

SRI LANKA INSTITUTE OF INFORMATION TECHNOLOGY

**Enterprise Standards and Best Practices for IT Infrastructure**

**4<sup>th</sup> Year 2<sup>nd</sup> Semester 2016**

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## What is VMotion?

Vmotion all about the moving of the virtual machine from one location to another - occasionally this refer to as workload protability or 'live migration' by industry experts or other virtualization vendors. VMware's flagship technology is called VMotion. Indeed it was VMware who pioneered the technology that allows the SysAdmin to move a running VM from one physical host to another, without powering off the VM and without disconnecting users. Storage VMotion describes similar process by which the files that make up the VM (.VMX, .VMDK) are relocated from one data store to another, again without powering off the VM and without disconnecting users. Finally, cold migrate describes a process by which the VM is relocated either to another host, another data store or both - with the VM powered off. This can be necessary because the requirements of VMotion or Storage VMotion for what ever reason cannot be met.

## Requirements and Recommendations

- **VMKernel Networking:** There needs to be at least 1Gps connectivity between the hosts, with a VMKernel port enabled for VMotion. VMotion will work with 10Gps, and with bundled VMKernel Ports and NIC Teaming.
- **Virtual Machine Networking:** The port group labels on the source/destination vSphere hosts for which the VM is configured need to be consistent. In reality this not a concern in Distribute Switches, where centralized management ensure consistent naming. It is more a challenge for environment that utilize the Standard Switch which is configured on a per-host basis. A port group named "Production" on the source host, where the destination used "production" would cause a problem as port group labels on Standard Switches are case sensitive.
- **Shared Storage:** In the past it was a requirement for the source/destination vSphere Hosts to have access to the same data store. This practice is one that persists today, however it is possible to now move a VM from one host to another where shared storage is not available - such as moving a VM from local data store on one host to another local data store.
- **CPU Compatibilities:** In recent years much work as been carried out to mitigate against the requirement to have matching CPU attributes from the source/destination hosts. For instance in VMware's DRS technology that utilizes VMotion, there is an Enhanced VMotion Compatibility (EVC) feature that allows for the masking (hiding) of CPU attributes to allow VMotion take place. Sadly, however no technology exists presently to allow VMotion take place between Intel and AMD chipsets. So it is likely we will need to live with CPU compatibility issues for the foreseeable future. Two KB articles cover the CPU attributes from the main vendors outlining the compatibility requirements:

## Advantages of VMotion

Main advantage of VMotion is it can do maintenance of servers without disrupting the services which are providing by the server.



Steps that have to follow when practice the VMotion

Device	Speed	Configured	Switch	MAC Address	Observed
<b>Broadcom Corporation Broadcom NetXtreme II BCM5709 1000Base-T</b>					
vmnic1	100 Full	Negotiate	vSwitch1	00:1a:64:dc:be:86	10.56.
vmnic0	1000 Full	Negotiate	vSwitch0	00:1a:64:dc:be:84	10.56.
<b>Intel Corporation 82571EB Gigabit Ethernet Controller (Copper)</b>					
vmnic9	1000 Full	Negotiate	None	00:15:17:ba:ba:0e	None
vmnic8	Down	Negotiate	None	00:15:17:ba:ba:0f	None
vmnic7	Down	Negotiate	None	00:15:17:ba:ba:0c	None
vmnic6	Down	Negotiate	None	00:15:17:ba:ba:0d	None
vmnic5	1000 Full	Negotiate	vSwitch0	00:15:17:ba:bb:aa	10.56.
vmnic4	Down	Negotiate	None	00:15:17:ba:bb:ab	None
vmnic3	Down	Negotiate	None	00:15:17:ba:bb:a8	None
vmnic2	1000 Full	Negotiate	vSwitch1	00:15:17:ba:bb:a9	10.56.

www.megacrack.es

Now we look at the tab **Configuration-> Networking**

**View:** vSphere Standard Switch vSphere Distributed Switch

**Networking** Refresh Add Networking... Properties...

**Standard Switch: vSwitch0** Remove... Properties...

-Virtual Machine Port Group  
Management  
-VMkernel Port  
Management Network  
vnic0 :

