

# VMware High Availability

Easily Deliver High Availability for All of Your Virtual Machines

## AT A GLANCE

VMware® High Availability (HA) provides easy to use, cost-effective high availability for applications running in virtual machines.

## BENEFITS

- Minimize unplanned downtime and IT service disruption.
- Eliminate the need for dedicated standby hardware and the installation of additional software.
- Enable affordable uniform high availability across the entire virtualized IT environment.

## What is VMware HA?

VMware High Availability (HA) provides easy-to-use, cost-effective high availability for applications running in virtual machines. In the event of physical server failure, affected virtual machines are automatically restarted on other production servers with spare capacity. In the case of operating system failure, VMware HA restarts the affected virtual machine on the same physical server. The combination of VMware HA and the other availability features of the VMware vSphere™ platform provides organizations the ability to select and easily deliver the level of availability required for all of their important applications.

VMware HA allows IT organizations to:

- Minimize unplanned downtime and IT service disruption while eliminating the need for dedicated standby hardware and installation of additional software.
- Provide affordable uniform high availability across the entire virtualized IT environment without the cost and complexity of failover solutions tied to either operating systems or specific applications.

## How is VMware HA Used?

VMware HA allows companies to provide high availability to any application running in a virtual machine. With VMware HA IT organizations can:

- **Protect applications with no other failover option.** Provide cost-effective high availability for any application running in a virtual machine. High availability solutions are often relatively complex and expensive, and as a result typically reserved for mission critical applications. VMware HA provides a cost-effective high availability solution that makes high availability possible for software applications that were formerly left unprotected.
- **Establish consistent “first line of defense” for an entire IT environment.** Unlike other high availability solutions that are tied to specific operating systems or application and are often complex to use, VMware HA provides an easy to manage high availability solution that can be deployed easily and uniformly across heterogeneous environments.
- **Avoid the cost and complexity** of failover solutions tied to either operating systems or specific applications by using VMware HA to provide protection with any hardware, operating system, or application running in a virtual infrastructure with minimum cost and management overhead.

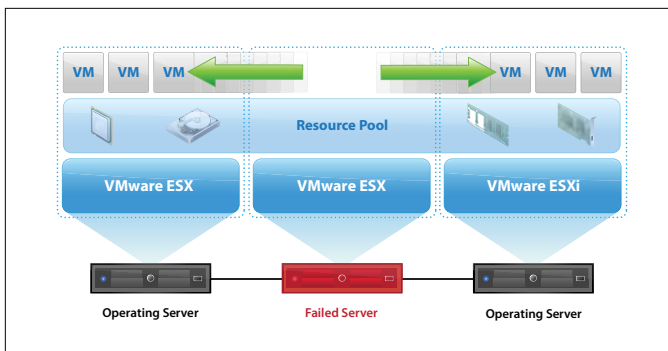


Figure 1: VMware HA provides cost effective availability for all applications running in virtual machines.

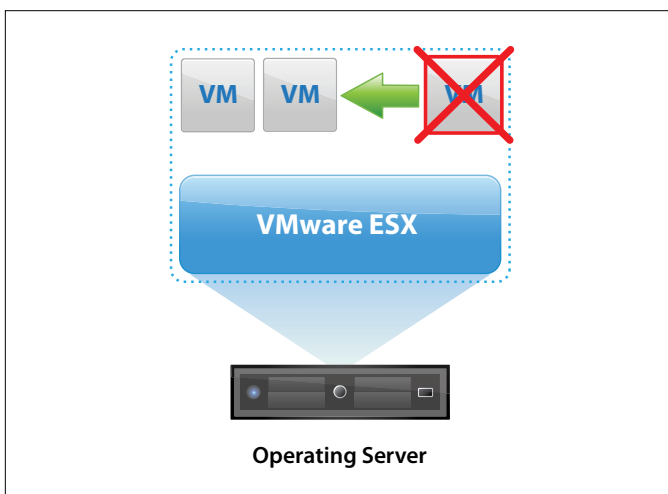


Figure 2: VMware HA addresses server failures and OS failures within virtual machines.

## How Does VMware HA Work?

VMware HA continuously monitors all virtualized servers in a resource pool and detects physical server and operating system failures. To monitor physical servers, an agent on each server maintains a heartbeat with the other servers in the resource pool such that a loss of heartbeat automatically initiates the restart of all affected virtual machines on other servers in the resource pool.

VMware HA leverages shared storage and, for FibreChannel and iSCSI SAN storage, the VMware vStorage Virtual Machine File System (VMFS) to enable the other servers in the resource pool to safely access the virtual machine for failover. When used with VMware Distributed Resource Scheduler (DRS), VMware HA automates the optimal placement of virtual machines on other servers in the resource pool after server failure.

To monitor operating system failures, VMware HA monitors heartbeat information provided by the VMware Tools package installed in each virtual machine in the VMware HA cluster. Failures are detected when no heartbeat is received from a given virtual machine within a user-specified time interval.

VMware HA ensures that sufficient resources are available in the resource pool at all times to be able to restart virtual machines on different physical servers in the event of server failure. VMware HA is easily configured for a resource pool through VMware vCenter™ Server.

## Key Features of VMware HA

- **Scalable high availability across multiple physical servers.**  
Supports up to 32 nodes in a cluster for high application availability.
- **Automatic detection of server failures.**  
VMware HA automates the monitoring of physical server availability. HA detects physical server failures and initiates the new virtual machine restart on a different physical server in the resource pool without human intervention.
- **Smart failover of virtual machines to servers with best available resources (requires VMware DRS).**  
Automate the optimal placement of virtual machines restarted after server failure.
- **Automatic detection of operating system failures.**  
VMware HA detects operating system failures within virtual machines by monitoring heartbeat information. If a failure is detected, the affected virtual machine is automatically restarted on the server.

- **Resource checks.**

Ensure that capacity is always available in order to restart all virtual machines affected by server failure. HA continuously and intelligently monitors capacity utilization and reserves spare capacity to be able to restart virtual machines.

- **Proactive monitoring and health checks.**

VMware HA helps VMware vSphere™ users identify abnormal configuration settings detected within HA clusters.

The VMware vSphere™ client interface reports relevant health status and potential error conditions and suggested remediation steps.

- **Enhanced isolation address response.**

Ensures reliability in confirming network failure by allowing multiple addresses to be pinged before declaring that a node is isolated in the cluster.

## Find Out More

### How Can I Purchase VMware HA?

VMware HA is a component of the VMware vSphere™ platform. For more information on VMware vSphere™ packages, refer to the VMware vSphere™ How to Buy page at <http://www.vmware.com/go/vsphere/buy>.

### Product Specifications and System Requirements

VMware HA requires VMware ESX™ and VMware vCenter Server. For detailed product specifications and system requirements refer to the VMware vSphere™ Resource Management Guide.

For information or to purchase VMware products, call 1-877-4VMWARE (outside of North America dial +1-650-427-5000), visit [www.vmware.com/products](http://www.vmware.com/products), or search online for an authorized reseller. For detailed product specifications and systems requirements, please refer to the VMware vSphere install and configure guide.

