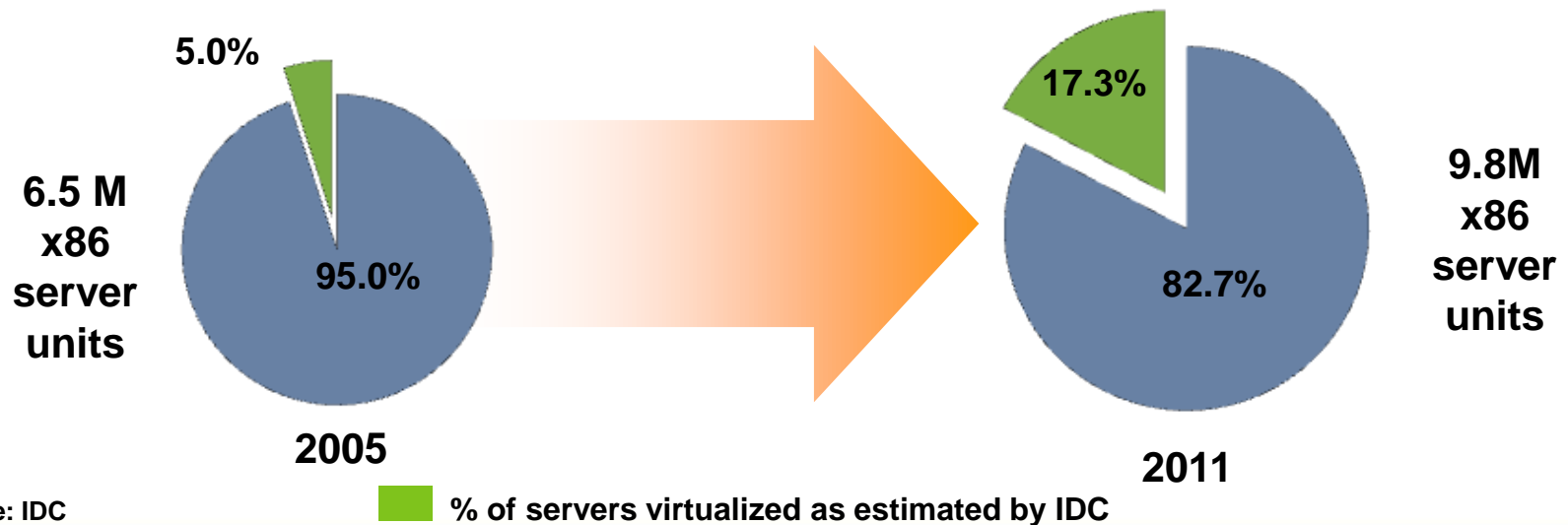
**<30% of IT budgets goes to  
innovation and competitive  
advantage**



# Virtualization Opportunity Remains Significant

- Significant portion of servers have not yet been virtualized
- Growing virtualization penetration predicted

	2008
x86 server shipments	8,209,801
x86 server install base	30,177,274
x86 server shipments for virtualization	1,102,246
<b>Penetration</b>	<b>13.43%</b>



# VMware Continues to be the #1 Software Investment for CIOs

Goldman Sachs

Which software providers are gaining share of your IT spending dollars?



#1  
12 Quarters

“VMware’s incumbent position at the top of the rankings demonstrates that server virtualization momentum remains alive and well with a strong ROI case for a declining budget environment.”

