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Top 5 Reasons to choose Microsoft Windows Server 2008 R2 SP1 Hyper-V over VMware vSphere 5

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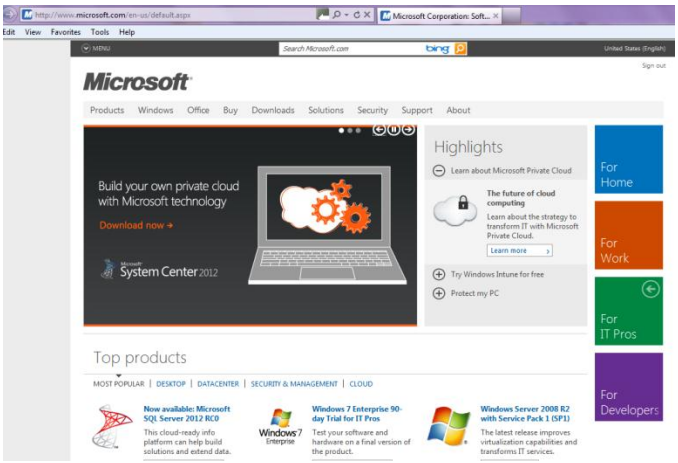
Microsoft

1. Tremendous Industry Recognition & Strong Adoption by Customers

Since its launch in 2008, Hyper-V has gone through 3 releases and Microsoft has continued strong R&D investment in Hyper-V by adding more capabilities, increasing scalability, and enhancing performance. This has reflected in our strong market growth: **Hyper-V market share has expanded 409% (from 4.9% to 24.8%) during the calendar period of Q3 2008 to Q3 2011[1].**



The enterprise readiness of Hyper-V can be measured from the success of a global site like Microsoft.com, which is one of the largest virtualized sites in the world and has been powered by Hyper-V for the last three years with the following characteristics:

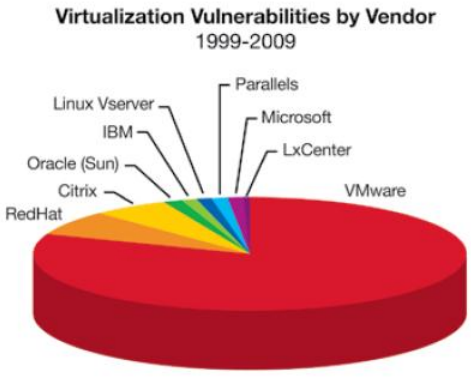
- Over 15,000 requests per second
- Over 40 million hits per day
- Over 1.2 billion page hits per month
- Zero downtime

Added to this, a growing number of enterprise customers like Target, Siemens, Intel, T. Rowe Price, and Union Pacific are running their businesses on Microsoft Hyper-V. Building on the strong customer momentum, **Microsoft has been positioned by Gartner, Inc. in the Leaders quadrant of the Magic Quadrant for x86 Server Virtualization Infrastructure[2].**

2. Built-in Virtualization & Familiarity with Windows

Hyper-V exists in 2 variations- as a free standalone product called Microsoft Hyper-V Server 2008 R2 SP1 and as an installable role in Windows Server 2008 R2 SP1. **Since Hyper-V is an integral part of Windows Server 2008 R2 SP1, it provides great value by enabling IT Professionals to continue to utilize their familiarity with Windows, and the collective knowledge of the community, while minimizing the learning curve.**

With Windows Server 2008 R2 SP1 you get a compelling solution for core virtualization scenarios – production server consolidation, dynamic datacenter, business continuity, VDI and test & development. Hyper-V provides you better flexibility with features like live migration and cluster shared volumes for storage flexibility. Hyper-V also delivers greater scalability with support for up to 64 logical processors and improved performance with support for dynamic memory and enhanced networking support.



[1] IDC WW Quarterly Server Virtualization Tracker, December 2011

[2] Gartner (June 2011): Publication Date: 30 June 2011/ID Number: G00213635, © 2011 Gartner, Inc. and/or its Affiliates. All Rights Reserved. The Magic Quadrant is copyrighted 2011 by Gartner, Inc. and is reused with permission. The Magic Quadrant is a graphical representation of a marketplace at and for a specific time period. It depicts Gartner's analysis of how certain vendors' measure against criteria for that marketplace, as defined by Gartner. Gartner does not endorse any vendor, product or service depicted in the Magic Quadrant, and does not advise technology users to select only those vendors placed in the "Leaders" quadrant. The Magic Quadrant is intended solely as a research tool, and is not meant to be a specific guide to action. Gartner disclaims all warranties, express or implied, with respect to this research, including any warranties of merchantability or fitness for a particular purpose. This Magic Quadrant graphic was published by Gartner, Inc. as part of a larger research note and should be evaluated in the context of the entire report. The Gartner report is available upon request from Microsoft.

