



# What's New in VMware vCenter™ 5.0

Effective Virtualization Management

TECHNICAL MARKETING DOCUMENTATION  
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## Introduction

Virtualization is changing the way business is performed. With the advent of new and enhanced technologies for use in virtualized environments, customers are now able to achieve levels of efficiency and utilization unheard of in years past. Large-scale environments, such as with cloud-based services, now push the scope of managed objects to ever-increasing levels. To continue down this road, IT professionals must have a comprehensive virtualization management solution.

As a leader in datacenter virtualization and virtualization management, VMware understands these needs. With the release of VMware vSphere™ 5.0 (“vSphere”), the following new capabilities and technologies are among those being added to the vSphere platform to provide enhanced virtualization management:

- vSphere Web Client
- VMware vCenter™ Server Appliance
- Enhanced VMware vCenter Server availability

This paper discusses the enhancements that VMware has provided in these three areas and the associated benefits.

## vSphere Web Client

How an administrator interacts with their environment has a great impact on their effectiveness in managing the environment. With the proliferation of virtualization and cloud-based technologies, the following critical requirements are among those that rise to the surface for a management tool that enables the administrator:

- The ability to work within a heterogeneous environment
- A flexible and extensible foundation to enable customization
- Ready access to information
- The ability to manage a high number of objects across geographically separated datacenters

To meet these requirements and to provide a sustainable user interface model in the future, VMware developed the vSphere Web Client.

In its initial release, the vSphere Web Client provides a Web interface replacement. Future releases will build upon this support, eventually becoming the primary client platform.

### vSphere Web Client Capabilities

Out of the box, the vSphere Web Client provides numerous features and functionality that empower administrators to effectively manage large-scale distributed environments. The following covers a few of its key features.

#### GUI Customization

Most user interfaces are static in design and attempt to display all the information that every user might want. The problem is that not everyone uses a GUI for the same purposes. In a vSphere environment, there might be administrators who are primarily tasked with managing infrastructure services, such as storage or networks. In contrast, there are other administrators who are primarily concerned with the management of virtual machines. Both types of administrators often are bombarded by information that is not needed by them in the performance of their daily tasks.

The vSphere Web Client addresses this problem by enabling the user to customize their visualization of the user interface in a way that best suits them. It is possible to move information presented by the user interface to a different location or to eliminate it all together. The vSphere Web Client also utilizes a progressive inclusion model for displaying information. Applicable information will be displayed only as requested by the user instead of forcing the user to see all the information up front.

In this way, the vSphere Web Client provides the flexibility for users to utilize a single tool in a manner that makes them most efficient.