-- Goldman Sachs  
11/2/2008

# VMware History

**The  
Client  
Hypervisor**

**1999**

**The  
Server  
Hypervisor**

**2000**

**Virtual  
Infrastructure**

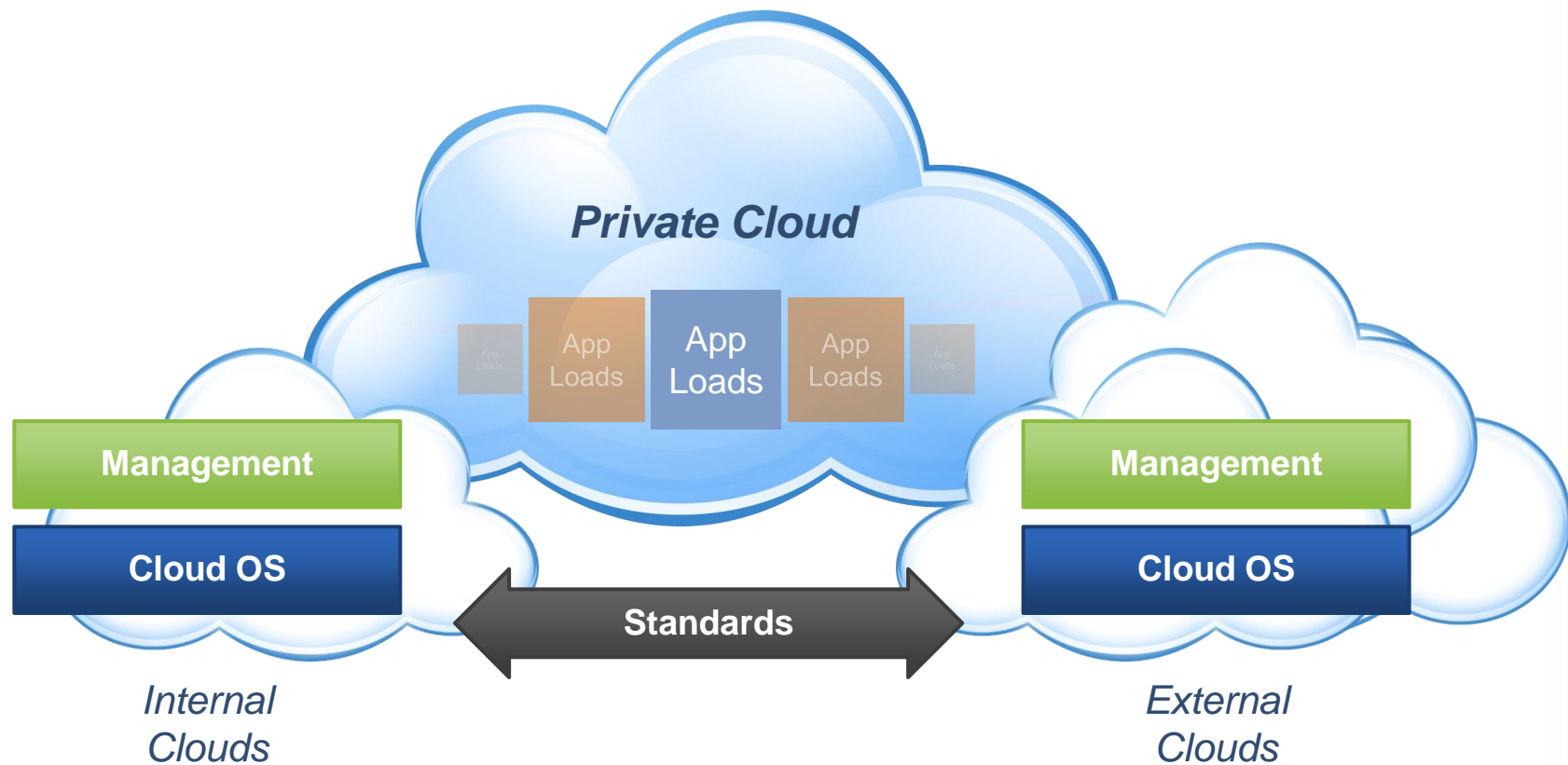
**2003**

**The  
Cloud  
OS**

**VMware  
vSphere™**  
*Foundation for  
Internal and  
External Clouds*

**2009+**

# Cloud OS - The Underpinning For Cloud Infrastructures



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

