Enterprise Standards and Best Practices for IT Infrastructure

Vmotion Lab Report

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What is Vmotion?

Vmotion VMware is a technology that enables the migration of virtual machines from one ESXi host to another host without losing service.

Requirements

- Having a Virtual Center.
- 2 have physical servers with ESXi installed.
- Having a Gigabit network cable to connect from one server to another directly.

Vmotion Compatability

V Motion has quite a few requirements that need to be in place before it will work correctly. Here is a list of the key requirements for V Motion to work.

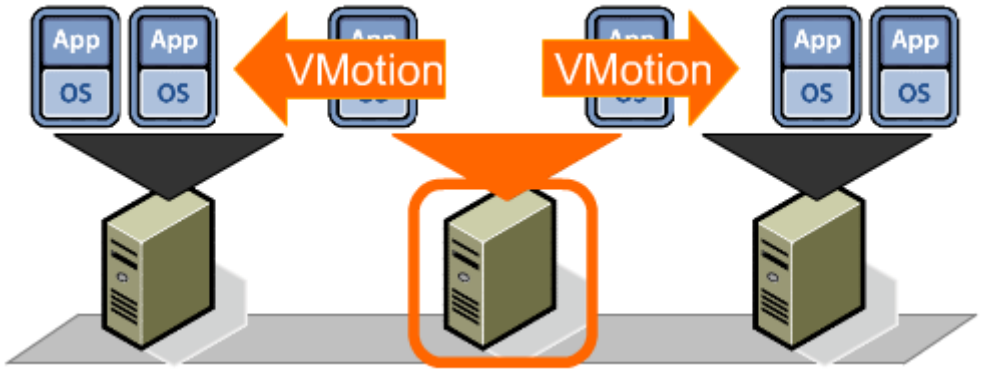
- Each host must be correctly licensed
- Each host must meet shared storage requirements
- Each host must meet the networking requirements
- Each compatible CPU must be from the same family

When configuring vMotion between hosts I would recommend keeping to one brand of server per cluster, i.e. Dell, HP, IBM. Also always ensure that these servers are compatible with each other. You can confirm this by speaking to the server manufacturer. A very important item to consider is to always ensure you are using the latest BIOS version on each of your hosts. Ensuring that the CPU's are compatible with each other is essential for vMotion to work successfully, this is because the host that the virtual machine migrates to has to be capable of carrying on any instructions that the first host was running. If a virtual machine is successfully running an application on one host and you migrate it to another host without these capabilities the application would most likely crash, possibly even the whole server would crash, hence why vMotion compatibility is required between hosts before you can migrate a running virtual machine. It is user-level instructions that bypass the virtualisation layer such as Streaming SIMD Extensions (SSE), SSE2 SSSE3, SSE4.1 and Advanced Encryption Standard (AES) Instruction Sets that can differ greatly between CPU models and families of processors, and so can cause application instability after the migration.

Benefits of Vmotion

- **Automatically optimize and allocate entire pools of resources**

By having all your server and/or desktops virtualized you can move VM's from one physical host to another, which is done rapidly over a high speed network connection, the original host and destination host stay in sync until the transfer it complete leaving the user unaware of the move. This allows network administrators to easily select resource pools to assign to the different VMs.

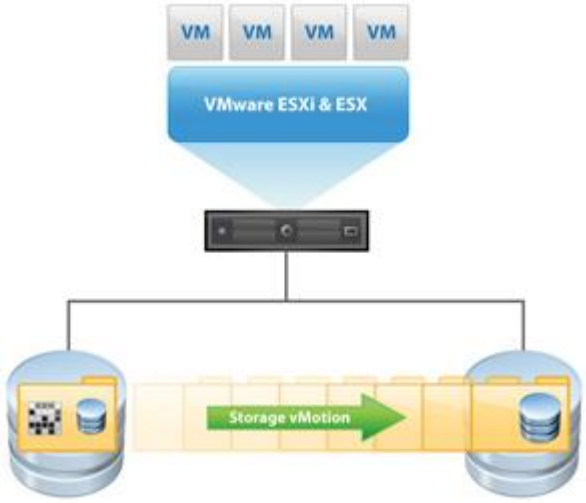


- **Move VM's from failing or underperforming priorities**

If there looks like a server is about to fail or is reaching its capacity, administrators can manually move VMs to another physical host, this allows your data center to be more dynamic in nature. Instead of having to upgrade hardware, you can move VM to another host to allow each VM to be more flexible in nature. If 2 VM's are putting a physical host to capacity then you could move one to another server that isn't being used as much.

- **Minimizes scheduled Downtime**

90% of downtime is scheduled, before vMotion administrators had to do server maintenance late at night in order to avoid disrupting users. Having all the servers as virtual machines, you only have to move the VM to another physical host, creating zero downtime for the users and allowing administrators to perform maintenance at any time. With DRS (Digital Resource Manager), all you have to do is put a server in maintanence mode and vMotion will automatically move all VM's to another server.



Necessary components to to Vmotion

i. Proper network is required and all servers should be connected to one LAN.
ii. Vmotion network.
iii. Common data storage. This contains configuration files and common data.
iv. At least 12GB RAM for create virtual machines.

Requirements for configure Vmotion on VMware ESXi without fear:

1. Need to have virtual center
2. Need to have two physical servers with ESXi installed.
3. Gigabit network cable is required for connect from one server to another directly.

Basic steps for configure Vmotion on VMware Esxi

- Step 1: Connect to Virtual Center and get access to one of the servers. To do that go to the 'Configuration' tab and select 'Network Adapters' option. In there we can see new connections.
- Step 2: Go to the 'Networking' option and select it. Then select 'Add Networking' to create the 'vSwitch'.
- Step 3: Select 'VMKernel' and click on 'Next'.

- Step4: Making a network card or cards that have connected from one server to another and click on ‘Next’.
- Step 5: Select ‘Use the following IP settings’ and write a label network. For an example in here we used following IP address and Subnet mask.
  IP address: 50.50.50.1
  Subnet Mask: 255.255.255.252
  Then click ‘Finish’.
- Step 6: To ensure that the entire system is working properly migrate a VM from one ESXi to the other using Vmotion functionality that configured. To do that select the virtual machine that created and then right click and select ‘Migrate’. Then click ‘Next’.
- Step 7: Select the target server where that move the virtual machine and click ‘Next’.
- Step 8: Click ‘Finish’ to start the migration.