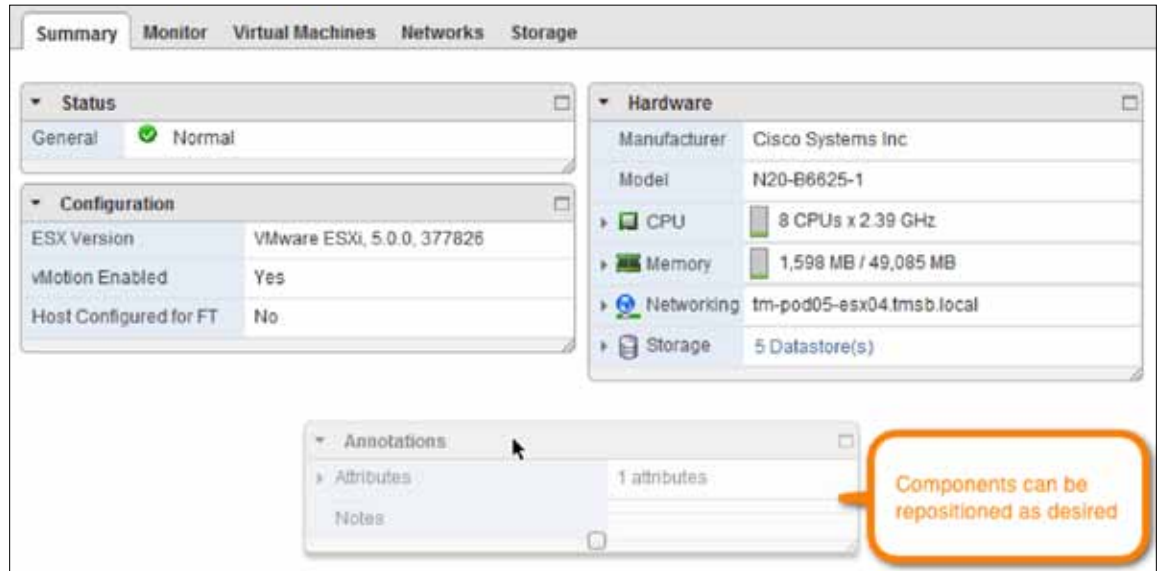


Figure 1. Repositioning UI Components

**Common Task Access**

Administrators tend to perform repetitive tasks under normal circumstances. Being able to quickly perform these tasks helps to reduce frustration and improves productivity. The vSphere Web Client provides a context-sensitive area where the most common tasks can quickly and easily be performed.

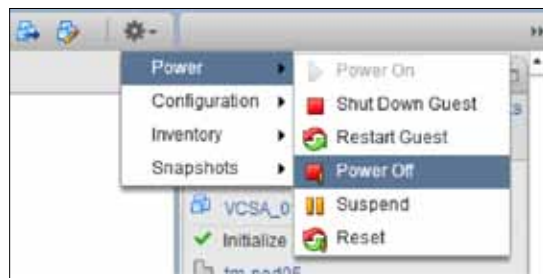


Figure 2. Quick Access to Common Tasks

**Interrupt-Driven Workflows**

Performing a task in a linear fashion is not always possible. People often get interrupted or sidetracked with more pressing matters or to get some information needed to complete the operation. Standard user interfaces require that a user quit the task they are performing and restart it from the beginning when they can come back to it. This is not the case with the vSphere Web Client.

The vSphere Web Client adds support for interrupt-driven workloads. This agile management feature enables administrators to start a task, pause if they get interrupted, and return to exactly the point where they were when they stopped.

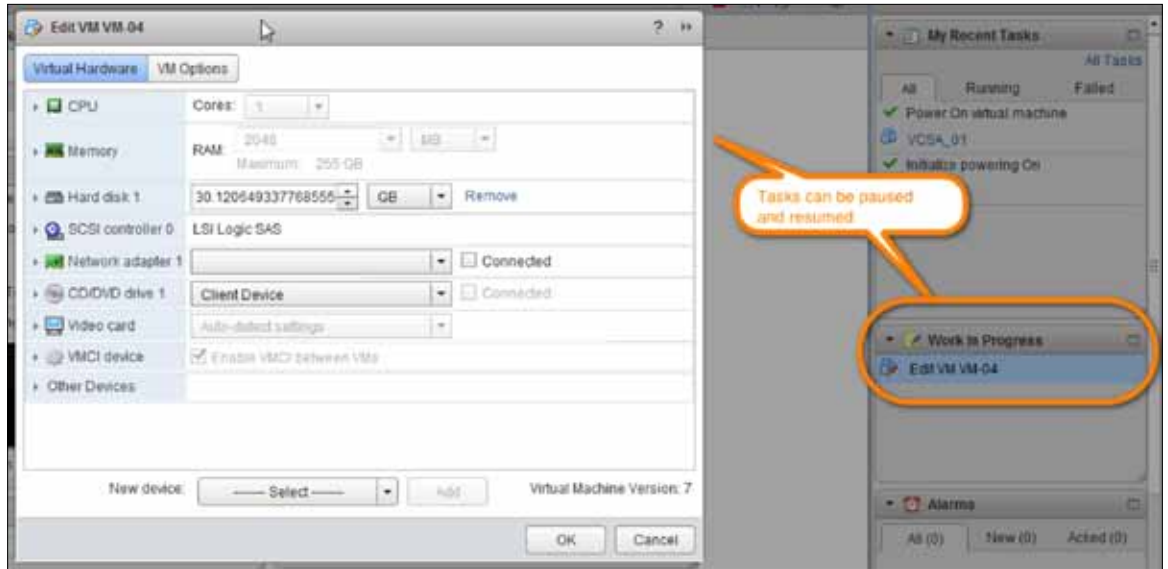


Figure 3. Interrupt-Driven Workflows

**Extensibility**

Many third-party vendors provide useful tools and functionality that complement the capabilities of the vSphere Web Client. This is of great benefit to the administrator because it offers them the ability to perform a multitude of actions under a single pane of glass.

