

VMware VMotion

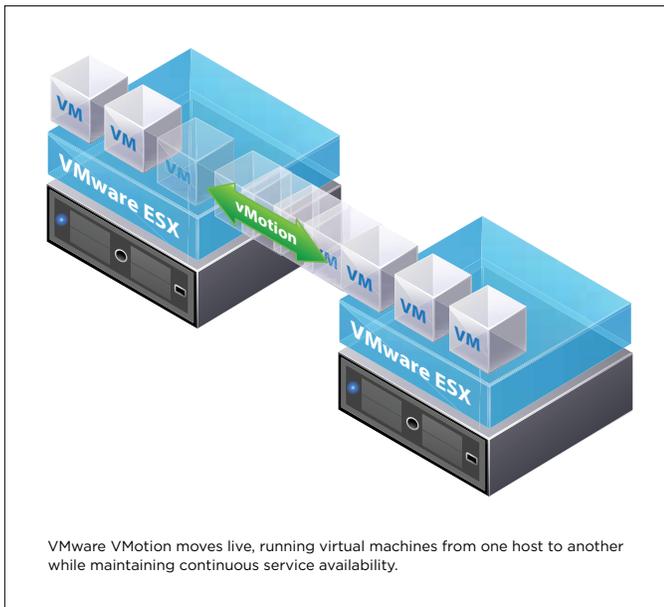
Live Migration for Virtual Machines Without Service Interruption

AT A GLANCE

VMware® VMotion™ enables the live migration of running virtual machines from one physical server to another with zero downtime, continuous service availability, and complete transaction integrity. VMotion is a key enabling technology for creating the dynamic, automated, and self-optimizing datacenter.

BENEFITS

- Improve availability by conducting maintenance without disrupting business operations
- Move virtual machines within server resource pools to continuously align the allocation of resources to business priorities



How is VMware VMotion Used in the Enterprise?

VMware VMotion allows users to:

- Perform hardware maintenance without scheduled downtime.
- Proactively migrate virtual machines away from failing or underperforming servers.
- Automatically optimize and allocate entire pools of resources for optimal hardware utilization and alignment with business priorities.

How Does VMware VMotion Work?

Live migration of a virtual machine from one physical server to another with VMware VMotion is enabled by three underlying technologies.

First, the entire state of a virtual machine is encapsulated by a set of files stored on shared storage such as Fibre Channel or iSCSI Storage Area Network (SAN) or Network Attached Storage (NAS). VMware vStorage VMFS allows multiple installations of VMware ESX® to access the same virtual machine files concurrently.

Second, the active memory and precise execution state of the virtual machine is rapidly transferred over a high speed network, allowing the virtual machine to instantaneously switch from running on the source ESX host to the destination ESX host. VMotion keeps the transfer period imperceptible to users by keeping track of on-going memory transactions in a bitmap. Once the entire memory and system state has been copied over to the target ESX host, VMotion suspends the source virtual machine, copies the bitmap to the target ESX host, and resumes the virtual machine on the target ESX host. This entire process takes less than two seconds on a Gigabit Ethernet network.

Third, the networks being used by the virtual machine are also virtualized by the underlying ESX host, ensuring that even after the migration, the virtual machine network identity and network connections are preserved. VMotion manages the virtual MAC address as part of the process. Once the destination machine is activated, VMotion pings the network router to ensure that it is aware of the new physical location of the virtual MAC address. Since the migration of a virtual machine with VMotion preserves the precise execution state, the network identity, and the active network connections, the result is zero downtime and no disruption to users.

Key Features

Reliability.

Proven by thousands of customers in production environments since 2004, VMotion continues to set the standard for the most dependable live migration capabilities.

Performance.

Perform live migrations with downtime unnoticeable to the end users. Optimal use of CPU and network resources ensures that the live migrations occur quickly and efficiently.

Interoperability.

Migrate virtual machines running any operating system across any type of hardware and storage supported by VMware ESX.

- **Support for Fibre Channel SAN.**

Implement live migration of virtual machines utilizing a wide range of up to 4GB Fibre Channel SAN storage systems.

- **NAS and iSCSI SAN support.**

Implement live migration of virtual machines with lower-cost, more easily managed shared storage.

- **Customizable CPU compatibility settings.**

Ensure that virtual machines can be migrated across different versions of hardware. Enable virtual machines to benefit from the latest CPU innovations.

- **New - Enhanced VMotion Compatibility.**

Live migrate virtual machines across different generations of hardware. Migrate virtual machines from older servers to new ones without disruption or downtime.

Manageability

- **Migration wizard.**

Quickly identify the best destination for a virtual machine using real-time information provided by migration wizard.

- **Multiple concurrent migrations.**

Perform multiple concurrent migrations to continuously optimize virtual machine placement across the entire IT environment.

- **Priority levels.**

Assign a priority to each live migration operation to ensure that the most important virtual machines always have access to the resources they need.

- **Scheduled migration tasks.**

Automate migrations to happen at pre-defined times, and without an administrator's presence.

- **Migration audit trail.**

Maintain a detailed record of migration operations, including date/time and the administrators responsible for initiating them.

Find Out More

How Can I Purchase VMware VMotion?

VMware VMotion is included in VMware vSphere™ 4 Advanced, Enterprise and Enterprise Plus editions.

For more information on how to purchase, visit the VMware vSphere Web page at: <http://www.vmware.com/go/vsphere/buy>.

Product Specifications and System Requirements

VMware VMotion requires VMware vCenter™ Server for administration.

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

