

Session Title: Virtualization Vmware and Hyper-V

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Agenda

- Comparing Hypervisors
- VMWare vSphere
- Microsoft Hyper-V
- Next Steps

Why Virtualize?

- Go Green
- Business Continuity/Disaster Recovery
- Life Cycle Management
- Everybody Is Doing It

Dare To Compare

- Look Before You Leap
- Let Others Do The Legwork
- Take Advantage Of Trials and “Free” Products
- Make A List And Check It Twice

VMWare or Microsoft

- **VMWare: The Reigning Hypervisor Champ**
- **Microsoft: Pound For Pound Best Fighter**
- **What Have You Done Lately?**



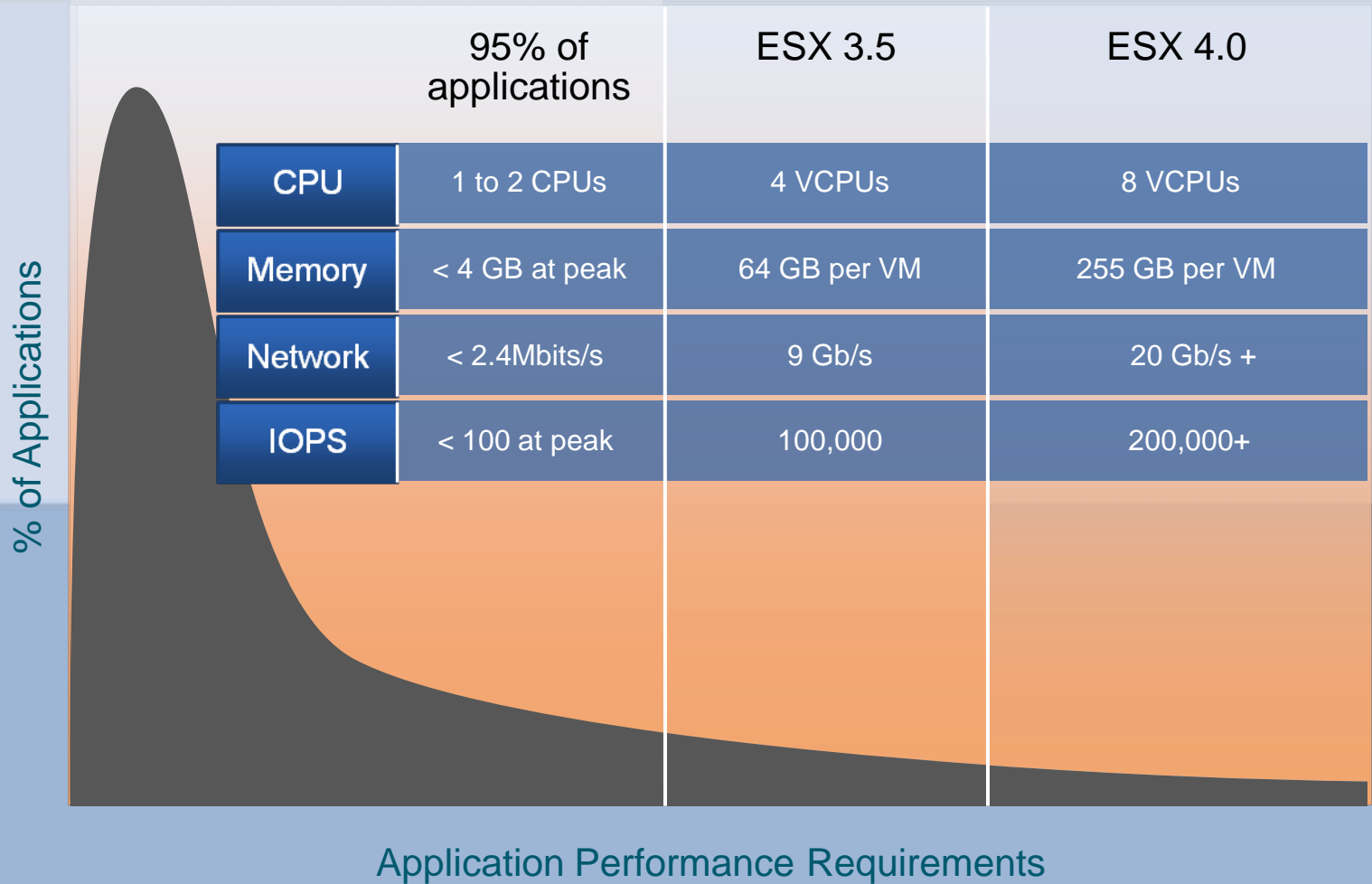
VSphere – The Platform for 100% Virtualization