**Physical Adapters**  
vmnic5 1000 Full  
vmnic0 1000 Full

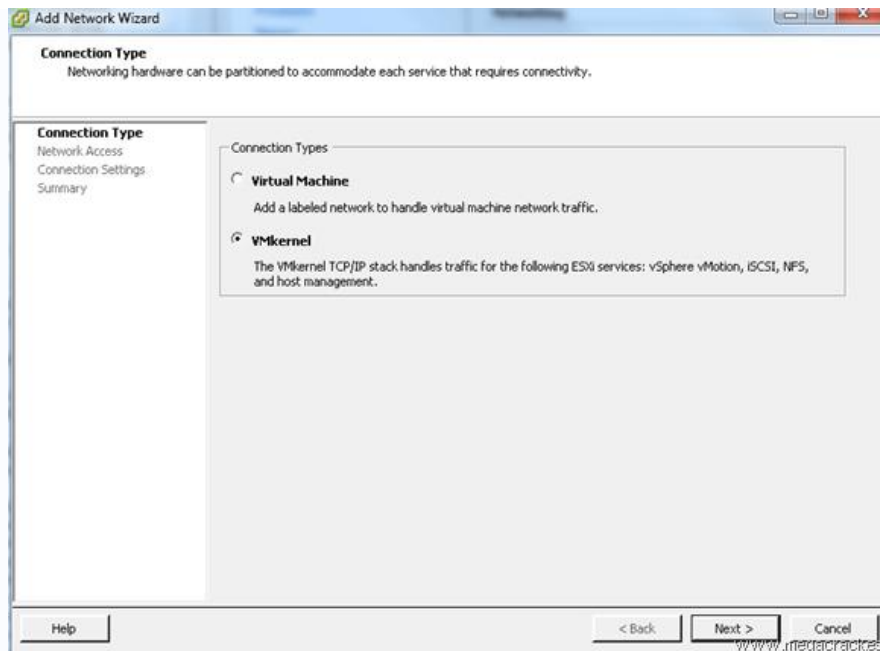
**Standard Switch: vSwitch1** Remove... Properties...

-Virtual Machine Port Group  
VLAN 4 Servers I  
7 virtual machine(s)

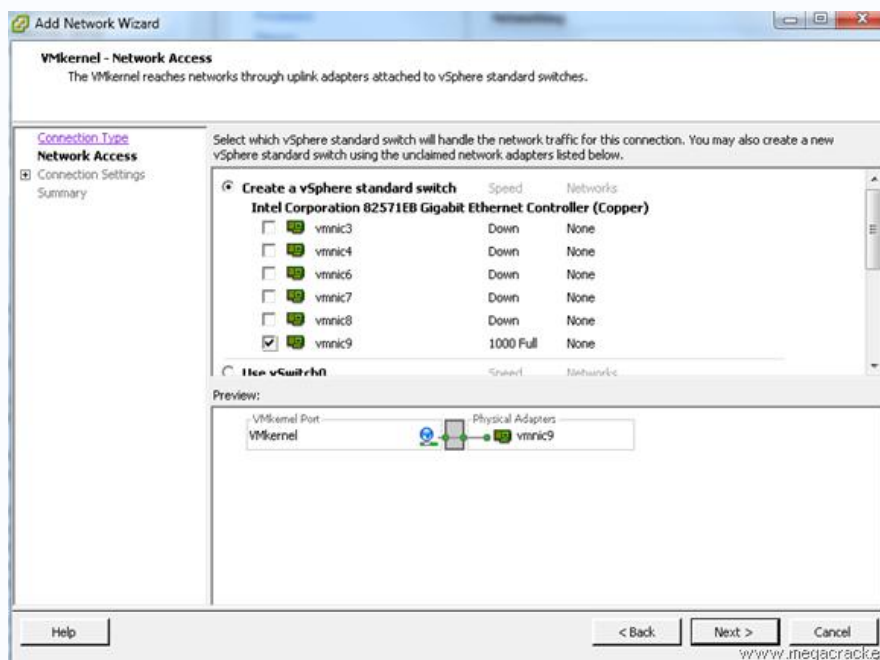
**Physical Adapters**  
vmnic2 1000 Full  
vmnic1 100 Full

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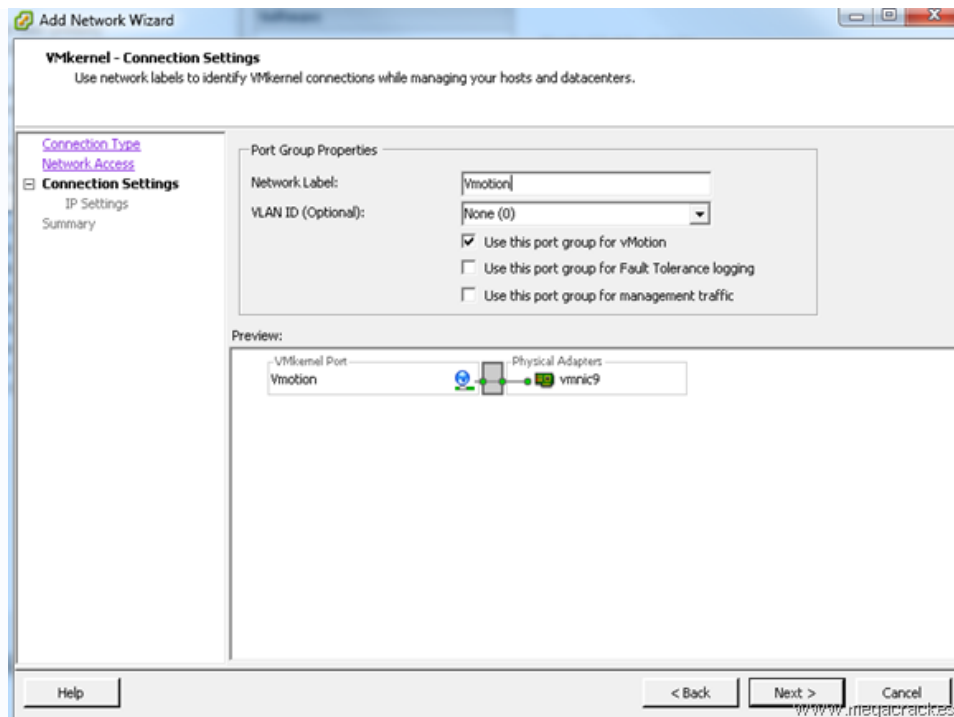
Click on **Add Networking** to create the vSwitch.



