

Enterprise Standards and Best Practices for IT Infrastructure

Lab Report : V-Motion

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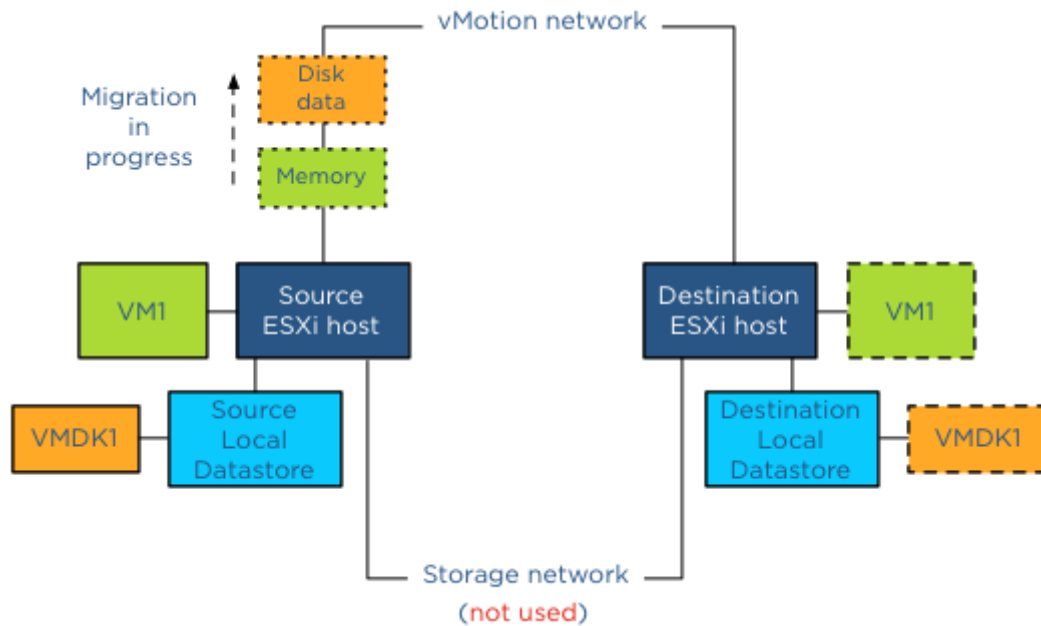
What is V-Motion?

VMware V-Motion enables the live migration of running virtual machines from one physical server to another with zero downtime, continuous service availability, and complete transaction integrity. It is transparent to users.

V-Motion automatically optimize and allocate entire pools of resources for maximum hardware utilization and availability, Perform hardware maintenance without any scheduled downtime, Proactively migrate virtual machines away from failing or underperforming servers.

How does V-Motion work?

The entire state of a virtual machine is encapsulated by a set of files stored on shared storage and the clustered Virtual Machine File System allows multiple installations of the ESX Server to access the same virtual files concurrently. Also, the memory and precise execution state of the virtual machine is rapidly transferred over a high speed network. This allows the virtual machine to instantaneously switch from running on the source ESX Server to the destination ESX Server. V-Motion 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 Server, V-Motion suspends the source virtual machine, copies the bitmap to the target ESX Server, and resumes the virtual machine on the target ESX Server. This entire process takes less than two seconds on a Gigabit Ethernet network. Afterwards, the networks used by the virtual machine are also virtualized by the underlying ESX Server. This ensures that even after the migration, the virtual machine network identity and network connections are preserved. V-Motion manages the virtual MAC address as part of the process. Once the destination machine is activated, V-Motion 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 V-Motion preserves the precise execution state, the network identity, and the active network connections, the result is zero downtime and no disruption to users.



Requirements to Configure V-Motion:

Certain conditions must be fulfilled so that the server migration process can run without problems or failures as V-Motion is arbitrated in an active virtual machine. The requirements are as follows:

1. CPU Compatibility:

- Host CPU family and model
- Settings in the BIOS that might disable CPU features
- ESX version running on the host
- The virtual machine's compatibility setting
- The virtual machine's guest operating system

2. V-Motion Interface - Minimum 1GB adapter

3. Shared central mass storage

4. Same naming for virtual port groups

5. Sufficient resources on the target host

6. At least one vSphere essentials plus license on the corresponding ESX host.