Vcenter – New Interface and functionality

Distributed Virtual Switch, And Nexus 1000/v



vSphere 4 Delivers Performance for Demanding Applications



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

Green IT VMware vSphere™ Power Optimization

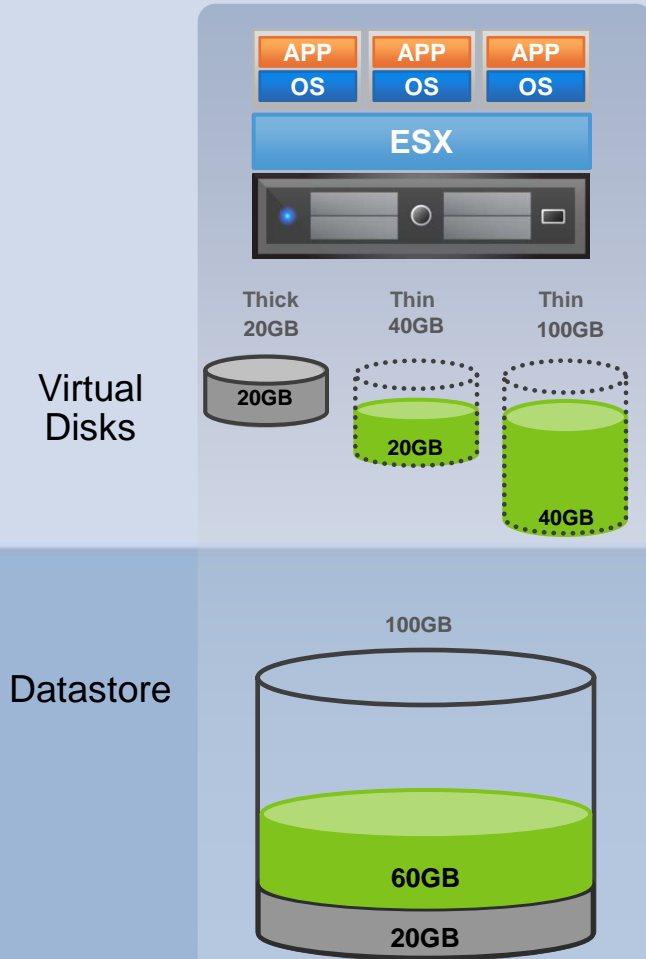
DPM brings servers back online when load increases



