5 Essential Characteristics of a Winning Virtualization Platform

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A Trusted Platform

To meet the requirements of a dynamic business, your IT organization needs to deliver the highest levels of application performance and availability in a cost-effective manner. That's the idea behind VMware vSphere® with Operations Management™.

vSphere with Operations Management offers you the world's most trusted virtualization platform with critical operational capabilities for performance monitoring and capacity management. To make the best decision for your organization, here are five things you should understand as you undertake your virtualization journey.

Five Essential Characteristics

With its broad set of capabilities, VMware vSphere with Operations Management delivers five essential characteristics for your virtualization environment:

1. **Proven technology**
2. **Integrated management**
3. **Reliability**
4. **High availability**
5. **Disaster recovery**

Let's take a look at each of these characteristics.

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1. Proven Technology

When you deploy a virtualization solution, you want to have the confidence that your environment is based on proven technology, is widely used, and is widely supported by application vendors. That's the case with vSphere with Operations Management.

Today, more than half a million organizations—including 100 percent of Fortune 100 companies—trust their data and applications to VMware solutions. VMware has been positioned in the Leaders Quadrant of Gartner's Magic Quadrant for x86 Server Virtualization Infrastructure for five years in a row.[1]

With VMware, you also gain the confidence that comes with more than 5,000 software applications that have been tested and certified for the vSphere platform, along with a broad partner ecosystem that includes more than 2,000 independent software vendors (ISVs).
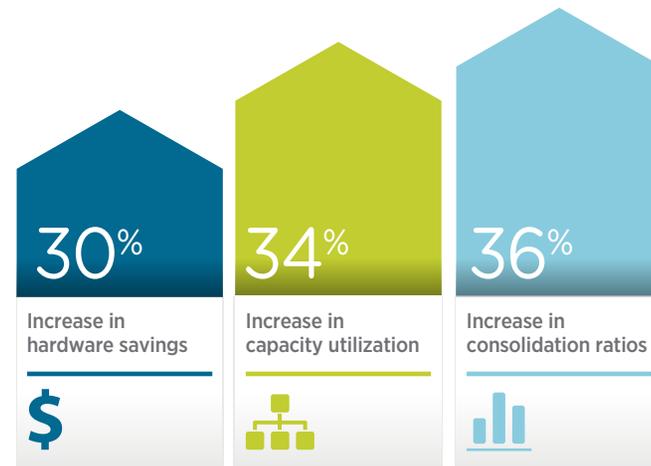
This ecosystem gives you access to ISV products built to enhance and extend the capabilities of vSphere, along with large numbers of VMware-certified experts who can help you achieve fast time to value for a secure virtualization environment tailored to your requirements.

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2. Integrated Management

The virtualization market is filled with management tools that were built for physical environments and later reworked to manage virtual systems. That's not the case with solutions from VMware, which were purpose-built to manage dynamic virtual and cloud environments.

With VMware, you have the benefit of tools designed by people with an intimate understanding of the vSphere environment and the needs of organizations using virtualized infrastructure. This understanding is incorporated in advanced features for dynamic resource allocation, load balancing, performance monitoring, system health checks, and capacity optimization.

30%	34%	36%
Increase in hardware savings	Increase in capacity utilization	Increase in consolidation ratios
$		

A case in point: On average, organizations using vSphere with Operations Management realize a 30 percent increase in hardware savings, 34 percent increase in capacity utilization, and a 36 percent increase in consolidation ratios, compared to using vSphere alone.[2]

To further extend your capabilities, the vSphere environment is designed to allow third-party tools to integrate with VMware vCenter Server™, which provides centralized management for your virtual infrastructure.
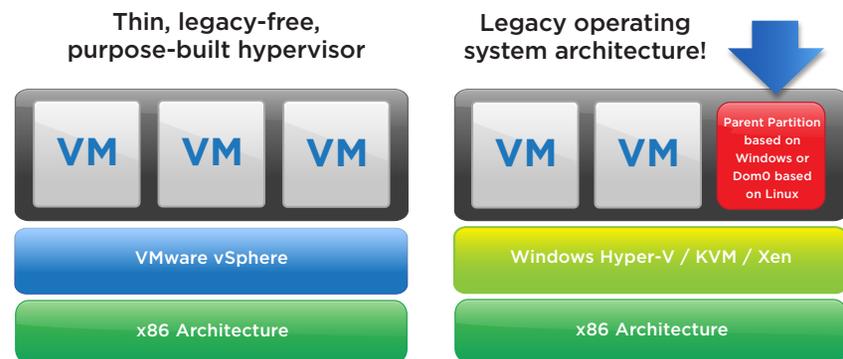
[1] "VMware Named a Leader in 2014 Magic Quadrant for x86 Server Virtualization Infrastructure for Fifth Consecutive Year," VMware news release, July 9, 2014.