The vSphere Web Client makes extending its functionality easier than ever before. Practically everything that a user can interact with in the user interface can be added to or modified. A rich set of documentation provides developers with the information needed to quickly develop new extensions and functionality.

**vSphere Web Client Technology**

The features and functionality of the vSphere Web Client wouldn't be possible without a robust engine capable of providing the scale and flexibility required. The components of this revolutionary engine are discussed in the following paragraphs.

**Architecture**

The vSphere Web Client uses the following standard three-tier model of operation:

- **vSphere Web Client**

The vSphere Web Client runs as an Adobe Flex-based application within a supported Web browser. Current browsers supported include Internet Explorer, on Microsoft Windows-based operating systems, and Firefox, on both Windows and Linux-based operating systems. A browser plug-in is also provided, which enables the utilization of a console into the virtual machine.

This empowers any user with a Web-enabled system to manage the environment and decreases the burden on administrators to manage the deployment of the client software to individual systems.

- **Application server**

The application server is based on the SpringSource dm Server, a completely module-based Java application server designed to run enterprise Java applications and Spring-powered applications with a high degree of flexibility and reliability. In support of the vSphere Web Client, the application server provides an Open Services Gateway Initiative (OSGi) container and various services that enable scalability and extensibility by third-party vendors.

- **VMware vCenter Server and associated services**

VMware vCenter Server acts as the information source for the vSphere Web Client. An inventory service is fed live data from the core VMware vCenter Server process and transmits that to the application server as required.

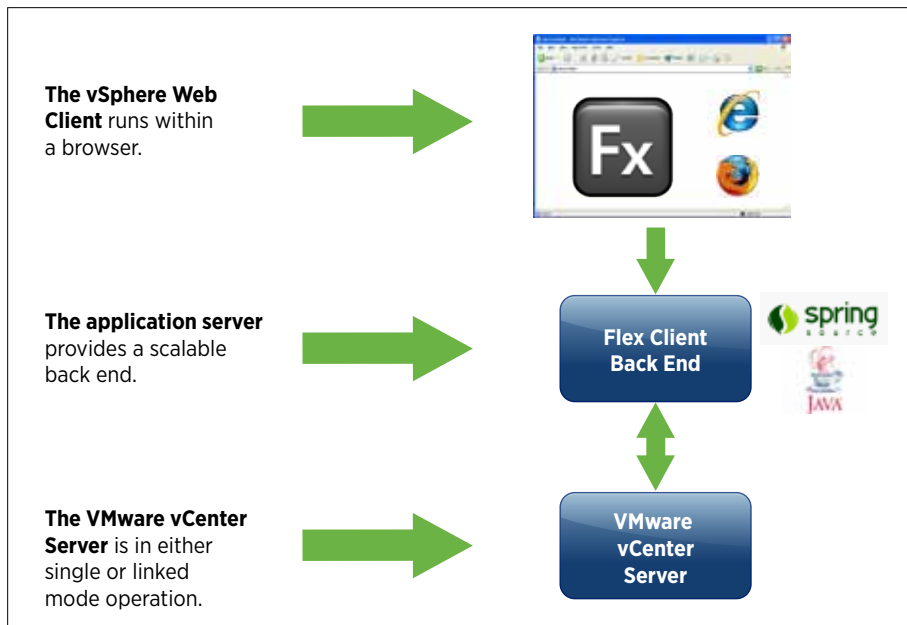


Figure 4. vSphere Web Client Architecture

### Deployment and Management

Deployment of the vSphere Web Client for traditional VMware vCenter Server environments deployed on Windows requires the installation of the vSphere Web Client server binaries. For VMware vCenter Server Appliance environments, the components are already installed. The user simply must start the appropriate service.

Deployment of the vSphere Web Client in your environment requires the installation of the VMware vCenter Web Client server package on a host. The VMware vCenter Server Appliance comes bundled with the vSphere Web Client server, simply requiring that the service be enabled.

Once deployed, each VMware vCenter Server instance to be used with the vSphere Web Client is registered through a Web-based vSphere Web Client administration application page accessible from the host where the vSphere Web Client server packages are running. No further management is required.