DPM powers off server when requirements are lower

- ❑ 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%



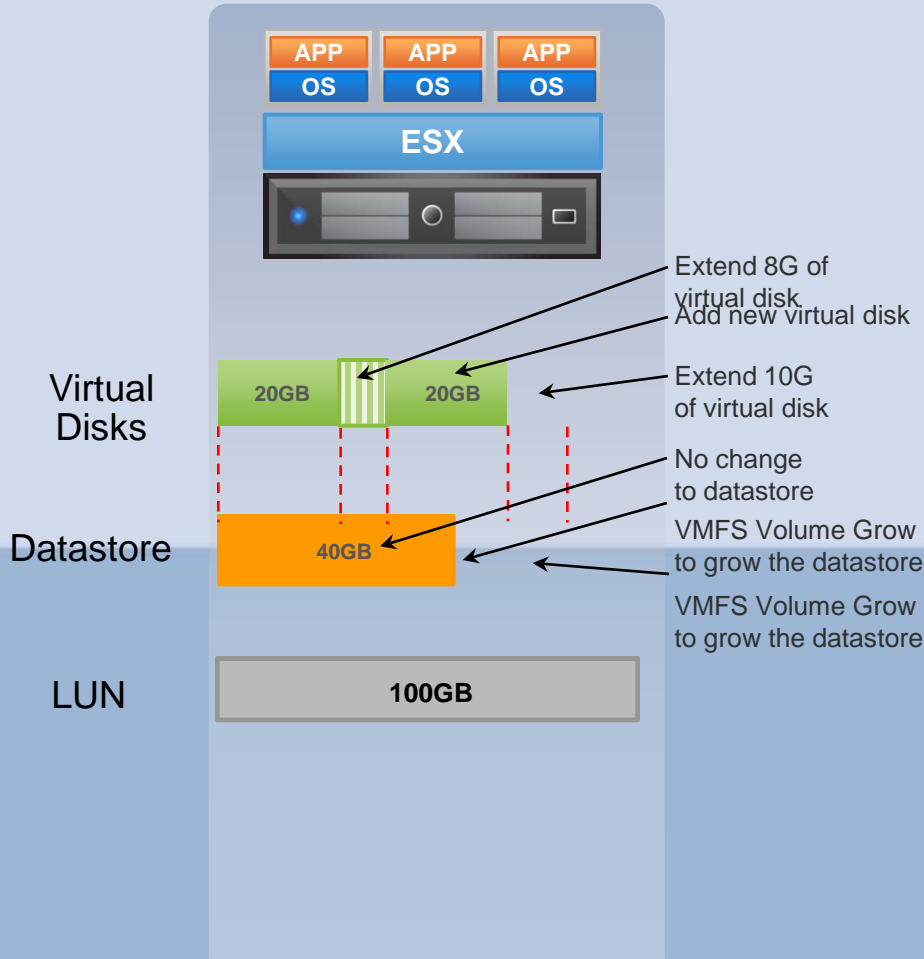
vmware

Efficient Storage Abstraction -VMFS

vCompute

vStorage

vNetwork



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



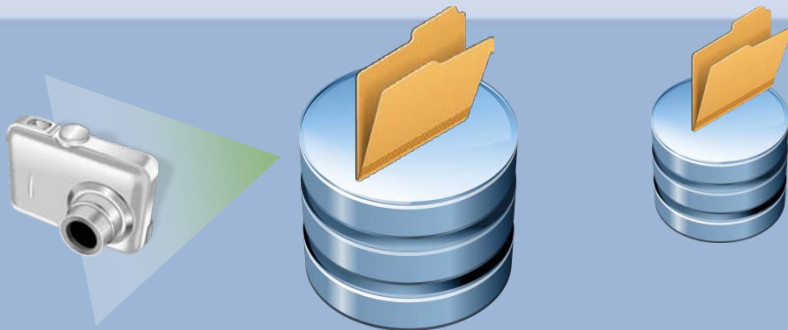
- ❑ Aggregated datacenter level virtual networking
- ❑ Simplified setup and change
- ❑ Easy troubleshooting, monitoring and debugging
- ❑ Enables transparent third party management of virtual environments

vNetwork Distributed Switch

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 VirtualCenter
- Cost Effective Storage Management



De-duplicated
Storage



VMware Vmsafe

Availability

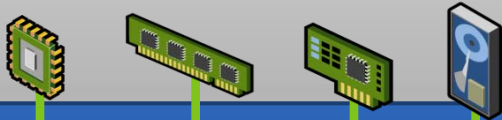
Security

Scalability

- > 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

Application

Operating System



Protection Engine

VMware vSphere™



vApp

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 	<ul style="list-style-type: none"> Distributed Switch