Additionally, with a microkernelized hypervisor-based architecture, Hyper-V provides a more secure, reliable foundation for running virtual machines. The minimal hypervisor does not contain drivers; instead, the drivers are hosted in the parent partition and along with the new IO sharing model, Hyper-V provides an inherently more secure architecture[3].

With VMware, you have to pay separately for the hypervisor (from $995-$3495 per processor, with memory restrictions of 32-96 GB per processor[4], support costs separate) and also purchase an operating system like Windows Server for running guest operating systems. Similar to Microsoft, VMware also offers a free hypervisor, but unlike Hyper-V, VMware's free hypervisor doesn't have any advanced functionality like Live Migration or High Availability and imposes several restrictions like 32 GB memory limit for VMs[5].

3. Hyper-V Best Choice for Virtualizing Microsoft Workloads

Choosing to virtualize tier-1 data center applications with Hyper-V enables businesses to increase availability, improve agility, and overcome scalability and performance concerns. IT organizations can lower costs with built-in hypervisor support and benefit from existing skill sets to automate and monitor their environments using tools with which their staff are already familiar. **Microsoft has published third-party validated lab results that prove best-in-class performance for Microsoft workloads on Hyper-V as shown below**[6]

*1% concurrent users derived from the requests per second measured during the three web server test

When choosing Hyper-V to virtualize Microsoft workloads, organizations also benefit by avoiding complicated support models and using Microsoft System Center as a management tool for both physical and virtual environments. Hyper-V technology provides increased deployment options, increased resource utilization, enhanced business continuity, and a more efficient IT operating environment. Put it all together and it's clear that Hyper-V R2 SP1 can be used to virtualize tier-1 data center applications with confidence.

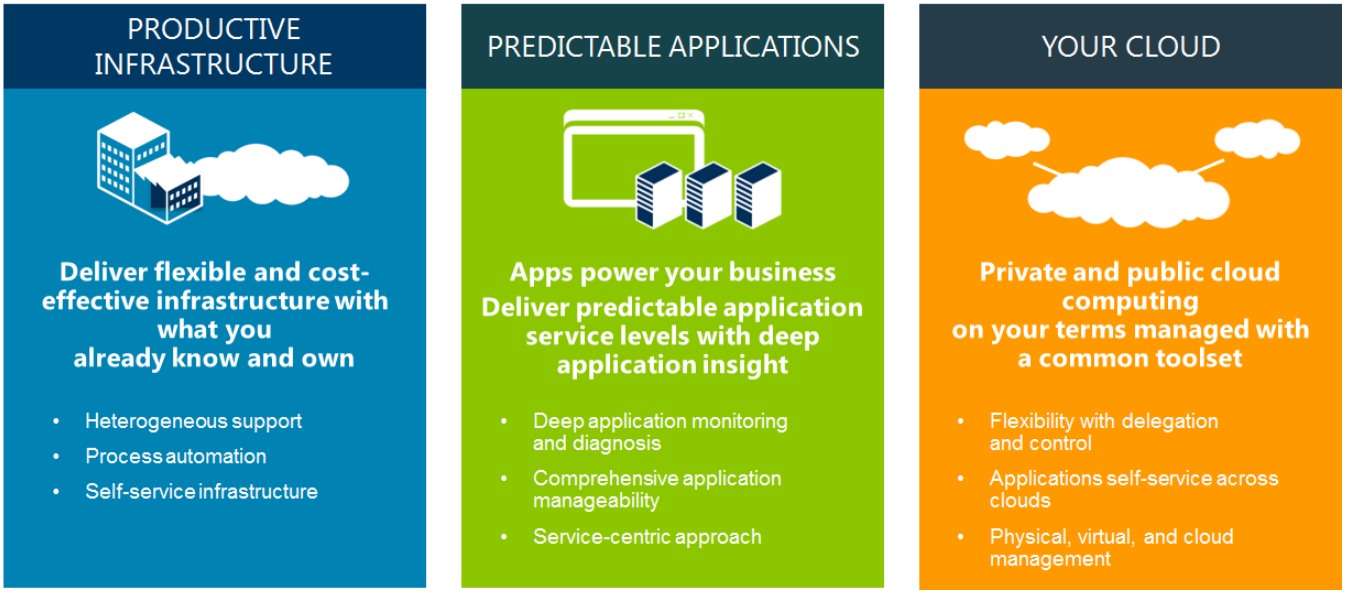
4. Comprehensive Management Capabilities with System Center 2012

