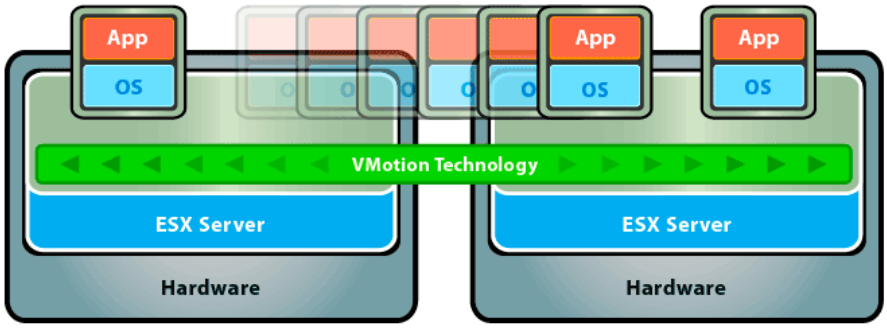
Sri Lanka Institute of Information Technology

Enterprise Standards and Best Practices for IT Infrastructure

VMware vMotion



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D. M. A. I. Rangana

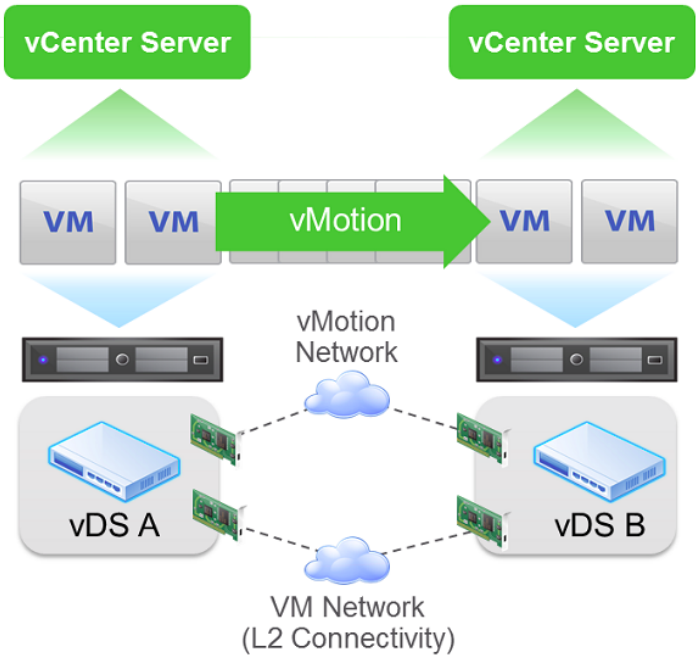
IT 13 1291 18

What is vMotion ?

VMware vMotion enables the live migration of running virtual machines from one VMware ESXi hypervisor to another ESXi hypervisor with zero downtime, continuous service availability and complete transaction integrity. VMware vMotion is transparent to users. It also known as Hot migration and Live migration.

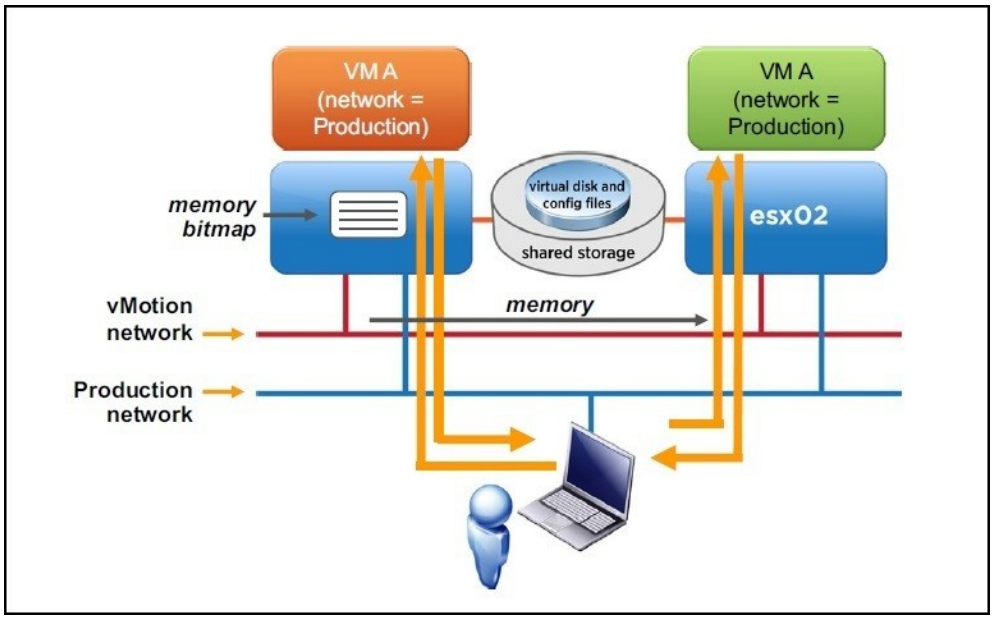
vMotion lets us ;