VMware vSphere™ 4.0

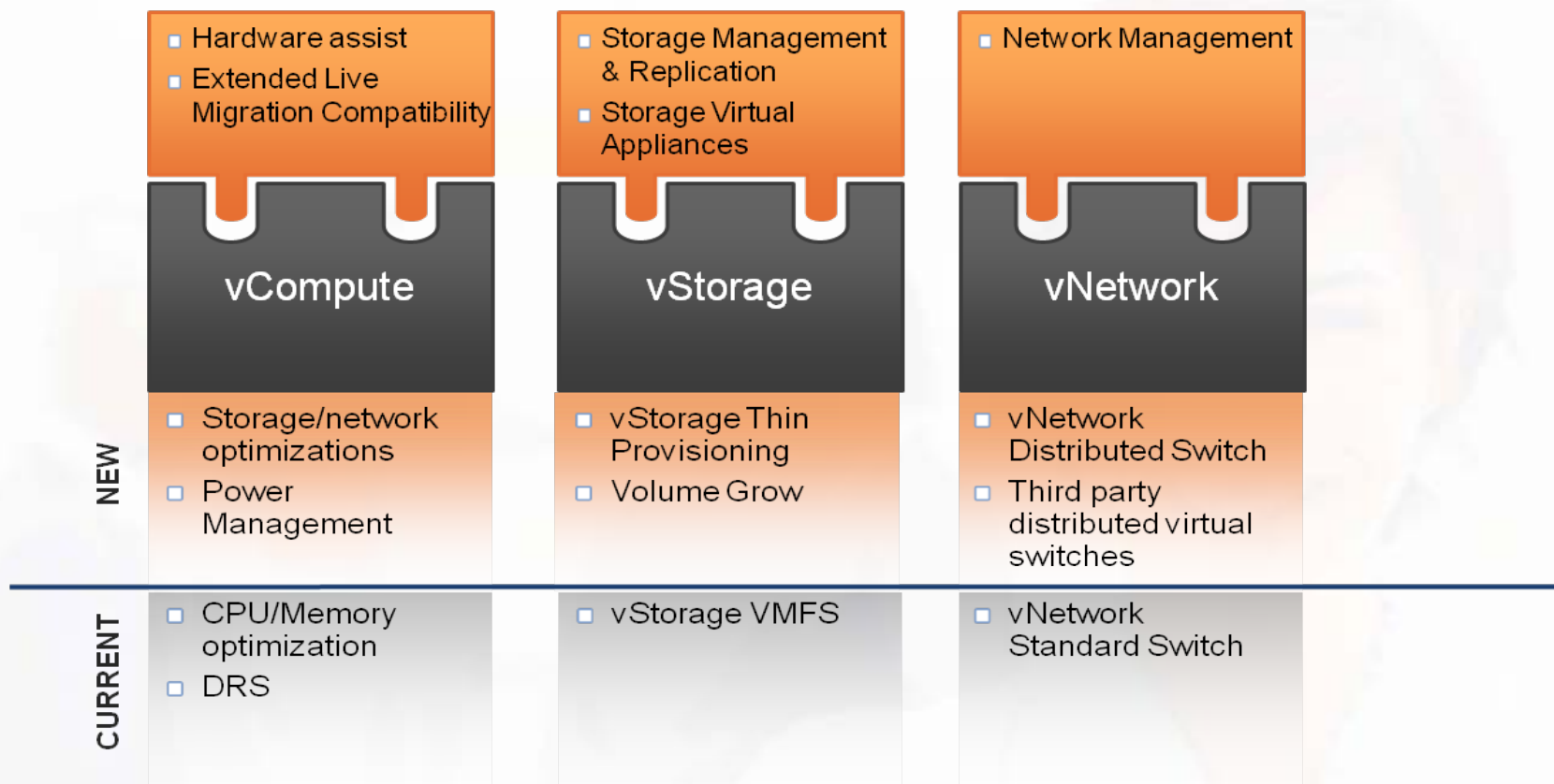


Internal Cloud



External Cloud

**Note vCenter Server and its components are a separate purchase*



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

vc08.tml.local - VMware Infrastructure Client

File Edit View Inventory Administration Plug-ins Help

Home Search Inventory

Inventory

- Search
- Hosts and Clusters
- VMs and Templates
- Datastores
- Networking

Administration

- Roles
- Sessions
- Licensing
- System Logs
- vCenter Server Settings
- VirtualCenter Service Status

Management

- Scheduled Tasks
- Events
- Maps
- Host Profiles
- Customization Specifications Manager

Recent Tasks

Name	Target	Status

Tasks Alarms

Search Inventory Search

[Hide options](#) [Clear search](#)

Search results must also satisfy all of the following criteria:

VM Guest OS contains 2003 [Remove](#)

VM Tools Status is out of date [Remove](#)

VM Power State is powered on [Remove](#)

[+ Add](#)

result 1 in inventory where Guest OS contains 2003, Tools Status is out of date and Power State is powered on at 2/5/2009 3:44:45 PM. [Refresh](#)