System Center 2012 enables physical, virtual, private and public cloud management using a single pane of glass. System Center captures and aggregates knowledge about systems, policies, processes, and best practices so that you can optimize your infrastructure to reduce costs, improve application availability, and enhance service delivery. Microsoft has a well differentiated position across all aspects of the management capabilities with System Center 2012, including the following

[3] IBM X-Force 2010 Mid-Year Trend and Risk Report here
[4] VMware vSphere 5 pricing from VMware website as of April 2012
[5] vSphere Hypervisor FAQ from VMware website as of April 2012
[6] ESG Summary on Hyper-V R2 SP1 Microsoft Workload Performance here

- Support for multi-hypervisor management
- Support for third party integration and process automation
- Ability to manage applications via a single view across private clouds and Windows Azure
- Deep application diagnostics and insight for Windows and .NET based environments
- Technologies like Server Application Virtualization, which enable you to abstract your applications from the underlying private cloud infrastructure.

System Center 2012 helps your organization consume and deliver IT as a Service by enabling productive infrastructure, predictable applications, and cloud on your terms.



System Center 2012 integrates eight separate component products into one unified solution and simplifies the number of product editions to two (Standard and Datacenter). And because System Center 2012 Datacenter edition licensing covers unlimited virtual machines, customers can continually grow their private clouds without additional licensing costs for virtualizing their infrastructure and applications.

5. Windows Server 2012 Hyper-V and VMware Memory & Per-VM Pricing

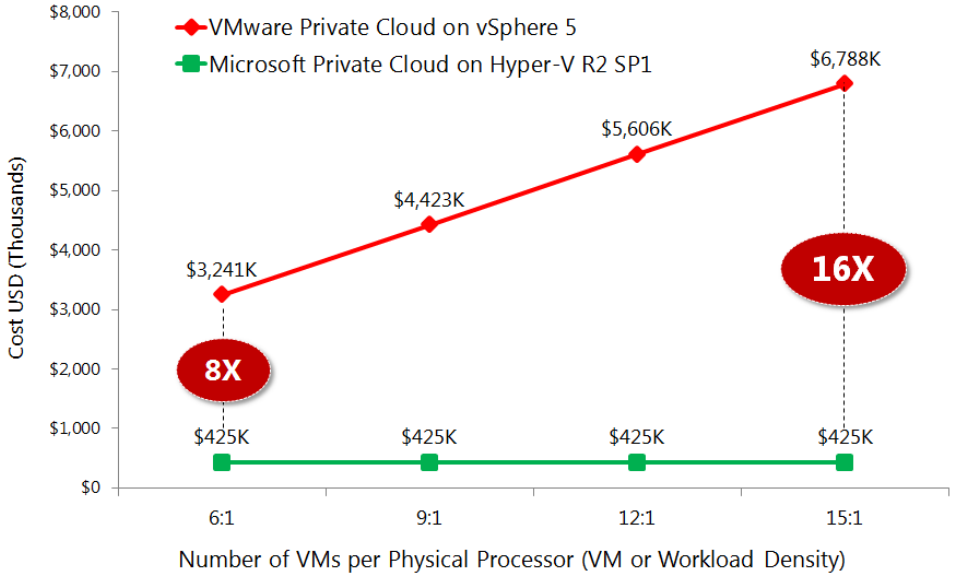
The licensing model of VMware products like vSphere 5, vCenter SRM, vCloud Director, vShield, vCenter Operations Management Suite, and vFabric Application Management Suite lay the foundation for charging customers for achieving greater density and maximizing hardware resources. Specifically, the vSphere licensing model has devolved from per processor with physical core restrictions to per processor with vRAM (virtual memory) entitlements. As shown below, vSphere 5 charges you based on the virtual memory allocated to your VMs.

	vSphere 5 Standard	vSphere 5 Enterprise	vSphere 5 Enterprise Plus	Hyper-V R2 SP1
vRAM entitlement/processor	32 GB	64 GB	96 GB	Unlimited
Price per GB vRAM	**$31.09**	**$44.92**	**$36.40**	**$0**

VMware private cloud solutions built on vSphere 5 are licensed by physical processor and the number of virtual

machines or the virtual memory allocated to those virtual machines – charging you more as you grow. While Microsoft Hyper-V and System Center 2012 charge only by physical processors and offer unlimited virtualization rights with Datacenter editions. This fundamental difference in approach means that with Microsoft your private cloud ROI increases as your private cloud workload density increases. With VMware, your cost grows, as your workload density does.