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

# Infrastructure Services

- Hardware assist
- Extended Live Migration Compatibility

vCompute

- Storage Management & Replication
- Storage Virtual Appliances

vStorage

- Network Management

vNetwork

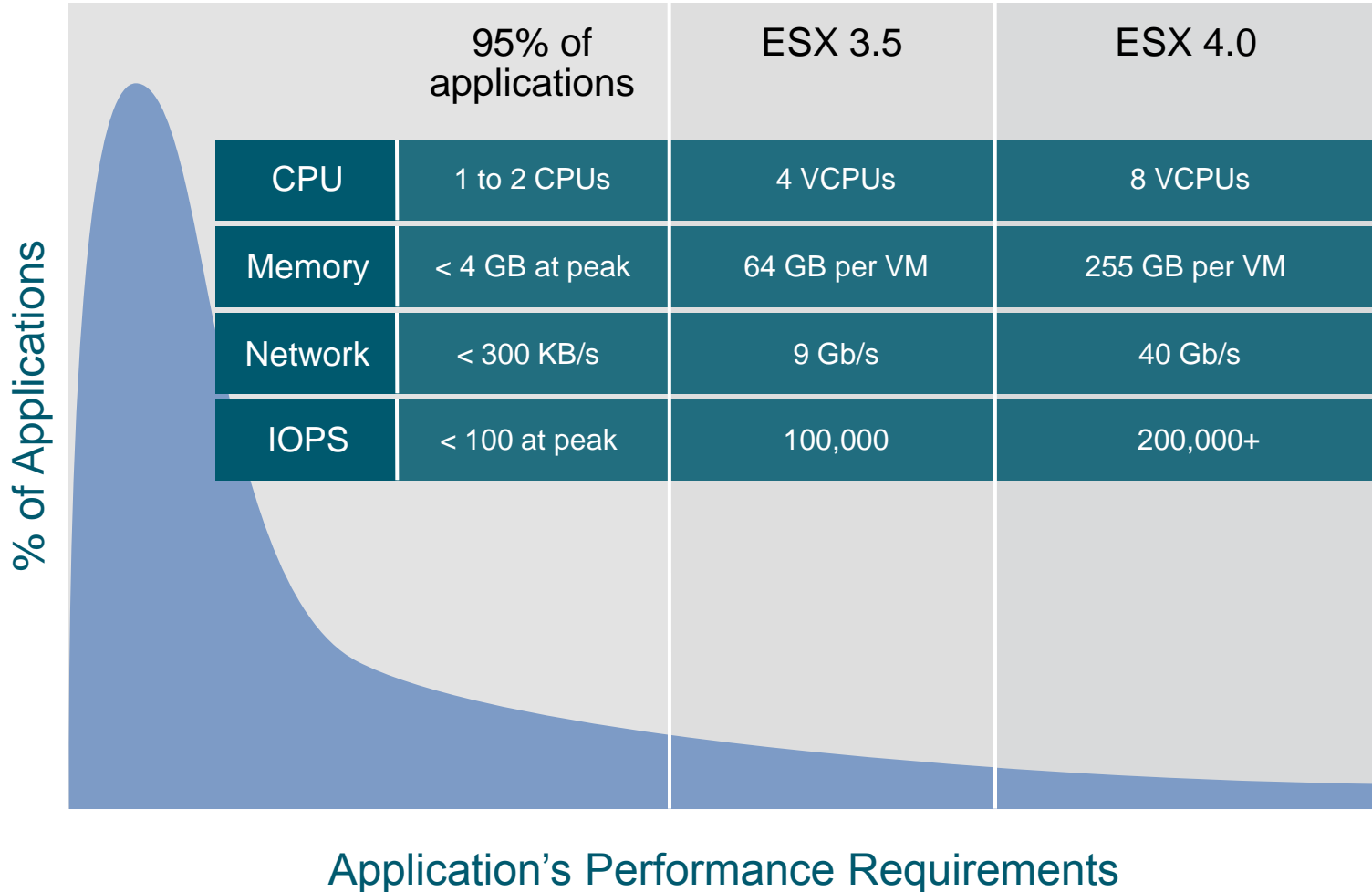
CURRENT

- CPU/Memory optimization
- DRS

- vStorage VMFS

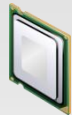
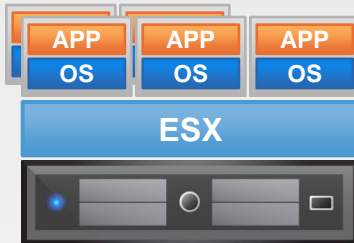
- vNetwork Standard Switch

