Enterprise Standards and Best Practices for IT Infrastructure

Virtual Motion

Assignment Report

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What is Vmotion?

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. It is transparent to users.

vMotion Migration

A vMotion migration moves a powered on virtual machine from one host to another.

vMotion can be used to:

- Improves overall hardware utilization
- Allow continued virtual machine operation while accommodating scheduled hardware downtime.
- Allow vSphere distributed resource scheduler to balance virtual machines across hosts.

Virtual Machine Requirements for vMotion Migration

- A virtual machine must not have a connection to a virtual device (such as a CD-ROM or floppy drive) with a local image mounted.
- A virtual machine must not have a connection to an internal vSwitch (vSwitch with zero uplink adapters.)
- A virtual machine must not have CPU affinity configured.

Host Requirements for vMotion Migration

- Visibility to all storage (Fibre Channel, iSCSI or NAS) used by the virtual machine.
- At least a Gigabit Etherent network
    - Four concurrent vMotion migrations on a 1Gbps network
    - Eight concurrent vMotion migrations on a Gbps network
- Access to thensame physical networks
- Compatible CPUs

Pre Requisites for vMotion

- ✓ The hosts must be licensed for vMotion (at least one vSphere Essentials Plus license on the corresponding ESXi host).
- ✓ At least one vMotion interface (minimum 1GB adapter)
- ✓ Same naming for virtual port groups
- ✓ Same VLAN and VLAN label.
- ✓ Sufficient resources on the target hosts
- ✓ All hosts should have access to the same datastores and networks.
- ✓ Virtual machine should be running on one of the supported operating systems.

Software Requirements for vMotion

- ✓ The hosts must be running ESXi 5.1 or later.
- ✓ VMware tools should be installed.

Hardware Requirements for vMotion

- ✓ CPU compatibility
- ✓ Processor compatibility
- ✓ No CD ROM attached
- ✓ Shared central mass storage
- ✓ GigaBit Ethernet network between hosts

Pros and Cons of vMotion

Pros

1. Zero downtime (no downtime)
2. Continuous service availability
3. Useful when performing maintenance on the ESXi host
4. Maximum hardware utilization and availability.
5. Load balancing

Cons

1. Does not allow migration with vMotion between Intel and AMD processors.
2. BIOS settings of the hosts need to enable hardware virtualization and execute protection.

Steps of doing vMotion on VMware

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

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1. Right click on a virtual machine and click on Migrate.
2. Select ‘Change host’ and click on Next.
3. Select the target server where to move the virtual machine and click on Next.
4. Select the vMotion priority as ‘High priority’ and click on Next.
5. Click on Next from the ‘Ready to Complete’ tab.
6. Click on Finish to start the migration. It will take 60 seconds (approx.) to complete the migration process.

(The screenshots of the demonstration cannot be provided at this time due to the lack of requirements of the PC.)