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3. Reliability

When your business operations depend on your IT services, you want to have the confidence that comes with a reliable, predictable computing environment designed for virtualization. That's a distinct advantage of vSphere with Operations Management.

Most other virtualization solutions use a general-purpose operating system to which a hypervisor is added to provide virtualization capabilities. And that can be a problem, because bolting virtualization functionality onto a general-purpose operating system subjects the crucial virtualization platform to all the known risks and reliability issues of the general-purpose operating system.

That's not the case with vSphere. With its legacy-free architecture that is designed from the ground up for virtualization, vSphere interacts directly with the underlying hardware, instead of working through a general-purpose operating system, as shown in Figure 1. This allows vSphere to avoid many of the issues associated with the general-purpose OS.

Thin, legacy-free, purpose-built hypervisor	Legacy operating system architecture!
VM VM VM	VM VM Parent Partition based on Windows or Dom0 based on Linux
VMware vSphere	Windows Hyper-V / KVM / Xen
x86 Architecture	x86 Architecture

Figure 1. OS-independent VMware vSphere works directly with the computing hardware, improving reliability and reducing exposure to issues associated with a general-purpose OS.

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[2] Management Insights. "Study Shows Businesses Experience Significant Operational and Business Benefits from VMware vCenter Operations Management Suite," April 2014.
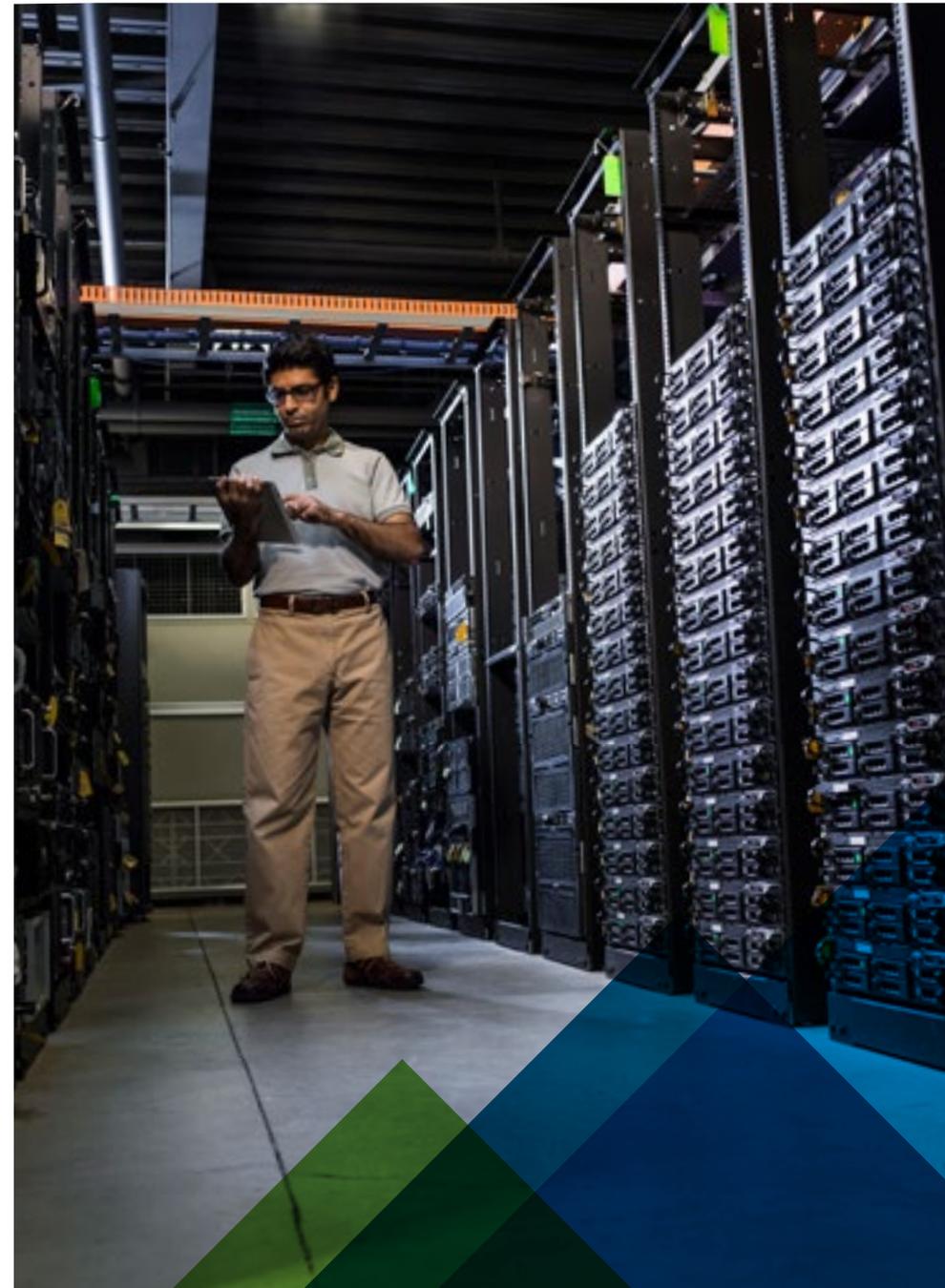
A Thin Footprint