# Run the Most Business Critical Applications

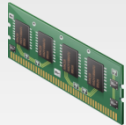


# Optimization for the Highest Consolidation Ratios

## Virtual Machines



CPU



Memory



Networking



Storage

### VM Scale Up

- 8-way vSMP and 255 GB of RAM per VM

### Hardware Scale Up

- 64 cores and 512 GB of physical RAM

### Hardware Assist

- Lowest CPU overhead

### Purpose Built Scheduler

### Hardware Assist

- Maximum memory efficiency

### Page Sharing

### Ballooning

### VMXNET3

- Wirespeed network access

### VMDirectPath I/O

### Storage stack optimization

- Greater than 200k iops per second  
Lower than 20 microsecond latency

### VMDirectPath I/O

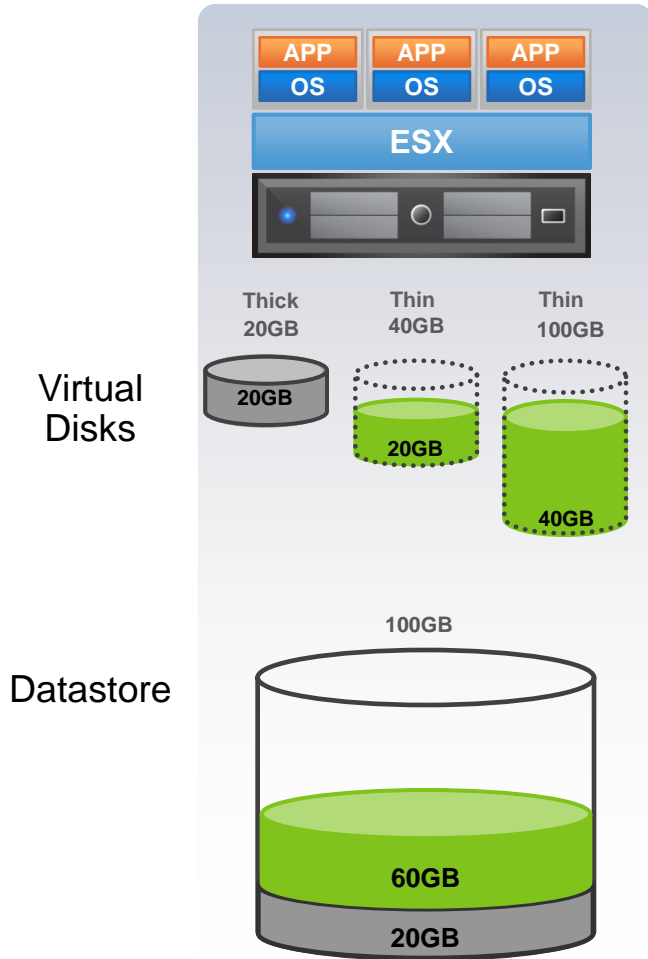
■ Current ■ NEW

# Power Optimization



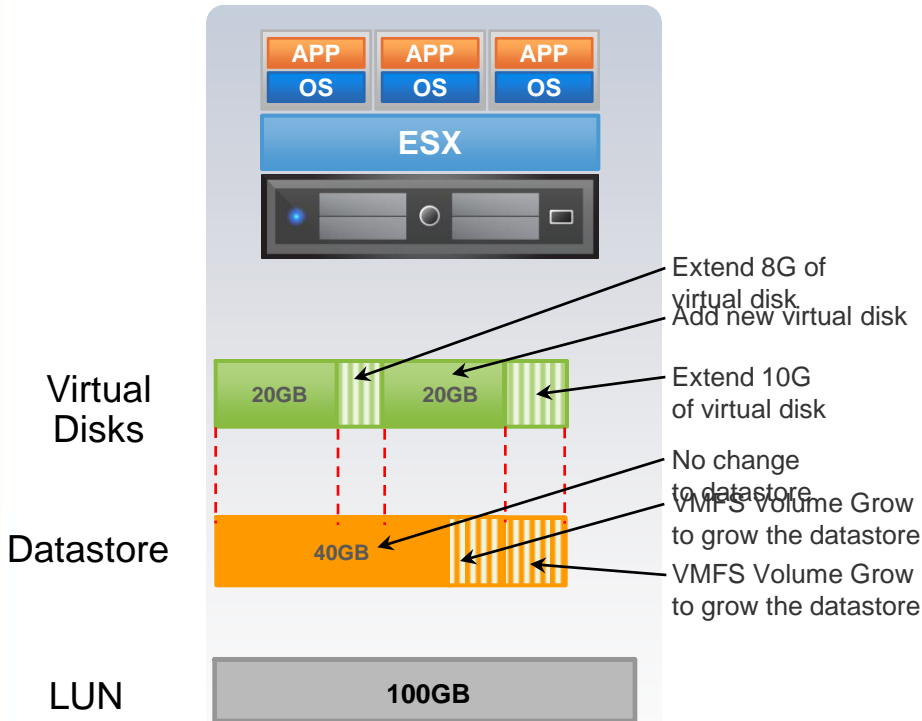
- DPM consolidates workloads onto fewer servers when the cluster needs fewer resources
  - Places unneeded servers in standby mode
  - Brings servers back online as workload needs increase
- ESX supports Intel Speed Step/AMD Power now for individual host power optimization
- Minimizes power consumption while guaranteeing service levels
- No disruption or downtime to virtual machines

# 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%

# Efficient Storage Abstraction with VMFS



## Hot Virtual Disk Extend

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

## VMFS Volume Grow

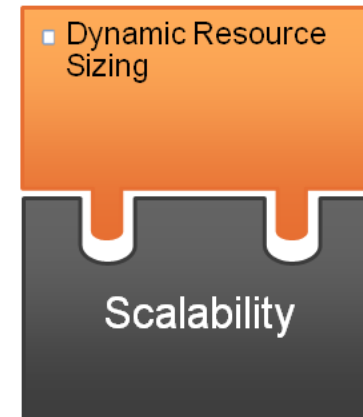
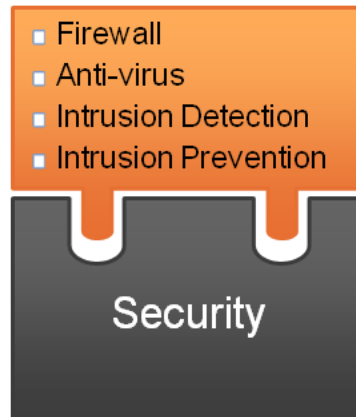
- ❑ Expand VMFS Volume on the same LUN it was created
- ❑ Facilitate adding more virtual machines to an existing volume
- ❑ Facilitate data growth for virtual machines
- ❑ Increase flexibility to simplify capacity planning

# vNetwork Distributed Switch



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

# Application Services



**CURRENT**

- HA, VMotion, Storage VMotion, NIC/HBA teaming provide resiliency to downtime

- ESXi locked down interfaces, no general purpose OS dependence

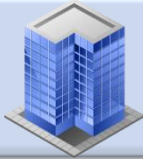
- DRS shares and reservations allow apps to shrink and grow based on priority