As shown below, a VMware private cloud solution on vSphere 5 can cost eight to sixteen times more than a comparable Microsoft private cloud solution on Hyper-V over a period of one to three years[7].



As you get aggressive about efficiency and increase your hardware utilization by driving up VM density, your VMware Private cloud costs on vSphere 5 increase significantly

With the new vSphere 5 licensing model, you won't be able to use memory overcommit technologies (and higher VM densities) to reduce your VMware costs. Memory-intensive workloads and business critical Tier-1 apps are more likely to require extra vSphere 5 licenses to increase their overall vRAM pool, and their vSphere costs will increase.

This significant costs difference highlights an unpredictable cloud growth model with VMware. With Microsoft, you have a trusted partner providing a predictable cloud model in your journey to your cloud.

Today, Hyper-V provides most of the enterprise features customers require. Windows Server 2012 Hyper-V provides many more features than vSphere 5. The table shows the top 10 features in Windows Server 2012 Hyper-V that VMware vSphere 5 lacks.

Capabilities	Windows Server 2012 Hyper-V	VMware vSphere 5	Notes
Network Virtualization	✓	✗	To deliver a hybrid cloud solution customers and service providers need a dynamic, multi-tenant solution. VMware doesn't offer anything similar and depends on partners for a comparable solution.

[7] 42 hosts with 2 CPU each. Costs shown for 3 years for License and Maintenance, VMware cost includes Windows Server Datacenter edition for running guests, Cost doesn't include hardware, storage or IT costs. VMware U.S. suggested list prices used from VMware website as of April 2012

Open Extensible Switch	✓	✗	Windows Server 2012 Hyper-V delivers an open, extensible switch, providing customers with flexibility and choice. Currently, 4 plug-ins for Hyper-V 2012 extensible switch are available. VMware provides a closed, replaceable switch.
Share Nothing Live Migration	✓	✗	Share Nothing Live Migration provides the ability to live migrate virtual machines with nothing but a network connection without requiring any shared storage or clusters. VMware vSphere 5 offers nothing comparable.
Inbox Replication	✓	✗	Windows Server 2012 Hyper-V includes Hyper-V Replica, an inbox replication feature. Hyper-V Replica is application and storage agnostic (works with any combination of SAN, DAS or SMB)
Industry Leading Scale	✓	✗	Windows Server 2012 Hyper-V offers the largest clusters (64 nodes per cluster for Hyper-V vs. 32 for vSphere 5), the most VMs in a cluster (4000 VMs per cluster for Hyper-V vs. 3,000 for vSphere 5), and the largest virtual disks in the market (64 TB for Hyper-V vs. 2TB for vSphere 5)
Advanced Storage Enhancements	✓	✗	Windows Server 2012 includes Storage Spaces and Pools, a storage virtualization technology that allows the virtualization of storage hardware and the enabling of just-in-time provisioning, mirroring and multi-tenancy. Other improvements include support for SMB 2.2, data deduplication among others.
Encrypted Cluster Volume	✓	✗	With Windows Server 2012 Hyper-V, you can create the largest and most secure clusters using Bitlocker encryption to protect your data at rest. VMware offers nothing comparable.
SR-IOV Support	✓	✗	SR-IOV gives VMs the ability to bypass the software-based Hyper-V Virtual Switch, and directly address the NIC. As a result, CPU overhead and latency is reduced, with a corresponding rise in throughput. This is available without sacrificing key Hyper-V features such as virtual machine Live Migration.
Guest Clustering Support	✓	✗	Unlike vSphere 5, a virtualized guest cluster on Windows Server 2012 Hyper-V supports VM Live Migration and Dynamic Memory
Hardware GPU Support	✓	✗	Windows Server 2012 Hyper-V provides Hardware GPU Support.

Windows Server 2012 helps to deliver the most dynamic, continuously available, cost-effective server platform for cloud optimized IT. Windows Server 2012 Hyper-V provides a complete virtualization platform, supports industry leading scale, and allows you to securely extend your datacenter to the cloud on your terms. To learn more, visit, www.microsoft.com/hyper-v