Name	Inventory Path	Power State	Guest OS	Tools Status
W2K3 VM2	vc07.tml.local > DC_07 > W2K3 VM2	Powered On	Microsoft Windows Server 2003, Enterprise E...	out of date



- gandalf.internalmgc.com
 - vSphere 4 Roland
 - Pedro's Cluster
 - esx01.internalmgc.c
 - Appollo13
 - Citrixa11
 - citrixgw1
 - CITRIXWEB.inte
 - CSG
 - dukeocr.interna
 - equ.internalmgc
 - ghostcastsrvr
 - pippin.internalm
 - plagent.interna
 - Symantec1
 - TestXP.interna
 - Valencia.interna
 - W2k8
 - webserver.inte
 - esx02.internalmgc.c
 - Budlight
 - CitrixXA1.interna
 - Citrixxa13
 - CitrixXA3.interna
 - Terminal
 - esx03.internalmgc.c
 - CITRIXGWL
 - CITRIXSQL
 - COPITRAK.inte
 - LaserPrint
 - printsrvr.interna
 - esx04.internalmgc.c
 - Eagle.internalm
 - Prolaw02
 - W2k8-template

esx02.internalmgc.com VMware ESX, 4.0.0, 164009

Getting Started

Summary

Virtual Machines

Resource Allocation

Performance

Configuration

Tasks & Events

Alarms

Permissions

Maps

Hardware

[Processors](#)[Memory](#)[Storage](#)[Networking](#)▶ [Storage Adapters](#)[Network Adapters](#)[Advanced Settings](#)

Software

[Licensed Features](#)[Time Configuration](#)[DNS and Routing](#)[Power Management](#)[Virtual Machine Startup/Shutdown](#)[Virtual Machine Swapfile Location](#)[Security Profile](#)[System Resource Allocation](#)[Advanced Settings](#)

Storage Adapters

Device	Type	WWN
vmhba3	Block SCSI	
vmhba32	Block SCSI	
Smart Array P400		
vmhba2	Block SCSI	
LPe11000 4Gb Fibre Channel Host Adapter		
vmhba0	Fibre Channel	20:00:00:00:c9:84:51:21 10:00:00:00:c9:84:51:21
vmhba1	Fibre Channel	20:00:00:00:c9:84:4f:5f 10:00:00:00:c9:84:4f:5f

Details

vmhba0

Model: LPe11000 4Gb Fibre Channel Host Adapter
 WWN: 20:00:00:00:c9:84:51:21 10:00:00:00:c9:84:51:21
 Targets: 1 Devices: 14 Paths: 14

View: [Devices](#) [Paths](#)

Name	Runtime Name	LUN	Type	Transport
DGC Fibre Channel Disk (naa.6006...)	vmhba0:C0:T0:L0	0	disk	Fibre Channel
DGC Fibre Channel Disk (naa.6006...)	vmhba0:C0:T0:L1	1	disk	Fibre Channel
DGC Fibre Channel Disk (naa.6006...)	vmhba0:C0:T0:L2	2	disk	Fibre Channel
DGC Fibre Channel Disk (naa.6006...)	vmhba0:C0:T0:L3	3	disk	Fibre Channel
DGC Fibre Channel Disk (naa.6006...)	vmhba0:C0:T0:L4	4	disk	Fibre Channel
DGC Fibre Channel Disk (naa.6006...)	vmhba0:C0:T0:L5	5	disk	Fibre Channel
DGC Fibre Channel Disk (naa.6006...)	vmhba0:C0:T0:L6	6	disk	Fibre Channel
DGC Fibre Channel Disk (naa.6006...)	vmhba0:C0:T0:L7	7	disk	Fibre Channel
DGC Fibre Channel Disk (naa.6006...)	vmhba0:C0:T0:L8	8	disk	Fibre Channel
DGC Fibre Channel Disk (naa.6006...)	vmhba0:C0:T0:L9	9	disk	Fibre Channel
DGC Fibre Channel Disk (naa.6006...)	vmhba0:C0:T0:L10	10	disk	Fibre Channel
DGC Fibre Channel Disk (naa.6006...)	vmhba0:C0:T0:L11	11	disk	Fibre Channel
DGC Fibre Channel Disk (naa.6006...)	vmhba0:C0:T0:L12	12	disk	Fibre Channel
DGC Fibre Channel Disk (naa.6006...)	vmhba0:C0:T0:L13	13	disk	Fibre Channel

Hyper-V: The Other Option

Reasons For Choosing Hyper-V Over VM

- Cost – Not as compelling now that VMware is virtually free.
- Didn't Need All The POWER
- Easier To Install and Maintain (personal opinion)
- Nothing Else To Buy

Hyper-V: The Other Option

COST

We, the willing, led by the unknowing
are doing the impossible
for the ungrateful.