Select **VMkernel** and click on **Next**.

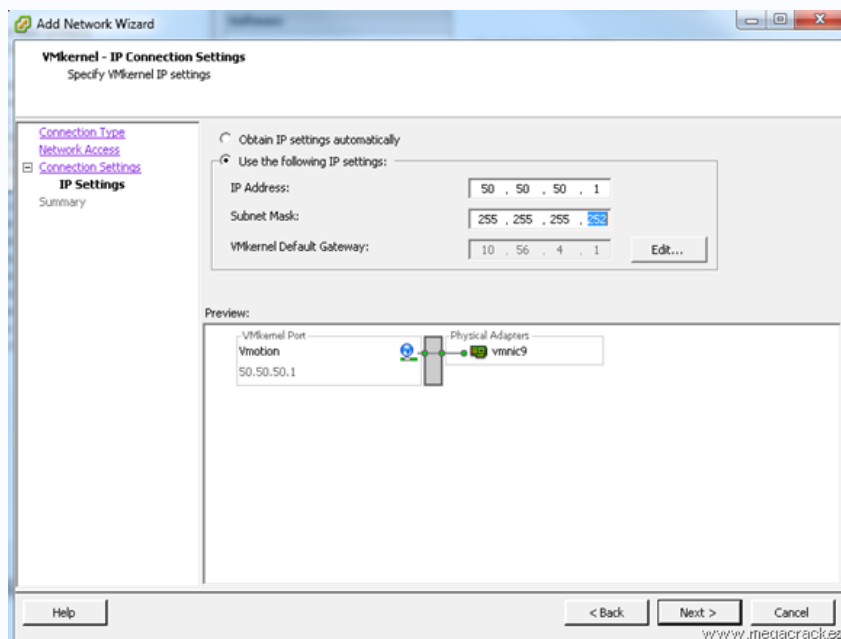


Making a network card or cards that have connected from one server to another (in our case **vmnic9**) And click on **Next**.



We set **Use this port group for vMotion**.

We wrote a **Label Network** different if you want (optional) and click on **Next**. We for example we put **Vmotion**.

