Enterprise Standards and Best Practices for IT Infrastructure

Lab Report

VMware vMotion

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1. What is vMotion?

vMotion allows to move an entire running (live) virtual machine from one physical server to another without downtime (with zero downtime) continues high availability of service and complete transaction integrity. All of this is done in real time without the user of the virtual machine even knowing they have been moved.

The two physical servers are the two ESXi hosts where the virtual machines are created. So a running virtual machine can be migrated from one host to another.
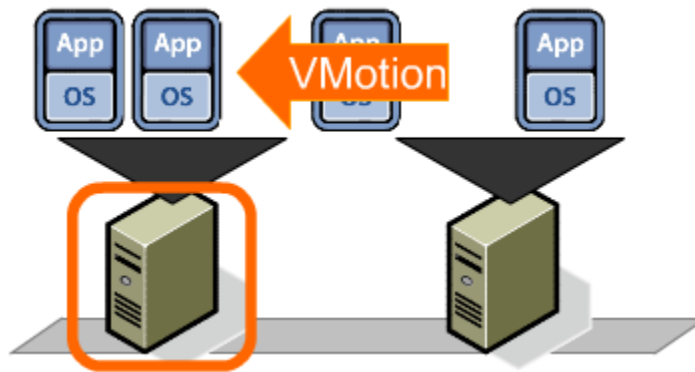
2. Pre Requisites for vMotion

- Host must be licensed for vMotion (at least one vSphere Essentials Plus license on the corresponding ESXi host)
- Configure host with at least one vMotion n/w interface (vmkernel port group)
- Same VLAN and VLAN label
- GigaBit Ethernet network required between hosts
- Processor compatibility between hosts
- Sufficient resources on the target hosts
- vMotion does not support migration of applications clustered using Microsoft clustering service
- No CD ROM attached
- No affinity is enabled
- VMware tools should be installed

- All hosts should have access to the same datastores and networks.
- Virtual machine should be running on one of the supported operating systems.

3. **Pros and Cons of vMotion**

Pros

➢ High availability of service.

➢ Zero downtime (minimum service downtime).

➢ Complete transaction integrity.

➢ Maximum hardware utilization and availability.

➢ Automatically optimize and allocate entire pools of resources.

Cons

➢ Does not allow migration with vMotion between Intel and AMD processors.

➢ BIOS settings of the hosts need to enable hardware virtualization and execute protection.

4. **How setup VMware vMotion Step by Step**

(Due to less performance of the computer, unable to take screenshots "installing of vMotion on the VMware" from the computer to include it here)

1. Have physical servers with ESXi installed. Having a Gigabit network cable to connect from one server to another directly.
2. Power on the ESXi hosts and connect using VMware vSphere client software.
3. Create a virtual machine on the host and power on it.
4. Select the host and go to 'Configuration' tab.
5. Go to 'Networking' and click on 'Add Networking' to create the vSwitch.
6. Choose 'VMkernel' on ADD Network Wizard and click on Next.
7. Choose 'Create a vSphere standard switch' and click on Next.
8. Provide a network label and set 'Use this port group for vMotion'.
9. Set the IP settings (IP address and subnet mask) and click on Next.
10. Click on Finish.
11. Go to 'Networking' tab and click on 'Add Networking'.

12. Perform the same steps from step 4 to step 8. (When providing an IP in IP settings provide a different IP than the earlier one).

13. Click on Next and Finish.

14. Now check to ensure that the entire system is working properly migrate a VM from one ESXi to the other using vMotion functionality.

    a. Right click on a virtual machine and click on Migrate.

    b. Select migration type 'Change host' and click on Next.

    c. Select the destination server where to move the virtual machine and click on Next.

    d. Select the vMotion priority as 'High priority' and click on Next.

    e. Click on Next from the 'Ready to Complete' tab.

    f. Click on Finish to start the migration. It will take 47 seconds (approx. by perfect systems) to complete the migration process.