We have done so much with so little
for so long that
we are now qualified to do
ANYTHING with NOTHING!

Hyper-V: The Other Option

COST

Low end server (Dell 2950)

Dual Quad Core Xeon Procs

Windows Server 2008 X64 version

6 - 300 GB drives – 2 Arrays

16GB RAM

Total: \$6500.00

Hyper-V: The Other Option

Didn't Need All The POWER


Hyper-V Manager
WLJ_HYPERV

Virtual Machines				
Name	State	CPU Usage	Uptime	Operations
Legal55 Template U8042	Running	0 %	8.04:52:56	
Server07	Running	0 %	8.04:52:36	
WLJ_Video	Running	0 %	8.04:52:50	

Snapshots

- WLJ_Video - (8/6/2009 - 7:51:29 AM)
 - Now

WLJ_Video

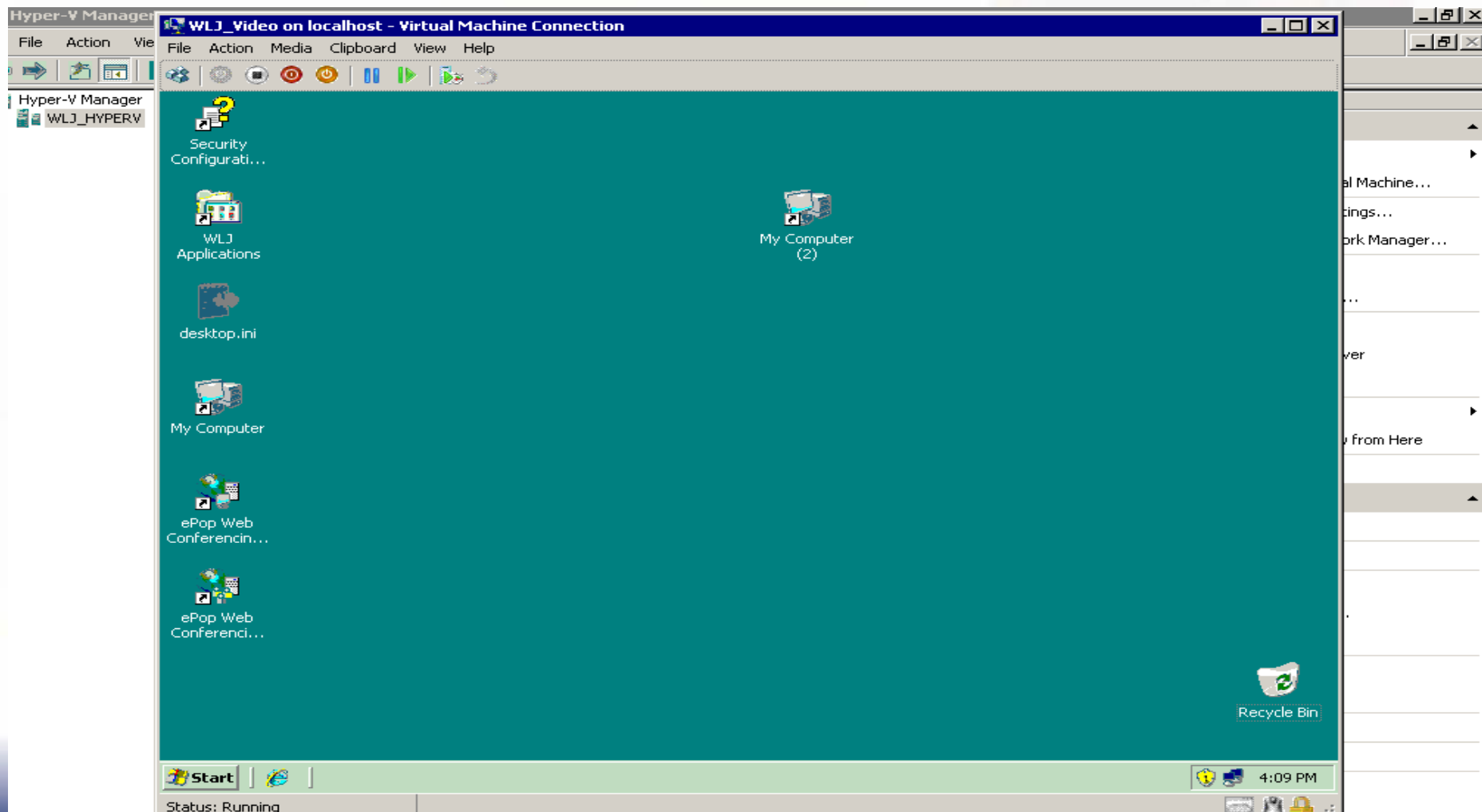


Created: 3/17/2009 9:54:02 AM
Notes: None
Heartbeat: OK
Memory Usage: 4096 MB

- Actions**
- WLJ_HYPERV**
 - New
 - Import Virtual Machine...
 - Hyper-V Settings...