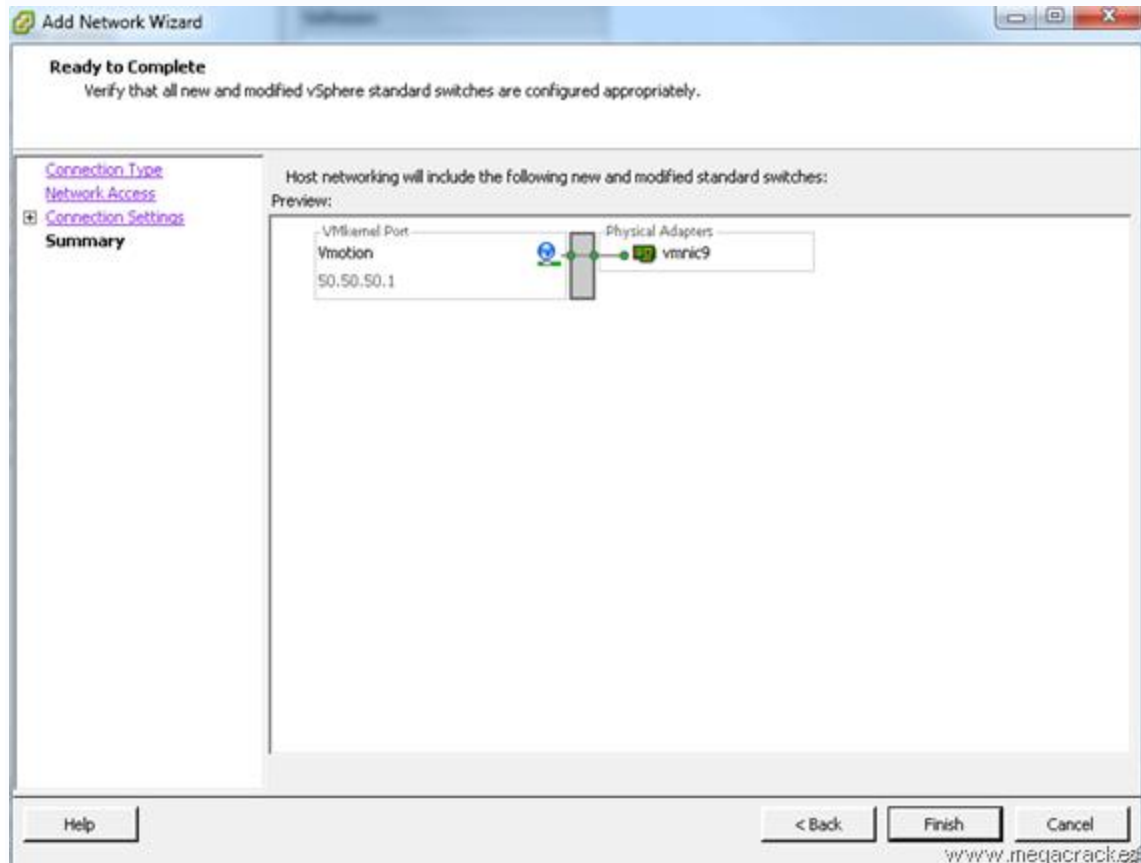


We set **Use the following IP settings**:

**IP Address: 50.50.50.1**

**Subnet Mask: 255.255.255.252** (Since we will use only 2 ip's).

Click on **Next**.



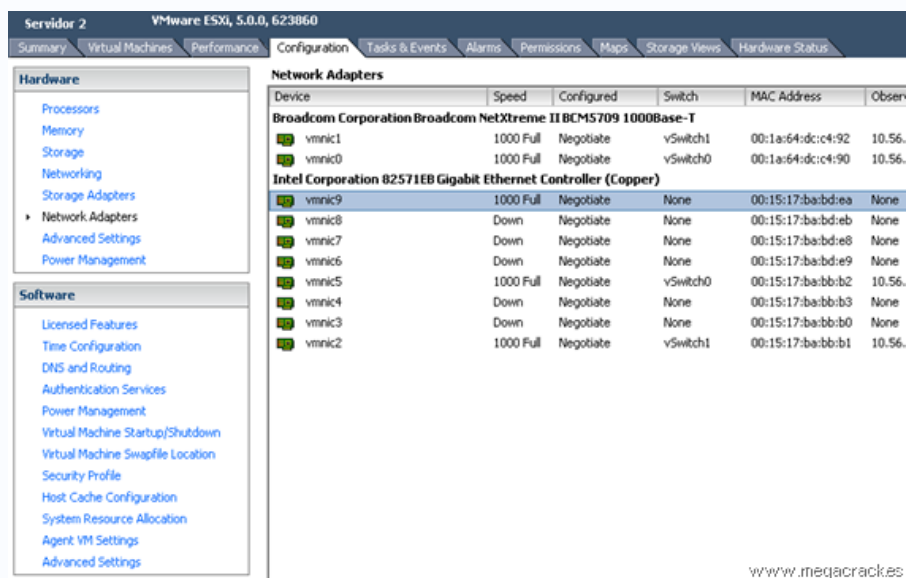
Click on **Finish**.



We found that they have created a new virtual switch with Vmotion.

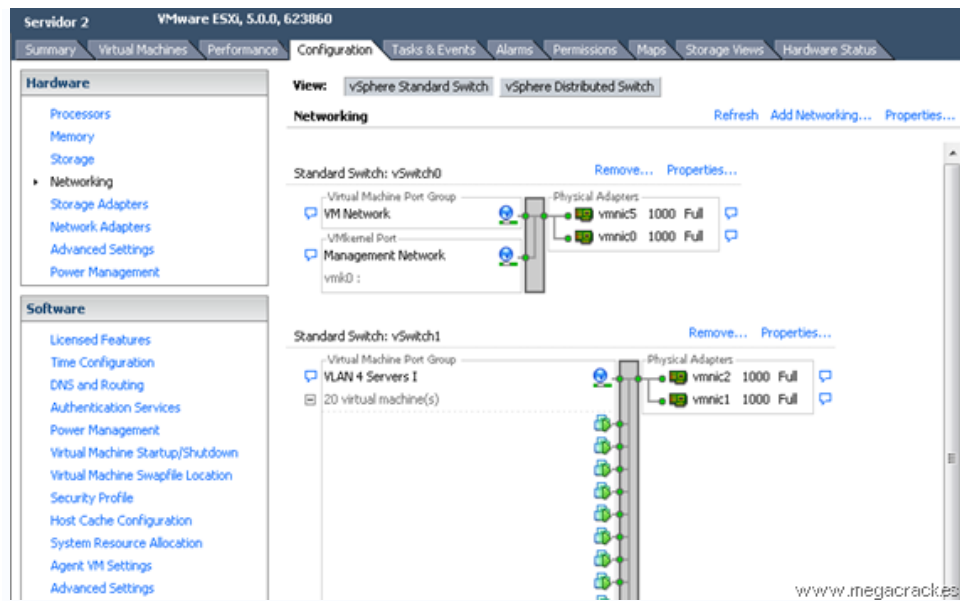
We connect to another server involved.

We select the tab **Configuration-> Network Adapters** and we see that we have visibility of the new connections.

