

# EPIC Information Solutions Inc.

VMware vs. Hyper-V  
What free really means

April 08



# Introduction

- EPIC Information Solutions
  - HP Premier Business Partner
  - VMware Enterprise Partner
  - Microsoft Certified Gold Partner
- Raj Perumal, Senior Systems Engineer
  - Over 15 years IT experience
- Chris MacDonald, Senior Network Analyst
  - Over 10 years IT Experience
- Josh Wood, Senior Systems Engineer
  - Over 10 years IT Experience

October 08



## **General Overview**

- VMware ESXi 3.5 Server
- Microsoft Hyper-V 2008 Server
- What's all the buzz about

October 08



# VMware VI3 Versions

- **VMware ESXi 3.5u2 Server**
  - Stand-alone, FC/iSCSI SAN support, 256 GB RAM, 32 CPUS, 64GB of RAM per virtual machine
  - Virtual switching from 8 to 1016 ports and up to 248 virtual switches per ESX host
  - RAM over-commitment, transparent page sharing, memory ballooning
- **VMware ESX 3.5u2 Foundation**
  - Includes Virtual Center Agent and VCB
- **VMware ESX 3.5u2 Standard**
  - Includes VMware High Availability
- **VMware ESX 3.5u2 Enterprise**
  - Includes VMware DRS, VMotion, Storage VMotion

October 08



# Microsoft Hyper-V Versions

- Microsoft Hyper-V 2008 Server
  - Stand-Alone
- Microsoft Server 2008 Std w/ Hyper-V
  - Local GUI, ability to add additional server roles
- Microsoft Server 2008 Ent w/ Hyper-V
  - HA Clustering, Quick Migration, Large Memory Support(>32GB of RAM), support for >4 Processors
- Microsoft Server 2008 Datacenter w/ Hyper-V

October 08



# Hardware Requirements Comparison

	ESXi 3.5	Hyper-V 2008
CPU	X32 or x64 processor with 1.5 GHZ processor or better	x64 Processor with 2GHz or better
Memory	Minimum 1GB Recommended TBD Maximum 256GB	Minimum 1GB Recommended 2G+ Maximum 32GB
Disk	Minimum 32MB Recommended TBD Maximum 64TB	Minimum 10GB Recommended 40GB+ Maximum
Network	Minimum 1 NIC Recommended 4	Minimum 1 NIC Recommended 2+
Management	VMWare Virtual Infrastructure Client for remote management: <ul style="list-style-type: none"> <li>• Windows 2000 Workstation</li> <li>• Windows XP Professional</li> <li>• Windows Server 2003</li> <li>• Windows Server 2008</li> </ul>	Hyper-V Server requires a second system for remote management running: <ul style="list-style-type: none"> <li>• Windows Server 2008 with the Hyper-V Manager MMC</li> <li>• Vista SP1 with Hyper-V Manager MMC</li> <li>• Microsoft System Center Virtual Machine Manager</li> </ul>

October 08



# Supported Operating Systems Comparison

VMware 3.5 Update 2	Hyper-V 2008
Windows (32 & 64 bit) <ul style="list-style-type: none"><li>- Windows 98</li><li>- Windows NT</li><li>- Windows 2000</li><li>- Windows 2003 &amp; 2003 R2</li><li>- Windows 2008</li></ul>	Windows (32 & 64 bit) <ul style="list-style-type: none"><li>- 2000 Server</li><li>- 2003 Server Web, Std, Ent, &amp; DC</li><li>- 2008 Server Web, Std, Ent, &amp; DC</li></ul>
Novell NetWare 6.5	N/A
Linux (32 & 64 bit) <ul style="list-style-type: none"><li>- Most Distributions</li></ul>	SLES 10 (32 & 64 bit)
Solaris 10 U5	N/A
FreeBSD	N/A

October 08



# Managing the Virtual Environment

- VMware Virtual Center
  - One time cost
- Microsoft System Center Virtual Machine Manager 2008
  - One time cost per host

October 08



# Physical to Virtual Migration Tool Comparison

- VMware Converter to do physical to virtual conversions
- Microsoft SCVMM performs P2V

October 08



# General Features Comparison

- VMware
  - VMotion, DRS, HA
  - Fiber Channel, iSCSI support
  - CPU, Memory Support (4-way SMP all OS, Memory over-commit)
  - Can install on 32 Bit and 64 bit hardware
  - Level 1 Hyper-visor

## **General Features contd.**

- Hyper-V
  - Quick Migration (with varied success)
  - Fiber Channel, iSCSI support
  - CPU, Memory Limitations (4-way SMP for Windows 2008, 2-way SMP for Windows 2003, no Memory over-commit)
  - Level 1 Hyper-visor with limited features or full featured Level 2 Hyper-visor

# Performance Comparison

- Disk I/O – VMFS is multi-access and leaner than NTFS
- CPU Usage – both products allow SMP, but VMware allows 4 way SMP with many more OS'
- Memory Usage – VMware has better usage (memory efficiency) of RAM on ESX Server as compared to Hyper-V (Transparent Paging, memory over commit)
- Network Management
- NIC Teaming
- SMP

October 08



## Security Comparison

- Attack Surface – 32 MB vs. 2 GB
- Required Patching
- Anti-Virus Issues

October 08



## **VMotion and Quick Migration**

- VMotion allows uninterrupted live movement of VM's to another ESX host
- Quick Migration is essentially a suspend and resume of the VM which can take minutes and typically doesn't work properly in most real world situations
- Video of Quick Migration in action

October 08



## Upgrades and Scalability

- To upgrade VMware from ESXi (free) to ESX Enterprise is just a license file change
- To upgrade Microsoft Hyper-V Server 2008 to the Windows 2008 Hyper-V version you have to do a complete re-install of the system
- VMware has hardened drivers from working with vendors to optimize drivers for ESX and ESXi

October 08



## 3<sup>rd</sup> Party Tools

- Vizioncore – VRanger, VReplicator etc.
- Cisco Switching & Routing (Cisco Nexus 1000V virtual switch)
- VCB Integration with common backup software (Symantec Backup Exec, Data Protector)

October 08



## Deployment Scenarios

- VMware due to its many features, established install base, 3<sup>rd</sup> party support, and scalability is Enterprise ready
- Hyper-V due to its lack of “must have” features, 3<sup>rd</sup> party support, and lack of scalability is not ready for Enterprise

# Contact Information

- Raj Perumal
  - [R.perumal@epic.ca](mailto:R.perumal@epic.ca)
- Chris MacDonald
  - [C.macdonald@epic.ca](mailto:C.macdonald@epic.ca)
- Joshua Wood
  - [J.wood@epic.ca](mailto:J.wood@epic.ca)
- Misha Hanin
  - [M.hanin@epic.ca](mailto:M.hanin@epic.ca)

October 08



# Questions & Answers

October 08