 - Virtual Network Manager...
 - Edit Disk...
 - Inspect Disk...
 - Stop Service
 - Remove Server
 - Refresh
 - View
 - New Window from Here
 - Help
 - WLJ_Video**
 - Connect...
 - Settings...
 - Turn Off...
 - Shut Down...
 - Save
 - Pause
 - Reset
 - Snapshot
 - Revert...
 - Rename...
 - Help

Hyper-V: The Other Option

Easier To Install and Maintain



Hyper-V: The Other Option

STAY TUNED!!

Server 2008 R2

Enhanced Hyper-V Features

Live Migration (Clustering Required)

Dynamic Virtual Machine Support

Enhanced Processor Support

Enhanced Network Support

Hyper-V: The Other Option

References

Windows Server 2008 Hyper-V Unleashed

Sams Publications – Rand Morimoto & Jeff Guillet

Microsoft IT Pro Momentum

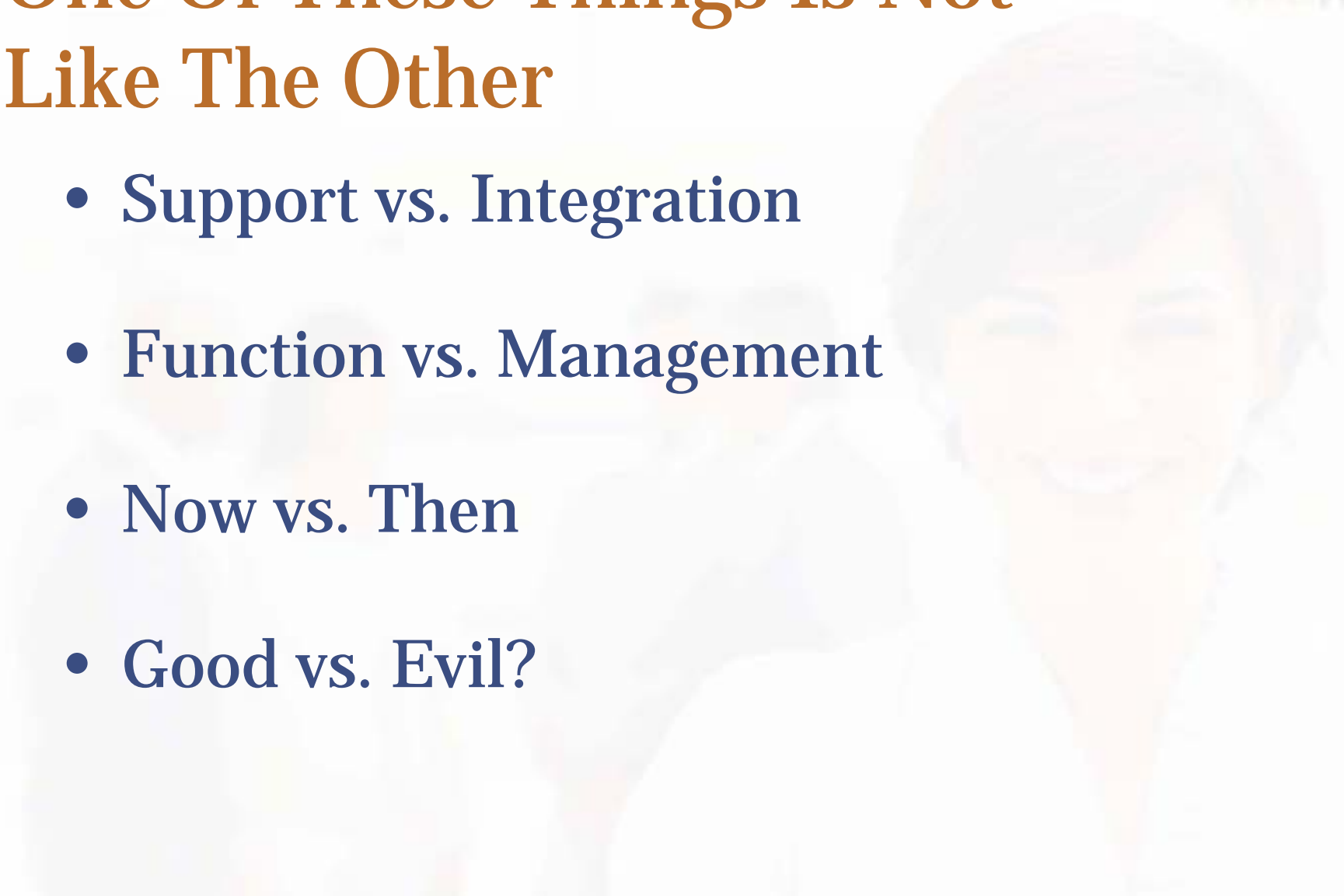
By Invitation Only – Contact your Microsoft Sales Rep

