vmware®

virtualization performance

VMware High Availability
Cost effective high availability for 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 un-planned downtime and IT service disruption

• Eliminate the need for dedicated stand-by hardware and the installation of additional software

• Enable affordable uniform high availability across the entire virtualized IT environment

• Avoid the cost and complexity of failover solutions tied to either operating systems or specific applications

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

Figure 2: VMware HA protects from OS-related failures within virtual machines

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. Additionally if there is an OS-related failure within a virtual machine, the failure is detected by VMware HA and the affected virtual machine is restarted on the same physical server. VMware HA allows IT organizations to:

• Minimize un-planned downtime and IT service disruption while eliminating the need for dedicated stand-by 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.
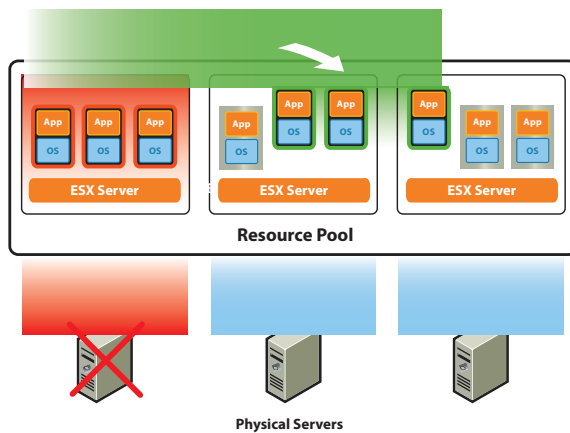
How Is VMware HA Used in the Enterprise?

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 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 operating system or software application specific, and complex to use, VMware HA represents a consistent, easy to manage high availability solution for the entire IT environment. VMware HA provides basic failover for any application with minimum cost and management overhead.
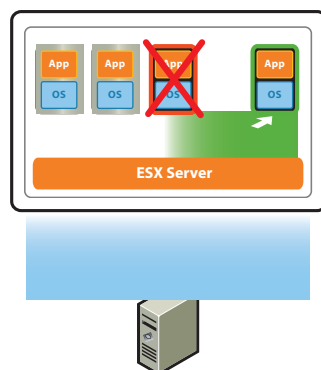
KEY FEATURES

How Does VMware HA Work?

VMware HA continuously monitors all servers in a resource pool and detects physical server failures. An agent placed on each server maintains a "heartbeat" with the other servers in the resource pool and a loss of "heartbeat" initiates the restart process of all affected virtual machines on other servers. VMware HA also detects operating system failures within virtual machines by monitoring heartbeat information across 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. Restart of virtual machines is made possible by the Virtual Machine File System (VMFS) clustered file system which gives multiple ESX Server instances read-write access to the same virtual machine files, concurrently. VMware HA is easily configured for a resource pool through VirtualCenter.

Key Features of VMware HA

- **NEW - Scalable high availability across multiple physical servers.** Support 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 virtual machine and physical server failures, and initiates the new virtual machine restart without any human intervention.

- **NEW - Enhanced support for monitoring failures within virtual machines (experimental).** VMware HA detects operating system failures within virtual machines through monitoring heartbeat information. If a failure is detected, based upon user-defined time intervals, the affected virtual machine is automatically restarted on the physical server

- **Automatic restart of virtual machines.** Protect any application with automatic restart in a different physical server in the resource pool.

- **NEW - Improved overall reliability through enhanced isolation address response.** This capability enhances reliability in confirming network failure on the service console by allowing multiple addresses to be pinged before declaring that a node is isolated in the cluster.

- **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.

- **NEW - Proactive monitoring and health checks.** VMware HA helps VMware Infrastructure users identify abnormal configuration settings detected within HA clusters. This keeps unhandled failure conditions and errors from happening more than once. The VMware Infrastructure client interface reports relevant health status and potential error conditions and suggested remediation steps.

- **Smart failover of virtual machine to servers with best available resources** (requires VMware Distributed Resource Scheduler). Automate the optimal placement of virtual machines restarted after server failure.

How Can I Purchase VMware HA?

- VMware HA is included with VMware Infrastructure 3 Enterprise.

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

Product Specifications and System Requirements

VMware HA requires ESX Server and VirtualCenter Management Server.

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

"VMware Infrastructure 3 reduced the frequency of outages for core infrastructure services by 100 percent, saving 416 man hours per year in unplanned maintenance. VMware Distributed Resource Scheduler (DRS) and VMware High Availability (HA) are fully automated and performing flawlessly. VMware HA is really a simpler and cost-effective alternative to complex, traditional clustering technologies."

Faan DeSwardt, Director of Enterprise Architecture, Wyse Technology

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