- 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 vMotion works?

- Users currently accessing VM-A on ESXi01.
- Initiate live migration of VM-A from ESXi01 to ESXi02 while VM-A is up and running.
- Pre-copy memory from ESXi01 to ESXi02.
- Logon going memory changes into a memory bitmap on ESXi01.
- Quiesce VM-A on ESXi01 and copy memory bitmap to ESXi02.
- Copy VM's remaining memory from ESXi01.
- Start VM-A on ESXi02 and Delete VM-A from ESXi01.



vMotion Network Configuration :

Configure the virtual networks on vMotion enabled hosts;

- Configure a VMKernal port group for vMotion on each host.
- Ensure that VMs have access to the same subnets on source and destination hosts.
- If it is using standard switches for networking, ensure that the network labels used for VM port groups are consistent across hosts.
- If it is using vSphere Distributed Switches for networking, ensure that source and destination hosts are members of all vSphere Distributed Switches that VMs use for networking.

vMotion VM conditions & Limitations ;

- The source and destination management network IP address families must match. Can not migrate VM from IPv4 address to IPv6 address.
- If virtual CPU performance counters are enabled, We can migrate VMs only to hosts that have compatible CPU performance counters.
- We can migrate VMs with USB devices that are connected to a physical USB device on the host. Should enable the devices for vMotion.
- Can not use migration with vMotion to migrate a VM that uses a virtual device backed by a device that is not accessible on the destination host.
- Can not use migration with vMotion to migrate a VM that uses a virtual device backed by a device on the client computer. Should disconnect these devices before migrate the VM.

Other requirements & Limitations ;

- The hosts must be licensed for vMotion.
- The hosts must be running ESXi 5.1 or later.
- The hosts must meet the networking requirement for vMotion.
- The VMs must be configured properly for vMotion.
- VM disks must be in persistent mode or be raw device mappings (RDMs).
- The destination host must have access to the destination storage.

Configure a vMotion interface using vSphere Client

To configure a vMotion Interface:

1. Log into the vCenter Server using vSphere Client.
2. Click to select the host.
3. Click the Configuration tab.
4. Click Networking under Hardware.
5. Click Add Networking.
6. Select VMkernel and click Next.
7. Select the existing vSwitch, or select Create a vSphere standard switch to create a new vSwitch and click Next.
8. Enter a name in the Network Label to identify the network that vMotion uses.
9. Select a VLAN ID from the VLAN ID (Optional) dropdown if applicable.
10. Select Use this port group for vMotion and click Next.
11. Enter the IP address and Subnet Mask of the host's vMotion Interface.
12. Click Next, then click Finish.

Configure a vMotion interface using vSphere Web Client:

1. In the vSphere Web Client, navigate to the Host.
2. Under Manage, select Networking and then select VMkernel adapters.
3. Click Add host networking.
4. On the Select connection type page, select VMkernel Network Adapter and click Next.
5. On the Select target device page, select either an existing standard switch or a New vSphere standard switch.
6. On the Port properties, enable vMotion Traffic and select Next.
7. Configure network for the vMotion VMkernel interface and click Next.
8. Review the settings and click Finish.