# VMware Solutions Maximize Uptime

## Prevent Planned Downtime

## Minimize Unplanned Downtime

Site



Site Recovery Manager

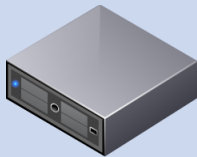
Storage



Storage vMotion

Consolidated Backup  
+ backup software,  
Data Recovery

Server



vMotion + DRS  
Maintenance Mode

HA,  
Fault Tolerance

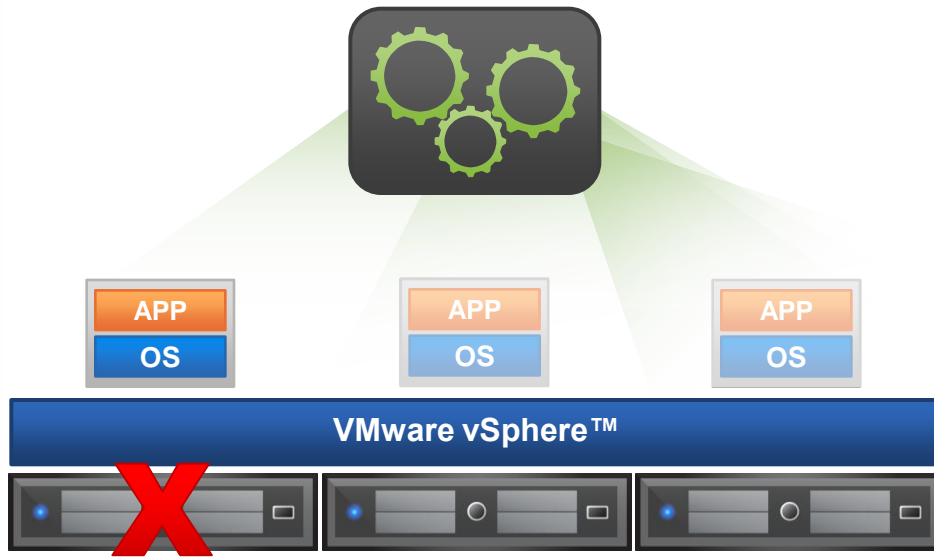
Interconnect



Network  
Redundancy

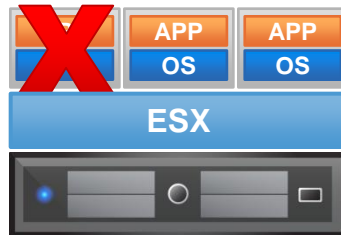
NIC & HBA Teaming

# 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

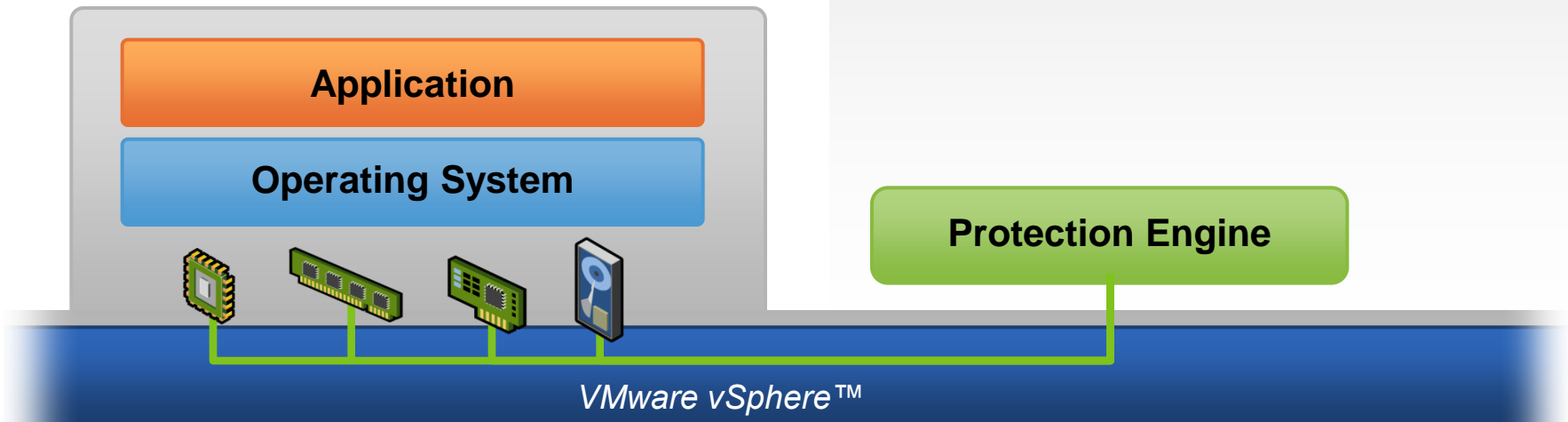
# VMware Data Recovery



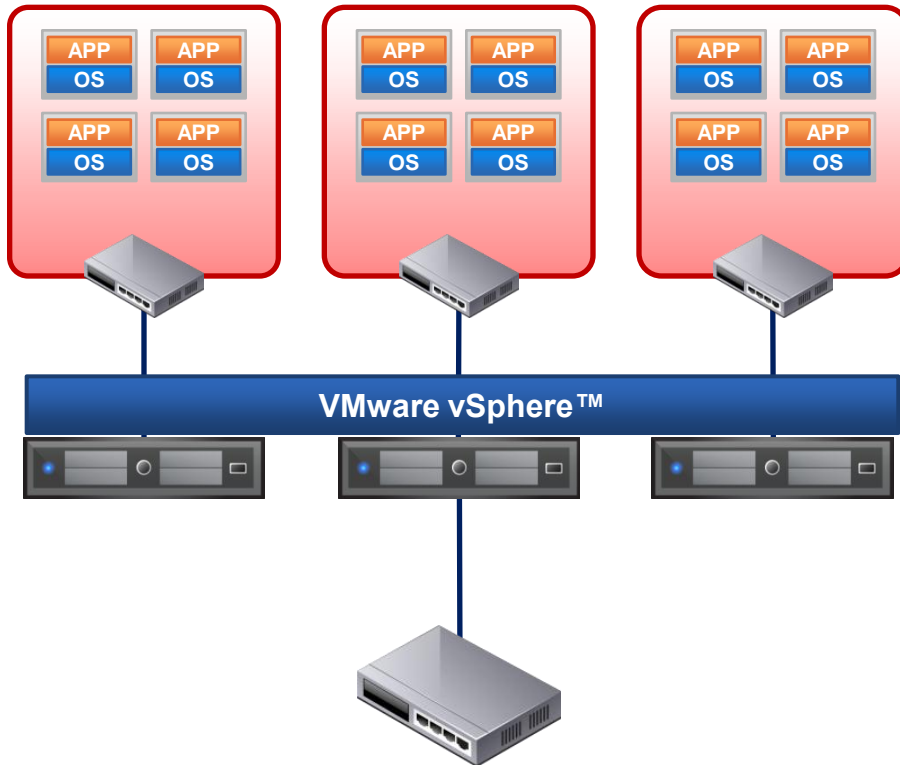
- Agent-less, disk-based backup and recovery of your VMs
- VM or file level restore
- Incremental backups and data de-dupe to save disk space
- Quick, simple and complete data protection for your VMs
- Centralized Management through vSphere Client
- Cost Effective Storage Management