The vSphere architecture allows for a much smaller disk footprint than that of some competitive offerings. The latest version of the software, vSphere 5.5, requires less than 200MB of space—just a fraction of the 5GB footprint of Windows Server 2012 Server Core with Hyper-V. The much smaller size of the vSphere hypervisor means less attack surface for hackers.

Fewer Software Patches

A virtualization engine that is OS-based can lead to frequent server reboots and burdensome additional IT tasks. The installation of a significant OS security patch often requires a system reboot, even when the patch is unrelated to virtualization.

With vSphere, you don't have to spend valuable administrative time dealing with patches that are unrelated to the virtualization platform.

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4. High Availability

VMware vSphere with Operations Management is designed to deliver enhanced availability and performance for both your business-critical and next-generation applications. A rich feature set is focused on making sure applications deliver the best possible performance based on your policies and service-level agreements.

A few examples of the software components that enable high availability:

- VMware vSphere® High Availability (HA) provides cost-effective, automated restart for virtual machines when a physical server or operating system fails. In the event of a physical server failure, vSphere HA automatically restarts the affected virtual machines (VMs) on other servers with spare capacity. When an operating system fails, vSphere HA restarts the affected VM on the same physical server.

- VMware vSphere® App HA adds an even higher level of availability that allows vSphere to detect and recover from application failures. This component supports many common applications and can extend to the VMware ecosystem through its application programming interfaces (APIs).

- VMware vSphere® Distributed Resource Scheduler™ provides dynamic, hardware-independent load balancing and resource allocation for virtual machines in a cluster, using policy-driven automation to reduce management complexity while helping you meet your service-level agreements (SLAs).

- VMware vSphere® Storage DRS™ automated load balancing uses storage characteristics to determine the best place for a virtual machine's data to reside, both when it is created and when it is used over time.

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5. Disaster Recovery

When your business depends on your applications, you need to have tools in place that allow you to recover data quickly in times that disrupt your IT systems. You'll find key capabilities for your disaster recovery solution in the vSphere suite, including VMware vSphere® Replication™.

VMware vSphere Replication copies virtual machines to other physical hosts, within or between clusters, and makes those copies available for restoration when the need arises.

In another option to enable business continuity, VMware offers disaster recovery as a service. With VMware vCloud® Air™, you can avoid the costs of purchasing the infrastructure and software needed for a secondary disaster recovery site but still gain the benefits of recovery from an offsite location.

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Key Takeaways

VMware vSphere with Operations Management delivers five essential characteristics for your virtualization environment:

1. **Proven technology**
2. **Integrated management**
3. **Reliability**
4. **High availability**
5. **Disaster recovery**

These characteristics can help you run your applications at high service levels, generate savings through higher capacity utilization, and maintain the availability of your mission-critical applications, even in cases of disasters and other disruptive events.

Today, organizations around the world are reaping the benefits of VMware vSphere with Operations Management. That's the case at Cornerstone Home Lending, where the VMware platform has helped the company:

- **Gain comprehensive visibility into IT**
- **Improve resource planning to better inform IT investments and decision making**
- **Reduce hardware costs by 70 percent**
- **Ensure uptime with reliable virtualized infrastructure**
- **Reduce the time spent on identifying and resolving system issues**

To read more about Cornerstone Home Lending, read their story on our website[3].

To Learn More

For a closer look at the capabilities of the VMware platform, visit the vSphere with Operations Management product page.

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[3] "VMware case study, Cornerstone Home Lending, Inc., "IT Visibility Vital for Optimized System Performance," January 2014.

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