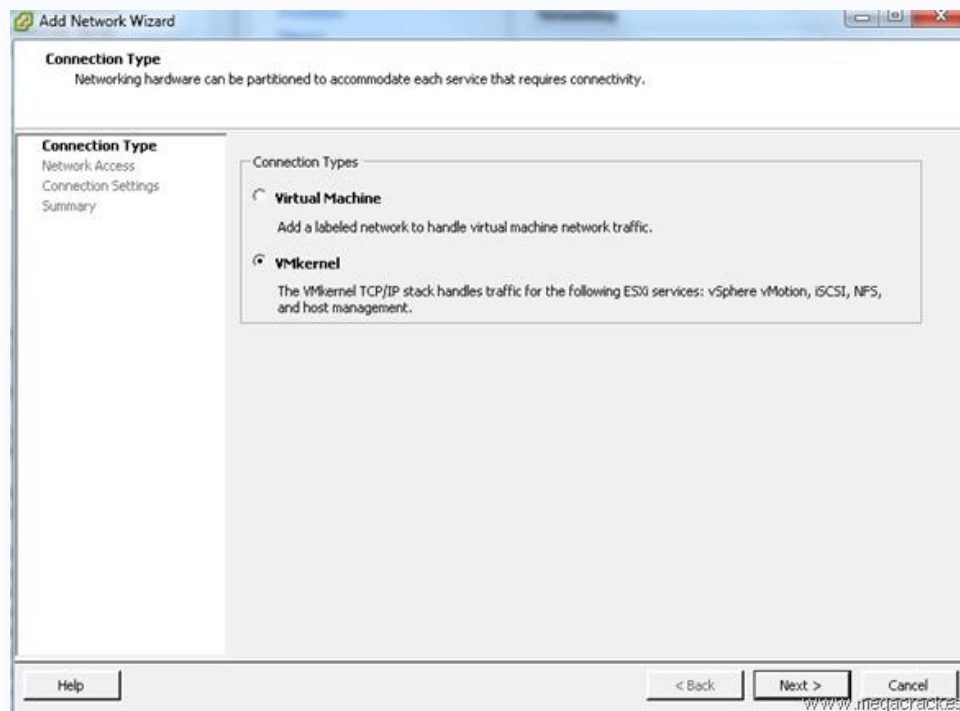


Now we look at the tab **Configuration-> Networking**

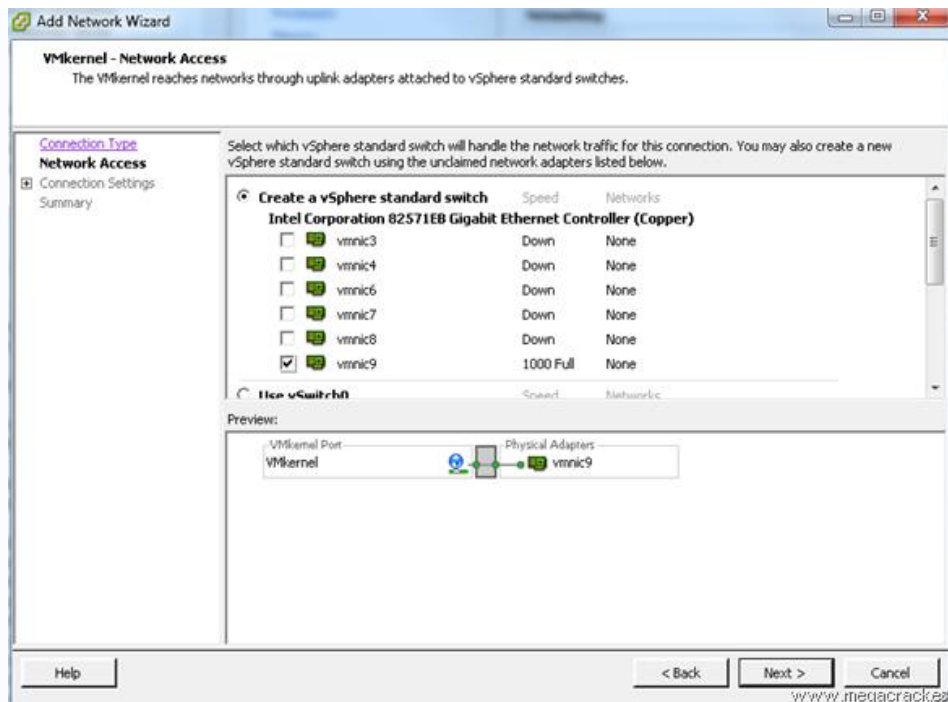




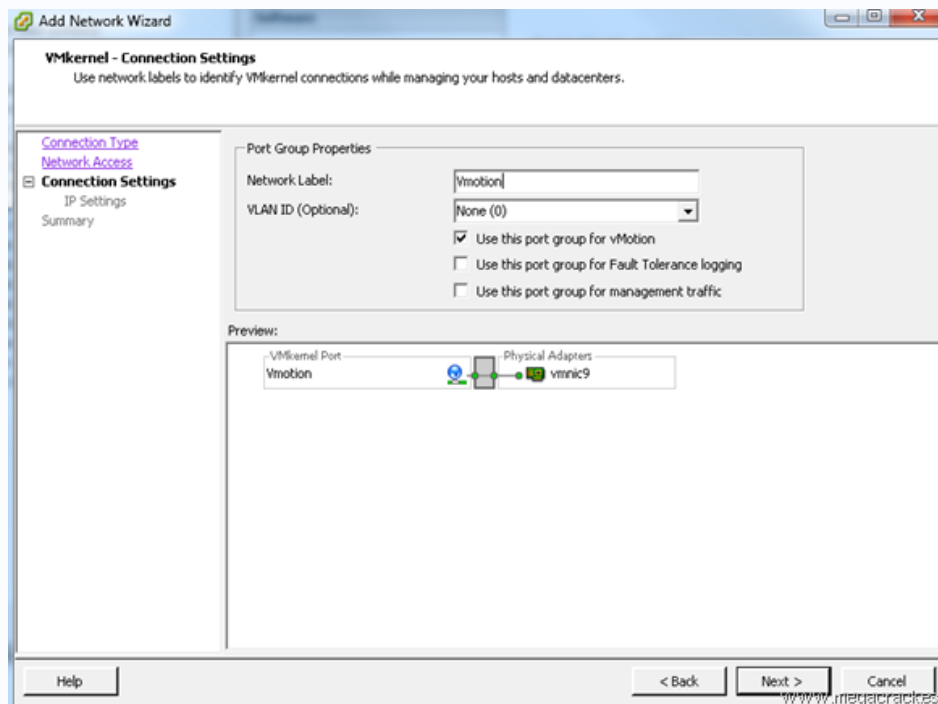
Click on **Add Networking** to create the vSwitch.



Select **VMkernel** and click on **Next**.

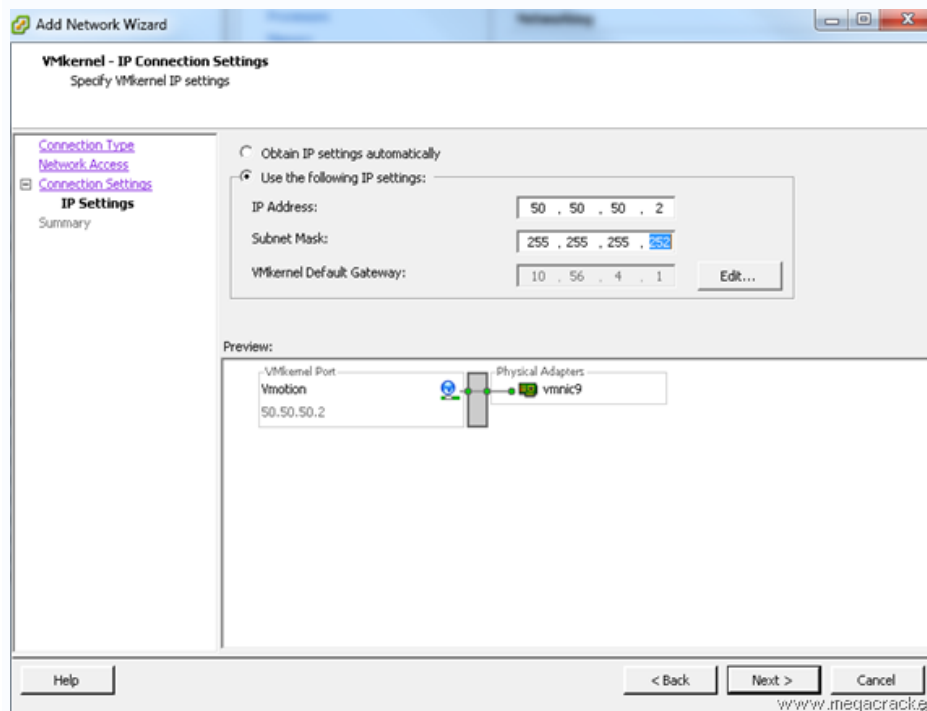


Making a network card or cards that have connected from one server to another (in our case **vmnic9**) And click on **Next**.



We set **Use this port group for VMotion**.

We wrote a **Label Network** different if you want (optional) and click on **Next**. We for example we put **Vmotion**.