Upgrades will consist of removal of the vSphere Web Client server binaries and the installation of the new packages.

Using the vSphere Web Client, IT departments must be concerned only about updating a single system instead of pushing out new software to every user of the client. This significantly decreases the overhead and management costs typically associated with such software deployments.

## VMware vCenter Server Appliance

The vSphere Web Client is only one component needed to manage a virtualized environment. The other piece of the puzzle is VMware vCenter Server.

VMware customers have expressed a desire to enhance the patching and upgrade process of VMware vCenter Server as well as to reduce the costs associated with deploying it within a Windows-based environment.

To address these needs, VMware is introducing the VMware vCenter Server Appliance with vSphere 5.0. With it, customers can simplify deployment and configuration, streamline their patching and upgrade process, and reduce their TCO for VMware vCenter Server. This enables companies to respond to business needs faster.

### Overview

The VMware vCenter Server Appliance (VCSA) consists of a prepackaged 64-bit SUSE Linux Enterprise Server 11 virtual machine that hosts a VMware vCenter Server instance. By not relying on a Windows-based OS, customers can eliminate the licensing costs typically associated with running VMware vCenter Server.

VMware VCSA is distributed as a compressed .vmx or as an .ovf file with sparse disks that decreases the overall size of the appliance to a mere 3.6GB. Deploying the .ovf file is simple. It typically takes only about 5 minutes. Once deployed, VMware VCSA runs like any other virtual machine in the environment.

A Web-based user interface provides a convenient means to configure all aspects of a VMware VCSA instance, including the following ones:

- Services – It provides a means to configure services such as syslog, netdump, AutoDeploy, and the vSphere Web Client.
- Authentication – It enables the configuration of authentication services through Microsoft Active Directory or NIS.
- Network – Configuration of IPv4 networking settings, including proxies, can be performed.
- System – Aspects such as the time zone can be configured.
- Upgrades – Upgrades simply consist of deploying a new VMware vCenter Server Appliance. Built-in configuration migration utilities are provided to securely import configuration data from a previous installation.



Figure 5. VMware vCenter Server Appliance Administrative Interface

The VMware vCenter Server Appliance requires a database to store all its required information. The VMware VCSA is packaged with an embedded database that supports up to five hosts and 50 virtual machines. When deploying VMware VCSA in larger environments, it supports connecting to an external Oracle database. Configured with an external database, it can support 300 hosts and 3,000 64-bit virtual machines. These host requirement limits are consistent with VMware vCenter Server.

After the VMware vCenter Server Appliance has been deployed and configured, it performs exactly like the Windows-based version of VMware vCenter Server, with the exception that Linked Mode is not currently supported. Besides providing support for vSphere 5.0, VMware VCSA is able to manage vSphere 4.0 and 4.1 hosts. This flexibility provides administrators with the option to use it in these environments until they are able to upgrade.

Because it is an appliance, VMware VCSA also inherits all the benefits of being virtualized. This entails the ability to leverage vSphere® High Availability (vSphere HA) for high availability and snapshots, for an easy backup-and-recovery option. It also means that VMware VCSA is completely self-contained, so there is no need to log in and manage the appliance. This represents a significant reduction in management responsibilities for an administrator.

## Enhanced VMware vCenter Server Availability

Being the primary management point of a VMware environment, the availability of VMware vCenter Server is critical when constructing a highly available environment. For customers who choose to deploy VMware vCenter Server on physical Windows hosts, providing availability is the function of VMware vCenter Server Heartbeat.

With the release of VMware vCenter Server Heartbeat 6.4, several enhancements have been incorporated. These include an enhanced architecture to improve accessibility of the secondary server and integration with the VMware vCenter client for management.

### Enhanced VMware vCenter Server Architecture

VMware vCenter Server Heartbeat 6.4 provides an enhanced architecture that enables both the active and passive servers to be represented as unique entities within Microsoft Active Directory. This enables the assignment of a unique IP address to both servers, making them accessible through the network at all times. With both servers readily accessible, administrators can easily perform maintenance actions such as patching or upgrades on either server at any time.

In this new architecture, the VMware vCenter Server instance will be associated with a virtual IP address. When a failover is required, this virtual IP address follows the active VMware vCenter Server instance. By doing so, users must be aware only of a solitary address to connect to, but this enables greater flexibility in performing maintenance operations.