## 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

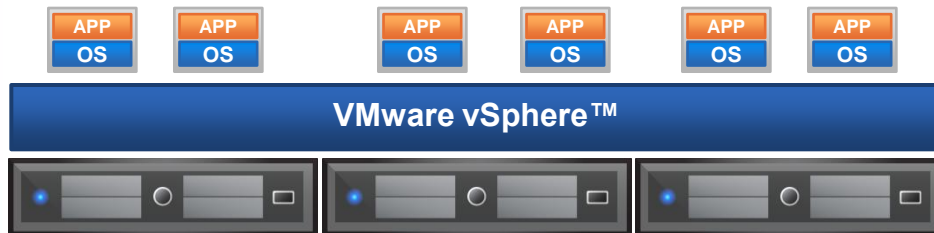


# VMware vShield Zones



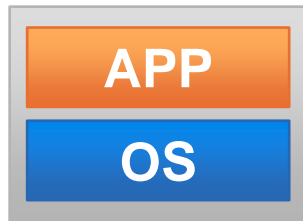
- Self-learning, self-configuring firewall Service
- VMotion and network-configuration aware trust zones
- Dynamic firewall policy using application protocol awareness
- Dynamic security capacity using infrastructure vServices
- Security policies auto-adapt to network reconfiguration or upgrades

## DRS – Hot Add

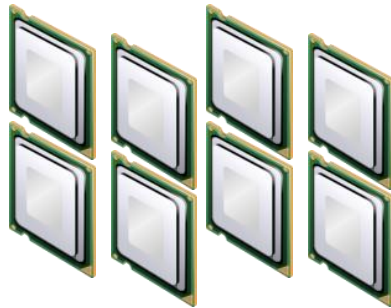


- Shrink and grow of applications based on demand and priority
- Dynamic and responsive load balancing