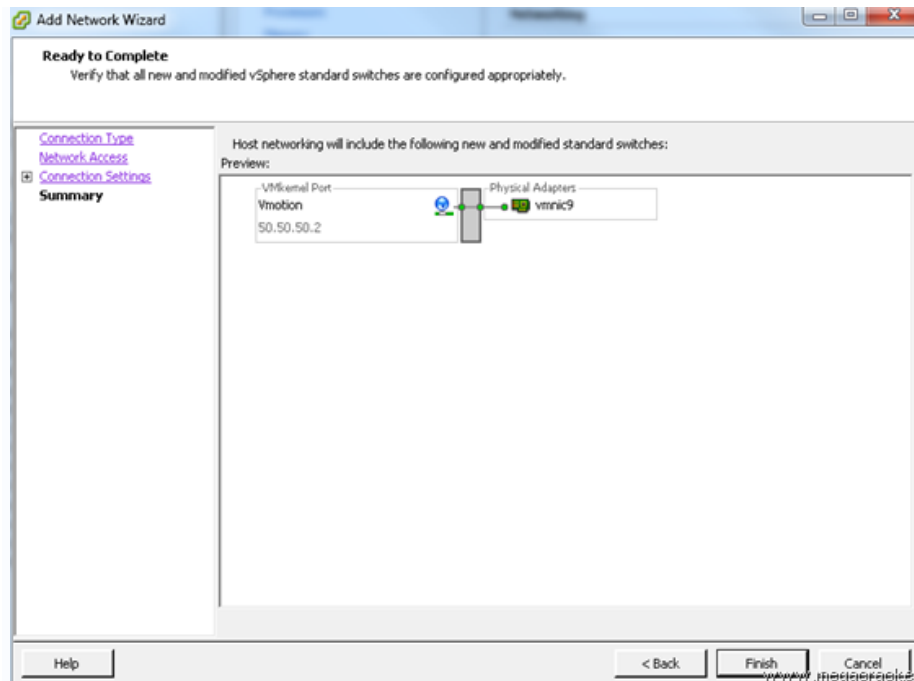


We set **Use the following IP settings**:

**IP Address: 50.50.50.2** (This ip must be different from the server that we configured earlier 1).

**Subnet Mask: 255.255.255.252** (Since we will use only 2 ip's).

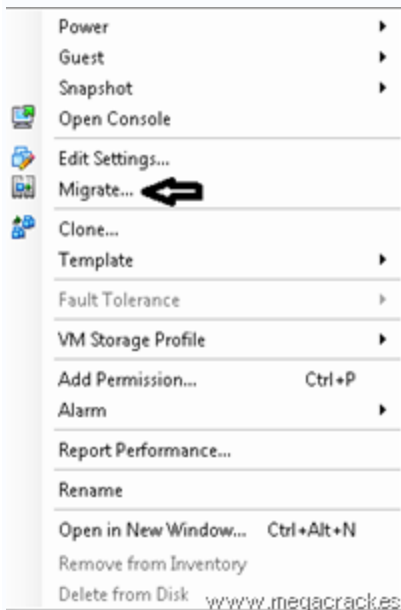
Click on **Next**.



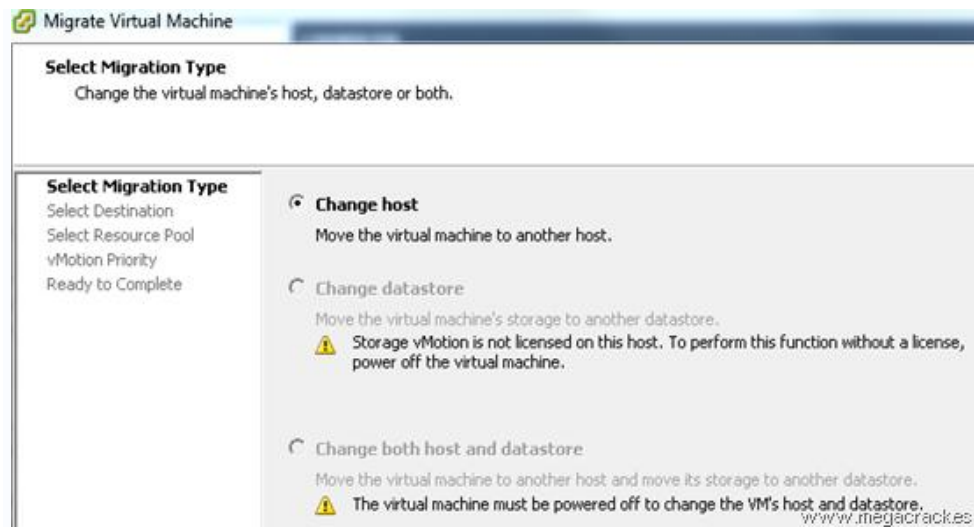
Click on **Finish**.

And now what we will do to ensure that the entire system is working properly migrate a VM from one ESXi to the other using Vmotion functionality you just configured.

