

VMware VirtualCenter

Centralized management, automation and optimization for IT infrastructure

What Is VMware VirtualCenter?

VMware® VirtualCenter delivers centralized management, operational automation, resource optimization and high availability to IT environments. Virtualization-based distributed services equip the data center with unprecedented levels of responsiveness, serviceability, efficiency and reliability. VirtualCenter allows IT organizations to:

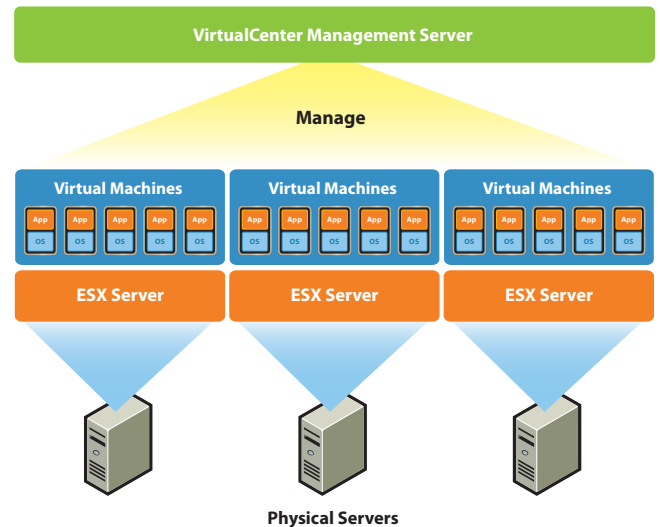
- Align available resources with pre-defined business priorities while streamlining labor and resource intensive operations using VMware DRS.
- Migrate live virtual machines and conduct non-disruptive maintenance of IT environments using VMotion™.
- Enable cost-effective application availability independent of hardware and operating systems using VMware HA.

VirtualCenter delivers the highest levels of simplicity, efficiency, security and reliability required to manage virtualized IT environment of any size.

How Is VMware VirtualCenter Used in the Enterprise?

VirtualCenter delivers centralized management, operational automation, resource optimization and high availability to IT environments.

- **Centralized management** capabilities allow IT organizations to organize, monitor, and configure the entire IT environment through a single interface resulting in lower operating costs.
- **Rapid provisioning** with deployment wizard and virtual machine templates reduces the time and effort for creating and deploying virtual machines to a few mouse clicks.
- **Performance monitoring** capabilities, including utilization graphs of CPU, memory, Disk I/O, and Network I/O provide the detail needed to analyze the performance of physical servers, and the virtual machines they are running.
- **Operational automation** through task scheduling and alerting improves responsiveness to business needs and prioritizes actions needing the most urgent attention.
- **Secure access control**, robust permissions mechanisms, and integration with Microsoft® Active Directory guarantee authorized access to the environment and its virtual machines. Responsibilities can be delegated to tiers of system administrators.



VMware VirtualCenter provides a central point of control for managing, monitoring, provisioning and migrating virtual machines.

- **Resource optimization** through performance monitoring, multi-server resource pools, and dynamic workload balancing delivers the highest virtual machine to physical server ratio while improving service levels to software applications. Automated data center-wide resource optimization with VMware DRS aligns available resources with pre-defined business priorities while streamlining labor and resource intensive operations across disparate hardware, operating system, and software applications.
- **Migration of live** virtual machines across entirely separate physical servers with VMware VMotion makes the maintenance of IT environments non-disruptive.
- **High availability** provided by VMware HA enables broad-based, cost-effective application failover independent of hardware and operating systems.
- **Integration** with third party systems management products through Web services APIs provided by the VMware Infrastructure SDK.

How Does VMware VirtualCenter Work?

VirtualCenter is composed of five main components:

- **VirtualCenter Management Server** is the central control node for configuring, provisioning and managing virtualized IT environments. The Management Server runs as

a service on Microsoft® Windows 2000, Microsoft® Windows XP Professional and Microsoft® Windows Server 2003.

- **VirtualCenter Database** is used to store persistent information about the physical servers, resource pools and virtual machines managed by the VirtualCenter Management Server. The database resides on standard versions of Oracle, Microsoft® SQL Server, or Microsoft® MSDE.
- **Virtual Infrastructure Client** allows administrators and users to connect remotely to the VirtualCenter Management Server or individual ESX Servers from any Windows PC.
- **VirtualCenter Agent** connects VMware ESX Server with the VirtualCenter Management Server.
- **Virtual Infrastructure Web access** allows virtual machine management and access to virtual machine graphical consoles without installing a client.

The following add-on products to VirtualCenter deliver resource optimization and high availability functionality.

- **VMware DRS** dynamically allocates and balances computing capacity across collections of hardware resources aggregated into unified resource pools.
- **VMware VMotion** migrates live virtual machines between physical servers without disruption to end users
- **VMware HA** provides easy to use, cost effective high availability for applications running in virtual machines.

Key Features of VMware VirtualCenter

VirtualCenter delivers centralized management, resource optimization, operational automation and security to virtualized IT environments. These capabilities increase the efficiency, flexibility, and robustness of IT environments:

- **Performance and scalability**
 - » **New - Large-scale management.** Manage hundreds of servers and thousands of virtual machines. VirtualCenter 2 starts up faster, is more responsive and is designed from the ground up to handle the largest IT environments.

