

# VMware VirtualCenter

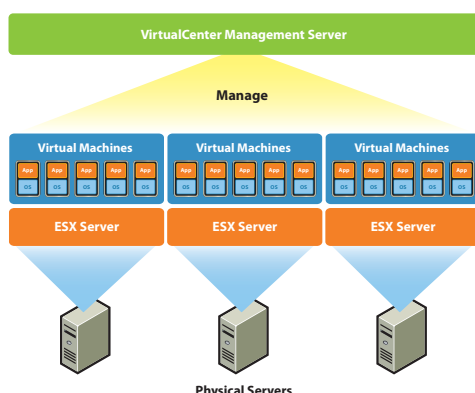
Centralized management, automation and optimization for IT infrastructure

## AT A GLANCE

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

## BENEFITS

- 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 servers and storage using VMotion™ and Storage VMotion.™
- Enable cost-effective application availability independent of hardware and operating systems using VMware HA.
- Automate enforcement of compliance to patch standards for ESX Server hosts as well as virtual machines with VMware Update Manager
- Reduce training costs for new users and achieve the cost savings from server consolidation in simpler, smaller environments quickly and efficiently with Guided Consolidation.



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

## 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.
- **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.
- **Migration of live** virtual machines across entirely separate storage arrays with VMware Storage VMotion allows non-disruptive maintenance and optimization of storage environments
- **High availability** provided by VMware HA enables broad-based, cost-effective application failover independent of hardware and operating systems.
- **Higher levels of security** through enforcement of compliance to patch standards automatically through VMware Update Manager allows organizations to secure their virtual infrastructure against vulnerabilities.

## KEY FEATURES

- **Automated energy efficiency** through minimizing power consumption with VMware Distributed Power Management (experimental) enables a green datacenter
- **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 Server (previously known as VirtualCenter Management Server)** is the central control node for configuring, provisioning and managing virtualized IT environments. It 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.
  - **VMware Infrastructure Client** allows administrators and users to connect remotely to the VirtualCenter Server or individual ESX Servers from any Windows PC.
  - **VirtualCenter Agent** connects VMware ESX Server with the VirtualCenter 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, high availability and patch management 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 Storage VMotion** migrates live virtual Machine disks between physical arrays without disruption to end users
- **VMware HA** provides easy to use, cost effective high availability for applications running in virtual machines.
- **VMware Update Manager** automates patch management for ESX Server hosts and select Microsoft and Linux 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

- » **Large-scale management.** Manage large IT environments with VirtualCenter
- » **New - With VirtualCenter 2.5.** Manage up to 200 hosts and 2000 virtual machines

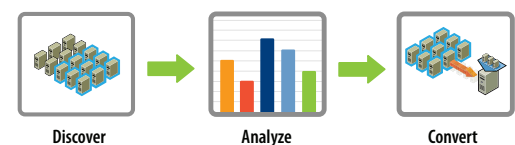
### • Management

- » **Virtual machine provisioning and migration.** Provision virtual machines instantaneously and move virtual machines between physical servers.
- **New - Integrated Physical to Virtual machine conversion.** Manage multiple simultaneous conversions to virtual machines. Convert physical machines, virtual machine formats such as Microsoft VirtualServer or VirtualPC, backup images of physical machines such as Symantec Backup Exec LiveStateRecovery , Ghost 9 , VMware Consolidated backup images to running virtual machines.
- **New - Guided Consolidation.** Guide first time virtualization users, in simpler Windows environments through the consolidation process workflow. Through a wizard based, tutorial like interface, Guided consolidation automatically discovers physical servers, helps analyze their performance and triggers the conversion of physical to virtual machines placed intelligently on the right host.

- **Deployment wizard.** Create new virtual machines with a user friendly wizard. Customize network identities and operating system parameters to make new instances unique.
- **Deploy from templates.** Save virtual machines as templates that can be instantiated in minutes. Minimize errors and downtime by establishing configuration standards for virtual machines. 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.
- **New - Live Migration of virtual machine disks** from one storage array to another. Migrate running virtual machine disks from one physical storage array to another with VMware Storage VMotion.

### » Server and virtual machine management

- **Virtual Infrastructure Client.** Manage ESX Servers, virtual machines, and VirtualCenter Server with a common user interface.



Guided Consolidation steers first time virtualization users through server consolidation.

## KEY FEATURES

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- **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.
- **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.
- **Enhanced object model.** Manage virtualized IT environment with a consistent object model covering all entities such as virtual machines, physical servers, and resource pools.
- **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.
- **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.
  - **New - Cisco Discovery Protocol support.** Discover physical and virtual network configurations for better debugging and monitoring of Cisco-based environments from within VirtualCenter.
- **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.
- **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.
- **Integration** with third party systems management products through Web services APIs provided by the VMware Infrastructure SDK.
  - » **New - Support for the OVF format.** The Open Virtual Machine Format (OVF) is a virtual machine distribution format that supports sharing of virtual machines between products and organizations.
- **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
- » **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
- » **New - Power Optimization.** Distributed Power Management(experimental) monitors DRS clusters continuously. When fewer resources are needed by virtual machines in a cluster, it consolidates workloads and shuts down hosts to save energy. When resource requirements increase, it brings host servers back online to make sure service levels are met.
- **High Availability**
  - » **Automatic restart of virtual machines** with VMware HA. Provide an easy to use and cost-effective failover solution.
  - » **New – VM failure monitoring** (experimental). Detect operating system failures within virtual machines through monitoring heartbeat information. Automatically restarts affected virtual machines based upon user-defined time intervals.
- **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.
  - » **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.

## KEY FEATURES

- » **Audit trails.** Maintain a record of significant configuration changes and the administrator who initiated them. Export reports for event tracking.
- » **Session management.** Discover and if necessary terminate VirtualCenter user sessions.
- » **New - Patch management.** VMware Update Manager enforces compliance to patch standards through automated scanning and patching of online ESX Server hosts and select Microsoft and Linux virtual machines. Reduce security exposure in the environment through secure patching of offline virtual machines and reduce downtime through automatic snapshots prior to patching and rollback. Integration with VMware DRS enables zero downtime ESX Server host patching.

## How Can I Purchase VMware VirtualCenter?

- The VirtualCenter Agent is included in all editions of VMware Infrastructure with the exception of the standalone purchase of ESX Server 3i ( embedded in the hardware or hard disk installable format)

For more information on how to purchase, refer to the "How to buy" page <http://www.vmware.com/products/vi/buy.html>

- 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](http://www.vmware.com/support/pubs/vi_pubs.html).

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