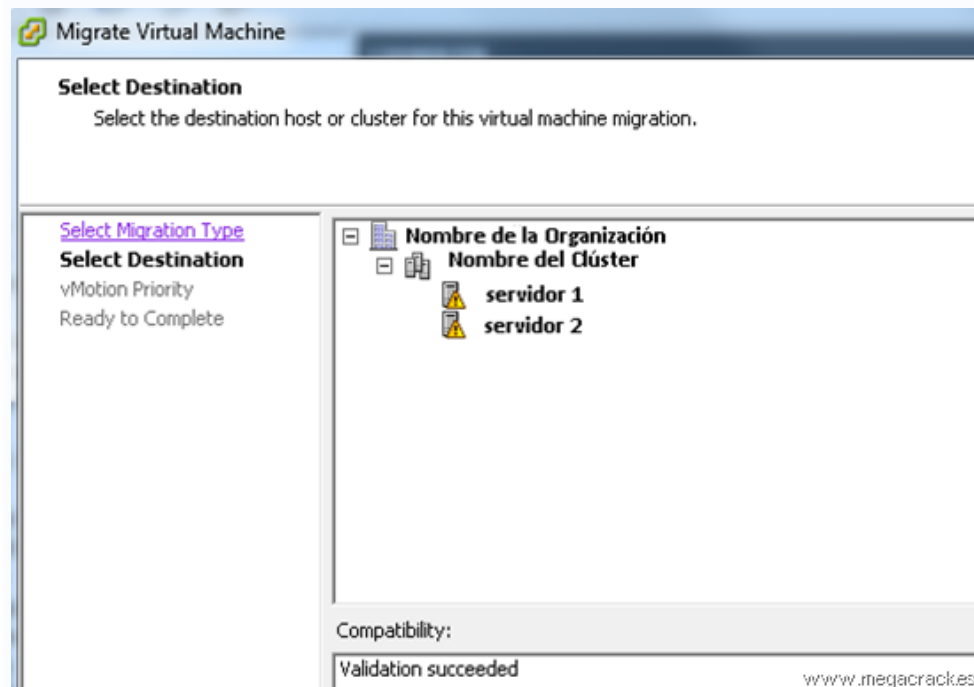
We press the right mouse button on a virtual machine.



Click on **Migrate**.

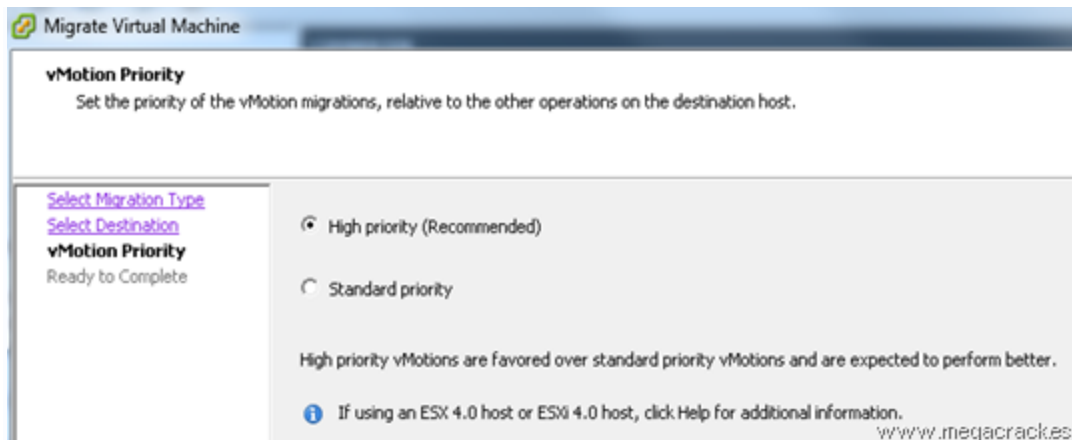


Click on **Next**.

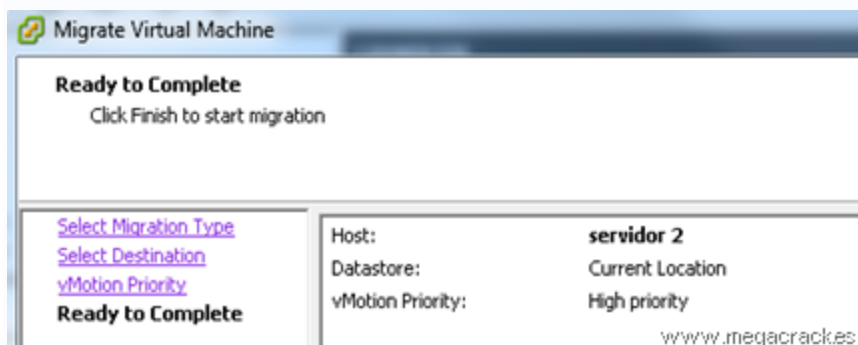


Select the target server where we will move the virtual machine.

Click on **Next**.



Click on **Next**.



Click on **Finish** to start the migration.

Name	Target	Status	Initiated by	Requested Start Ti...	Start Time	Completed Time
Migrate virtual machine	COMVERTER	Completed		22/10/2012 14:55:02	22/10/2012 14:55:02	22/10/2012 14:55:49

Perfect the system has been migrated from an ESXi host to another without losing the service and in just 47 seconds, if we set up another network card this time has reduced considerably, as we have said before Vmotion is able to use multiple cards network for migration.

You can consult the following white paper for reference and Best Practices see different and if you want to see new features in VMware vSphere ® vMotion ® Architecture, Performance and Best Practices in VMware vSphere ® 5.