• Interoperability

» **New - Support for ESX Server 3.**

VirtualCenter 2 adds tested and certified support for management of ESX Server 3.

» **New – Support for VMware Server.**

VirtualCenter 1.4 adds tested and certified support for management of the free VMware Server.

• Management

» **Virtual machine provisioning and migration.**

- **Deployment wizard.** Create new virtual machines with a user friendly wizard. Customize network identities and operating system parameters to make new instances unique.
- **New – Re-designed virtual machine templates.** Save virtual machines as templates that can be instantiated in minutes. Minimize errors and downtime by establishing configuration standards for virtual machines. Re-designed templates support easy virtual machine patching and updating. Templates are stored on shared storage for greater reliability.
- **Virtual machine cloning.** Copy existing virtual machines when a new instance of a server is needed
- **Cold migration of virtual machines.** Move a powered off virtual machine from one physical server to another by dragging and dropping the virtual machine icon.
- **Live migration of virtual machines.** Migrate running virtual machines from one physical server to another with VMware VMotion.

» **Server and virtual machine management**

- **New - Virtual Infrastructure Client.** Manage ESX Servers, virtual machines, and VirtualCenter Server with a common user interface.
- **New – Virtual Infrastructure Web access.** Manage virtual machines and access virtual machine graphical consoles without installing a client

- **ESX Server configuration.** Centralize management and configuration of all ESX Servers in VirtualCenter.
- **New – Enhanced inventory model.** Manage the complete inventory of virtual machines, resource pools and physical servers with greater visibility into object relationships. The new inventory model provides the flexibility to organize objects into folders and create two separate hierarchical views.
- **New – Enhanced object model.** Manage virtualized IT environment with a consistent object model covering all entities such as virtual machines, physical servers, and resource pools.
- **New – Interactive topology maps.** Visualize the relationships between physical servers, virtual machines, networks and storage. Topology maps allow to easily verify correct configuration for distributed services such as VMotion, VMware DRS and VMware HA.
- **New – Centralized licensing.** Manage all VMware software licenses with an embedded FlexNet licensing server and a single license file.
- » **System monitoring.** Continuously monitor physical servers and virtual machine availability and utilization from a single interface.
- **Alerts and notifications.** Set green, yellow and red level alarms for CPU, memory and heartbeat states to manage and pre-empt problems. Alarm triggers generate automated notifications and alerts. Schedule automatic execution of system management tasks such as sending SNMP traps, sending emails, running management scripts, suspending, powering off, and resetting virtual machines.
- **New – Enhanced performance graphs.** Monitor and analyze virtual machines, resource pools and server utilization and availability with detailed performance graphs. Performance metrics can be defined with several levels of granularity and can be viewed in real time, or across a specified time interval.

- **Reports.** Export VirtualCenter data to HTML and Excel formats for integration with other reporting tools and offline analysis.
- **New – Integration** with third party systems management products through Web services APIs provided by the VMware Infrastructure SDK.
- **Distributed resource optimization**
 - » **Resource management for** virtual machines. Allocate processor and memory resources to virtual machines running on the same physical servers. Establish minimum, maximum, and proportional resource shares for CPU, memory, disk and network bandwidth. Modify allocations while virtual machines are running. Enable applications to dynamically acquire more resources to accommodate peak performance
 - » **New - Dynamic allocation of resources.** VMware DRS continuously monitors utilization across resource pools and intelligently allocates available resources among virtual machines based on pre-defined rules that reflect business needs and changing priorities. The result is a self-managing, highly optimized and efficient IT environment with built-in load balancing
- **High Availability**
 - » **New - Automatic restart of virtual machines** with VMware HA. Provide an easy to use and cost-effective failover solution.
- **Security**
 - » **Fine-grained access control.** Secure the environment with configurable, tiered group definitions and fine-grained permissions.
 - » **Integration with Microsoft® Active Directory.** Base access controls on existing Microsoft® Active Directory authentication mechanisms.
 - » **New – Custom roles and permissions.** Enhance security and flexibility with user-defined roles. VirtualCenter users with appropriate privileges can create custom roles such as night shift operator or backup administrator. Restrict access to the entire inventory of virtual machines, resource pools and servers by assigning users to these custom roles.
- » **New – Audit trails.** Maintain a record of significant configuration changes and the administrator who initiated them. Export reports for event tracking.
- » **New – Session management.** Discover and if necessary terminate VirtualCenter user sessions.

How Can I Purchase VMware VirtualCenter?

- The VirtualCenter Agent is included in all editions of VMware Infrastructure
- The VirtualCenter add-on products VMware VMotion, VMware HA, and VMware DRS are included in VMware Infrastructure 3 Enterprise. VMware VMotion, VMware DRS, and VMware HA can also be purchased as separately licensed products with VMware Infrastructure 3 and Standard VMware Infrastructure 3 Starter.
- VirtualCenter Management Server is a separately licensed product.

Product Specifications and System Requirements

For detailed product specifications and system requirements refer to the VMware Infrastructure Basic System Administration Guide located at http://www.vmware.com/support/pubs/vi_pubs.html.