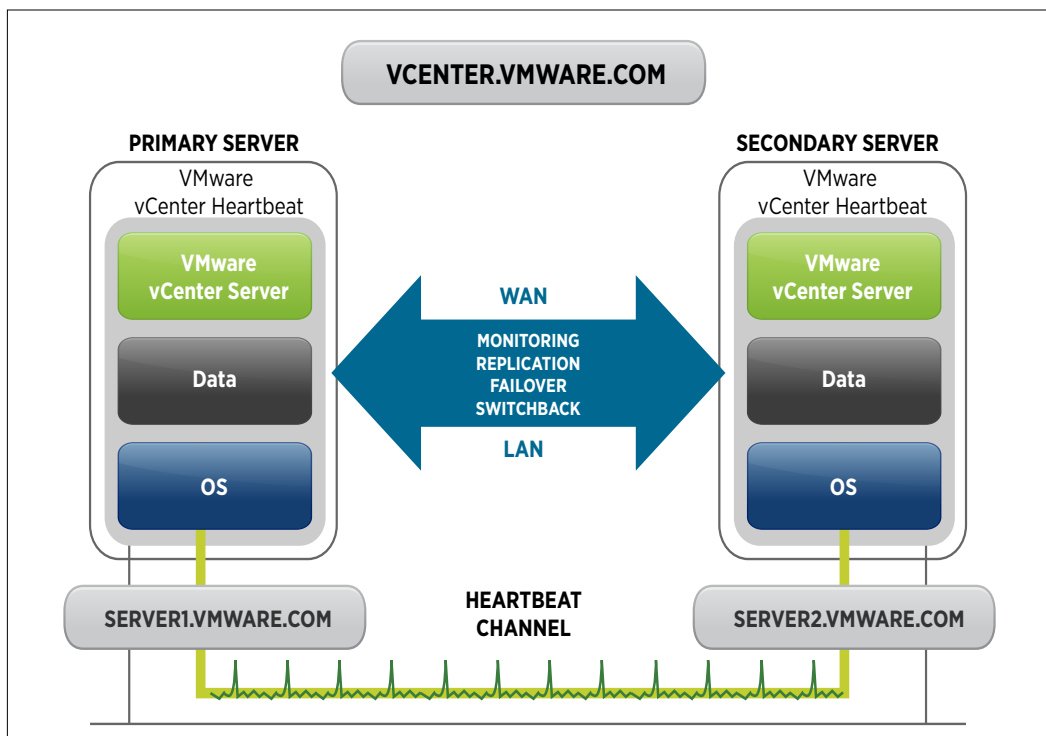


Figure 6. Architecture of VMware vCenter Heartbeat

Maintenance actions can now be performed with minimal downtime for the VMware vCenter Server instance. Patches can be applied to the passive host through its unique IP without affecting the active host. The VMware vCenter Server instance can then be failed over from the active server to the passive server in preparation for patching the active server. In the event that the maintenance activity causes an issue with a host, administrators can simply fail the VMware vCenter Server instance back to the other host until the problem is rectified.

### VMware vCenter Client Integration

With the release of VMware vSphere 5.0 and VMware vCenter Server Heartbeat 6.4, administrators can leverage the VMware vCenter Server client as a single pane of glass for VMware vCenter Server Heartbeat operations. A new vSphere Client plug-in provides administrators with the ability to monitor and perform management functions right from the client. VMware vCenter Server Heartbeat operational tasks and alarms are now registered with VMware vCenter Server. This enables users to view this information directly from the VMware vCenter Client.

### Application Support

In addition to providing availability for VMware vCenter Server 5.0, VMware vCenter Heartbeat also now provides for the availability of VMware View Composer and Microsoft SQL Server 2008 R2. This enables VMware vCenter Heartbeat to protect other critical VMware services such as VMware View™ as well as the SQL database providing support for VMware vCenter Server.

## Summary

The VMware commitment to ensuring ease of deployment, increased availability, and ease of use has brought significant enhancements to vSphere 5.0. These enhancements provide the tools and services that administrators need to effectively manage a business-focused virtualized computing environment. Administrators of these environments can rest easy with the knowledge that as they continue to grow and develop their infrastructure, they have tools that will grow with them.