Freedom Isn't Free

- The First One Is Always Free
- HCL + License + Function \neq Free
- Would You Care To Upsize That?
- The Devil Is In The Details

One Of These Things Is Not Like The Other

- Support vs. Integration
- Function vs. Management
- Now vs. Then
- Good vs. Evil?



You Can't Always Get What You Want

- Stop Looking For The Magic Bullet
- Sometimes More Is Better
- Sometimes Less Is More
- You Can Get What You Need

Where Do We Go Now?

- Determine Needs
- Define Short And Long Term Goals
- Stick To The Plan
- Prepare For Change

Virtualization Resources

- Follow Best Practices

- Documents and Publications:

- VMWare Resources

- http://www.vmware.com/support/pubs/vi_pubs.html

- Control Sprawl

- <http://esj.com/articles/2007/09/18/best-practices-to-avoid-virtual-sprawl.aspx>

- ESX and Cisco -

- http://www.cisco.com/en/US/docs/solutions/Enterprise/Data_Center/vmware/VMware.html

- HP Virtualization with VMWare:

- <http://h18000.www1.hp.com/products/servers/vmware/index.html>

- ESX and HP Storage :

- <http://h71019.www7.hp.com/ActiveAnswers/downloads/4AA1-0818ENW.pdf>

- MS Hyper-V: <http://www.microsoft.com/windowsserver2008/en/us/hyperv.aspx>

- Citrix Xen server:

- <http://www.citrix.com/English/ps2/products/product.asp?contentID=683148>

It's time for Virtualization

- Follow Best Practices

- HP Proliant Server Sizing :
 - <http://h71019.www7.hp.com/activeanswers/cache/120132-0-0-0-121.html>
- VMWare Virtualization TCO and ROI Calculator
 - https://roianalyst.alinean.com/ent_02/AutoLogin.do?d=593411470991915416&q=VMWare%20ROI%20Calculators
- Hyper-V Planning and Deployment Resources :
 - <http://www.ditii.com/2009/02/01/hyper-v-planning-deployment-resource>
- Virtualization Shootout :
 - <http://windowsitpro.com/article/articleid/98879/virtualization-shootout-part-1.html>

Windows Server Virtualization Calculators -

<http://www.microsoft.com/windowsserver2003/howtobuy/licensing/calculator.msp>

- Q&A