## Scale Up Applications for Assured QoS



**255GB**



**8 CPUs**

- 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

# Next Generation Management Enhances Control

**vCenter Suite**

**Management**

Application Services

Availability

Security

Scalability

**vSphere 4.0**

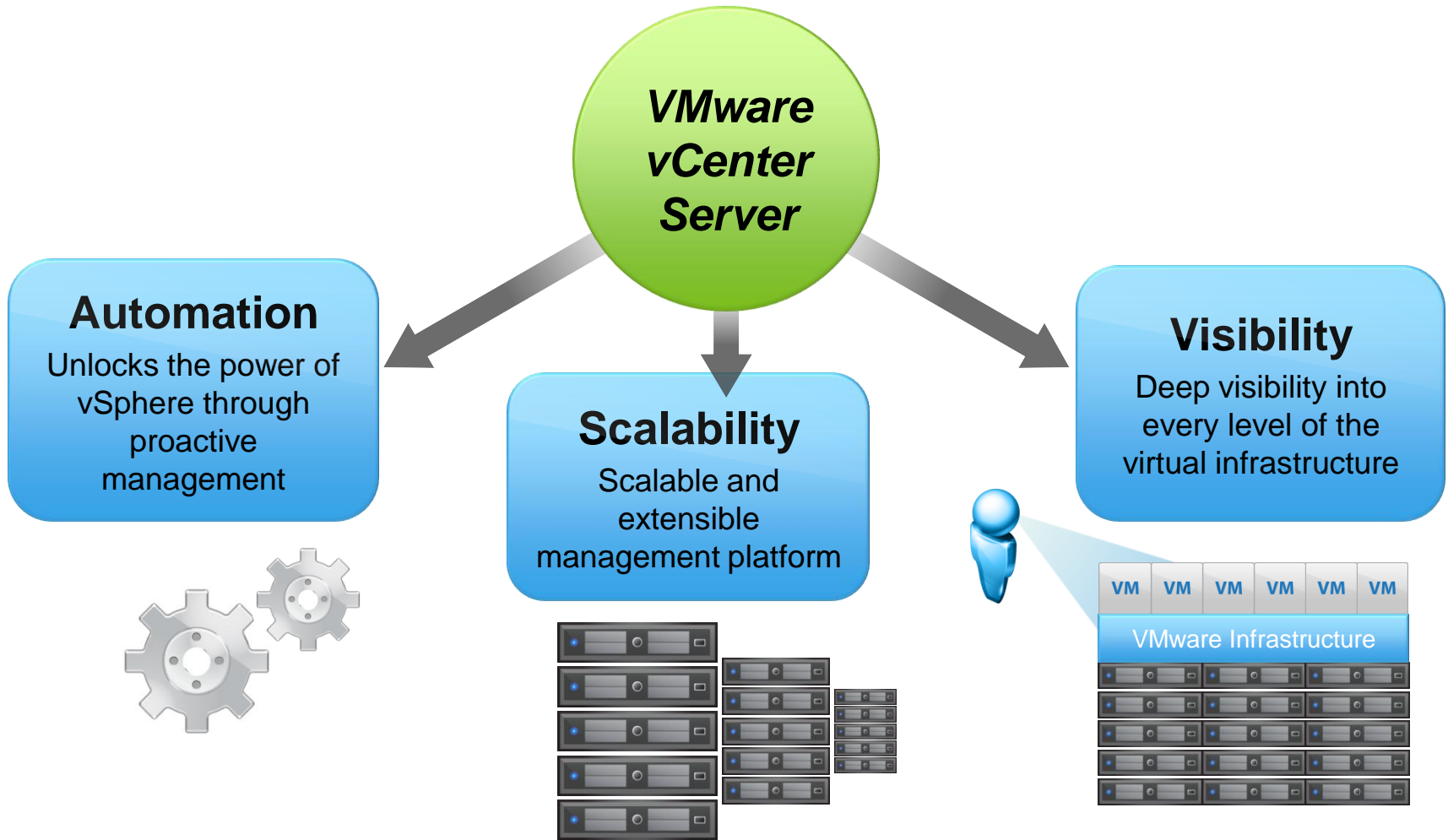
Infrastructure Services

vCompute

vStorage

vNetwork

# VMware vCenter Server 4.0



# Extensible Management Suite

## Self Service Management

Self Service Portal

Service Catalogue

Billing/Chargeback

VMware  
vCenter  
Suite

SLA Driven  
Management  
Model

Availability



99.99%

Security



High

Performance



.2  
Milliseconds

Provisioning

Configuration

Capacity

Operations

Performance

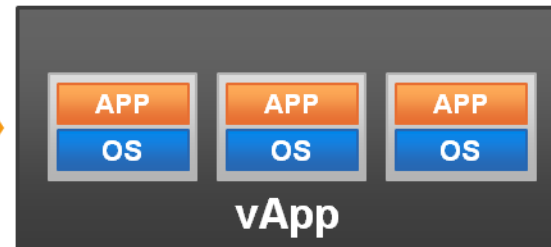
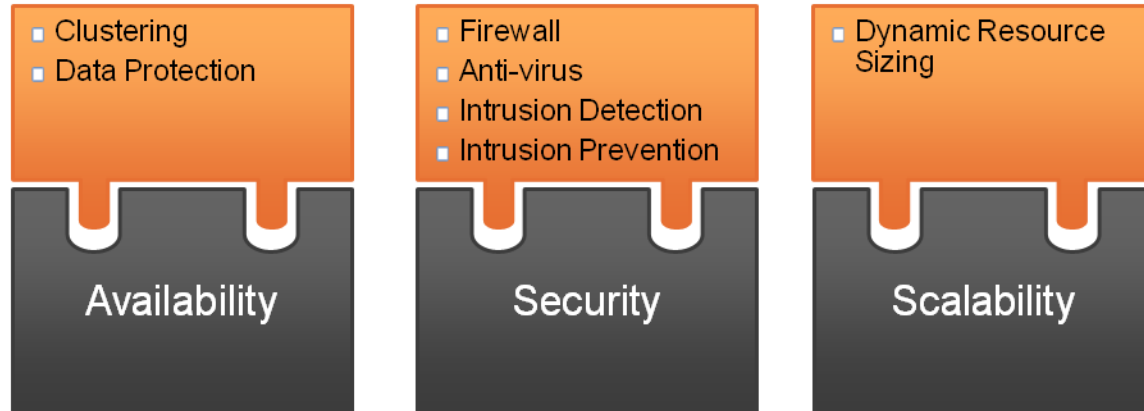
Availability

