



VMware Storage VMotion

Non-disruptive, live migration of virtual machine storage

AT A GLANCE

VMware® Storage VMotion™ enables the live migration of running virtual machine disk files from one storage location to another—with zero downtime.

BENEFITS

- Simplify storage array migrations and storage upgrades
- Dynamically optimize storage I/O performance
- Efficient storage utilization and capacity management

What Is VMware Storage VMotion?

VMware Storage VMotion enables the live migration of running virtual machine disk files within and across storage arrays. Building on the success of VMware VMotion—a production proven technology used for the live migration of virtual machines—Storage VMotion relocates virtual machine disk files from one shared storage location to another shared storage location. It achieves this with zero downtime, continuous service availability and complete transaction integrity. Storage VMotion enables organizations to perform proactive storage migrations, simplify array refreshes/retirements, improve virtual machine storage performance and free up valuable storage capacity.

How Is VMware Storage VMotion Used in the Enterprise?

VMware Storage VMotion lets companies conduct storage migrations of live virtual machines without service interruption. With Storage VMotion, IT organizations can:

- **Simplify array migrations and storage upgrades.** The traditional process of adding new storage disks and arrays is cumbersome, time-consuming and disruptive, with storage data migrations consuming IT resources and requiring significant service interruption.

Storage VMotion helps customers embrace new storage choices, take advantage of flexible leasing models, cost effectively embrace new disk file formats and retire older, harder to manage arrays. Storage VMotion gives IT organizations the ability to non-disruptively move underlying virtual machine disk files from existing storage to any new storage of choice

The capability to migrate LUN-independent virtual machine disk files to different classes of storage enables greater flexibility and cost-effective management of virtual machine disks. It also helps IT organizations to conduct storage upgrades and migrations based on usage and priority policies.

- **Dynamically optimize storage I/O performance.** Organizations often fall back to the default measure of over allocating storage when faced with I/O bottlenecks is the wasteful over-allocation of precious storage resources.

In contrast, Storage VMotion improves storage I/O performance by non-disruptively moving virtual machine disk files to alternative LUNs that are properly configured to deliver optimal performance.

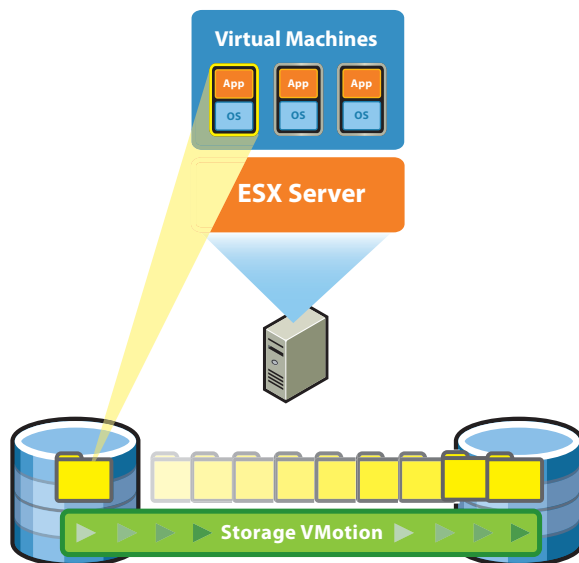


Figure 1: Storage VMotion enables live migration of running virtual machine disk files across storage arrays.

KEY FEATURES

- **Efficient storage capacity management.** Inadequate storage allocation for a virtual machine is likely to create performance issues for the application and leave unused or stranded storage capacity. Moreover, increasing or decreasing storage allocation requires multiple manual steps, including coordination between groups, scheduling downtime and adding additional storage. This is then followed by a lengthy migration of the virtual machine disk files to the new data store, resulting in significant service downtime.

Storage VMotion answers this challenge with efficient storage utilization that avoids performance problems before they occur. Storage VMotion non-disruptively moves virtual machines to larger capacity storage LUNs as virtual machine disk files approach their total available LUN size limits. Unused storage capacity can be reclaimed and allocated to virtual machine applications that need the extra capacity.

How Does VMware Storage VMotion Work?

VMware Storage VMotion allows virtual machines' disks to be relocated to different data store locations completely transparently while the virtual machine is running, with zero downtime. Storage VMotion takes advantage of core technologies that VMware has developed, such as disk snapshots, REDO logs, parent/child disk relations, and snapshot consolidation.

Before moving a virtual machines disk file, Storage VMotion moves the "home directory" of the virtual machine to the new location. The "home directory" contains meta information about the virtual machine i.e. configuration, swap, log files. It next "self VMotions" to the new VM home location. The disk movements follow after the home directory migration. First, Storage VMotion creates a "child disk" for each virtual machine disk to be migrated. Once the migration operation has started, all disk writes are directed to this "child disk". Second, the "parent", or original, virtual disk is then copied from the old storage device to the new storage device. In step three, the child disk that is capturing the write operations are then "re-parented" to the newly copied parent disks. And, in the final step the child disk is consolidated into the new parent disk and the ESX host is now re-directed to the new parent disk location.

The switchover process of home directory and disk migration, creation of child disks and parent disks, re-parenting and consolidation of child disks happens within sub-2 seconds, fast enough to be unnoticeable to the application user.

Key Features of VMware Storage VMotion

- **Complete transaction integrity.** Zero downtime storage migrations with complete transaction integrity.
- **Interoperability.** Complete operating system and hardware independence allows Storage VMotion to migrate any virtual machines running any operating system across any type of hardware and storage supported by VMware ESX Server
- **Support for Fibre Channel SAN.** Implement live migration of virtual machines disk files utilizing a wide range of up to 4GB Fibre Channel SAN storage systems

How Can I Purchase VMware Storage VMotion?

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 Storage VMotion requires the installation of VirtualCenter Management Server and VirtualCenter Agent on your physical systems. For more information, please see VMware VirtualCenter Requirements

Note: For detailed support, compatibility and interoperability please refer to the Virtual Infrastructure 3 compatibility guides and release notes.