## Infrastructure Management

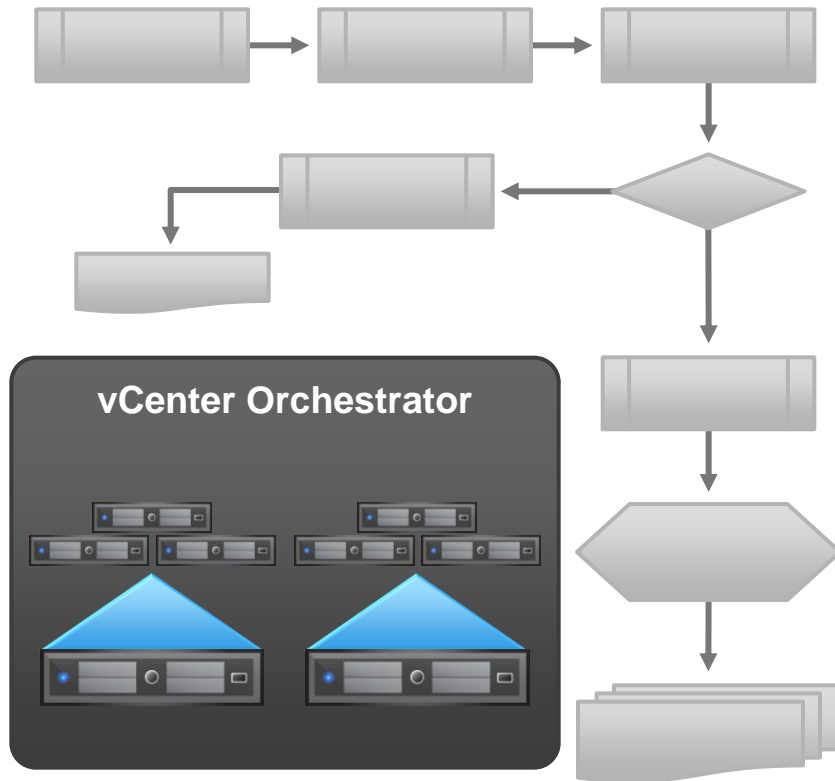
vSphere

Hardware

# vApp – Self Describing Applications Enable Automated SLA Management

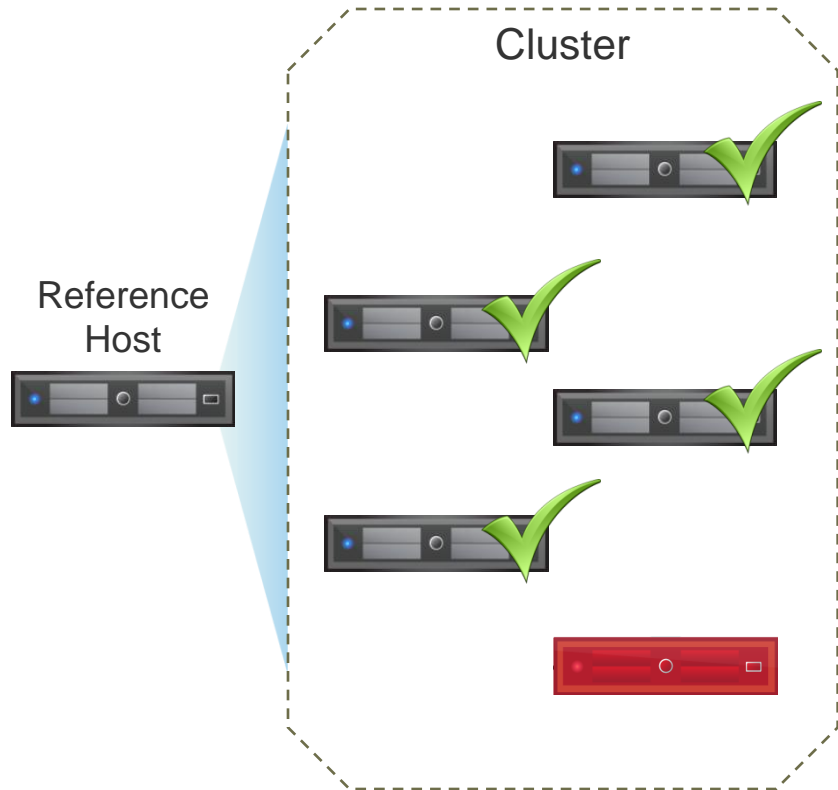


## Automation with vCenter Orchestrator



- > Workflow engine for orchestrating virtualization
- > Automate manual, repeatable steps by drag and drop interface without scripting
- > Centralize workflow management for all processes associated with the environment
- > Administer and control large environments easily
- > Provide custom workflows for complex environments

# vCenter Server: Host Profiles



- > Simplified setup and change management for ESX hosts
- > Easy detection of non-compliance with standard configurations
- > Automated remediation

# VMware vSphere™: Most Comprehensive OS Support

## VMware vSphere™

- Windows NT 4.0
- Windows 2000
- Windows Server 2003
- Windows Server 2008
- Windows Vista
- Windows XP
- RHEL5
- RHEL4
- RHEL3
- RHEL2.1
- SLES10
- SLES9
- SLES8
- Ubuntu 7.04
- Solaris 10 for x86
- NetWare 6.5
- NetWare 6.0
- NetWare 6.1
- Debian
- CentOS
- FreeBSD
- Asianux
- SCO OpenServer
- SCO Unixware
- ..

**vSphere = most guest OS**

# VMware vSphere™: Extensive Enterprise Apps Support

**Over 300 enterprise software applications have explicit support statements for VMware vSphere today.**

- > See complete list at <http://www.vmware.com/partners/alliances/vendors/>
- > List includes: BMC, Cisco, CA , Dell, HP, IBM, McAfee, Microsoft, Research in Motion, SAP, Symantec

**More software vendors adding support for VMware vSphere every month.**

- > Submit requests to VMware for help to get an application supported: [Click here](#)

**VMware + Software Vendors  
Working together to ensure customers are supported**

# Summary – What's New



vApp

**vCenter Server**

- Linked Mode
- Host Profiles
- Orchestrator

	<b>Availability</b>	<b>Security</b>	<b>Scalability</b>	
<b>Application Services</b>	<ul style="list-style-type: none"> <li>■ Fault Tolerance</li> <li>■ Data Recovery</li> </ul>	<ul style="list-style-type: none"> <li>■ vShield Zones</li> <li>■ VMSafe</li> </ul>	<ul style="list-style-type: none"> <li>■ Hot Add</li> <li>■ Hot plug devices</li> <li>■ Hot extend disks</li> </ul>	<b>VMware vSphere™ 4.0</b>
	<b>vCompute</b>	<b>vStorage</b>	<b>vNetwork</b>	
<b>Infrastructure Services</b>	<ul style="list-style-type: none"> <li>■ Storage and network optimizations</li> <li>■ DPM</li> <li>■ VMDirectPath I/O</li> </ul>	<ul style="list-style-type: none"> <li>■ Thin Provisioning</li> <li>■ Volume Grow</li> </ul>	<ul style="list-style-type: none"> <li>■ Distributed Switch</li> </ul>	



Internal Cloud



External Cloud

## Fragen ?

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**Deutsche Seite:**

<http://www.vmware.de>

**VI3 ausprobieren**

<http://www.vmware.com/products/vi>

**Trainings**

[www.vmware-training.at](http://www.vmware-training.at)

