

Sri Lanka Institute of Information Technology

ESBPII

VMOTION

IT13032852

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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 lets you:

- 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 Work?

There are three basic technologies that allow VMotion to dynamically align resources according to business priorities. First, it leverages the encapsulation of the entire state of a VM with a collection of files, which are stored on a shared storage component (such as Fibre Channel, NAS, or SAN).

It either uses VMFS or NFS to allow a number of installations of ESXi to be able to access the same VMs at the same time. The second technology that empowers VMotion is the active memory and execution state of the VM, which is transferred via a high-speed network between Source and Destination.

It enables the VM to instantly migrate from the source ESXi host to the destination ESXi host. Based on a proven preparation in precopying most of the data, the final switch happens so quickly that it is imperceptible to the user, because it keeps track of the transactions in memory by using a bitmap. When the whole of the system state and memory are migrated to the target ESXi host, VMotion then suspends the source VM, copies the bitmap over to the target ESXi host, and then resumes the VM operations on that target host.

That process happens in less than two seconds when using a Gigabit Ethernet network. The third technology behind VMotion is the virtualization of the networks being accessed by the VMs. This is done via the ESXi host, so that even after migration occurs, the VM network identity and connections are saved. VMotion also manages the virtual MAC address during this process, informing the connected network switch of that change: After the destination machine is enabled, VMotion pings the router to make it aware of the new location of the MAC address.

This occurs without any downtime or disruption to the users.

1. tab Configuration-> Networking

Servidor 1 VMware ESXi, 5.0.0, 623860

Summary Virtual Machines Performance **Configuration** Tasks & Events Alarms Permissions Maps Storage Views Hardware Status

Hardware

- Processors
- Memory
- Storage
- Networking
- Storage Adapters
- Network Adapters
- Advanced Settings
- Power Management

Software

- Licensed Features
- Time Configuration
- DNS and Routing
- Authentication Services
- Power Management
- Virtual Machine Startup/Shutdown
- Virtual Machine Swapfile Location
- Security Profile
- Host Cache Configuration
- System Resource Allocation
- Agent VM Settings
- Advanced Settings

Network Adapters

Device	Speed	Configured	Switch	MAC Address	Observed
Broadcom Corporation Broadcom NetXtreme II BCM5709 1000Base-T					
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.
Intel Corporation 82571EB Gigabit Ethernet Controller (Copper)					
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.

2. Click on Add Networking to create the vSwitch.

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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
- vmk0 :

Physical Adapters

- vmnic5 1000 Full
- vmnic0 1000 Full

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

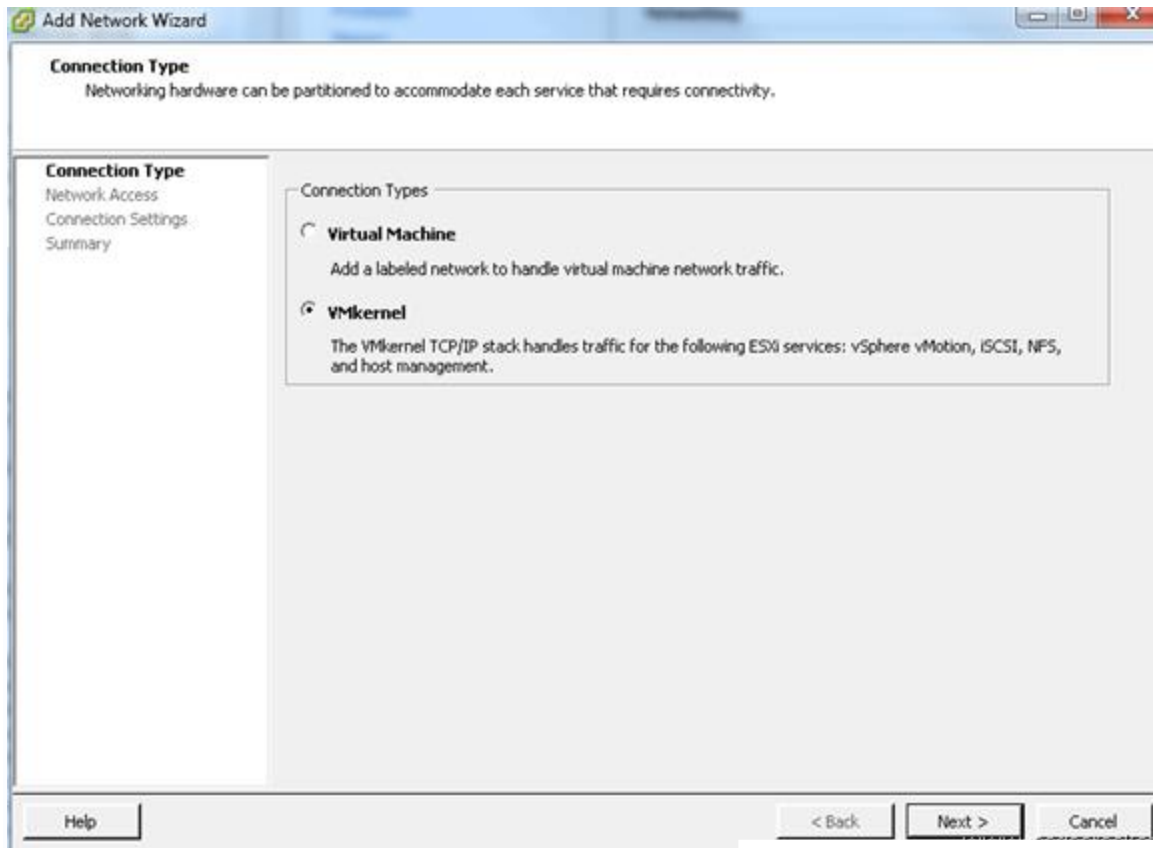
Virtual Machine Port Group

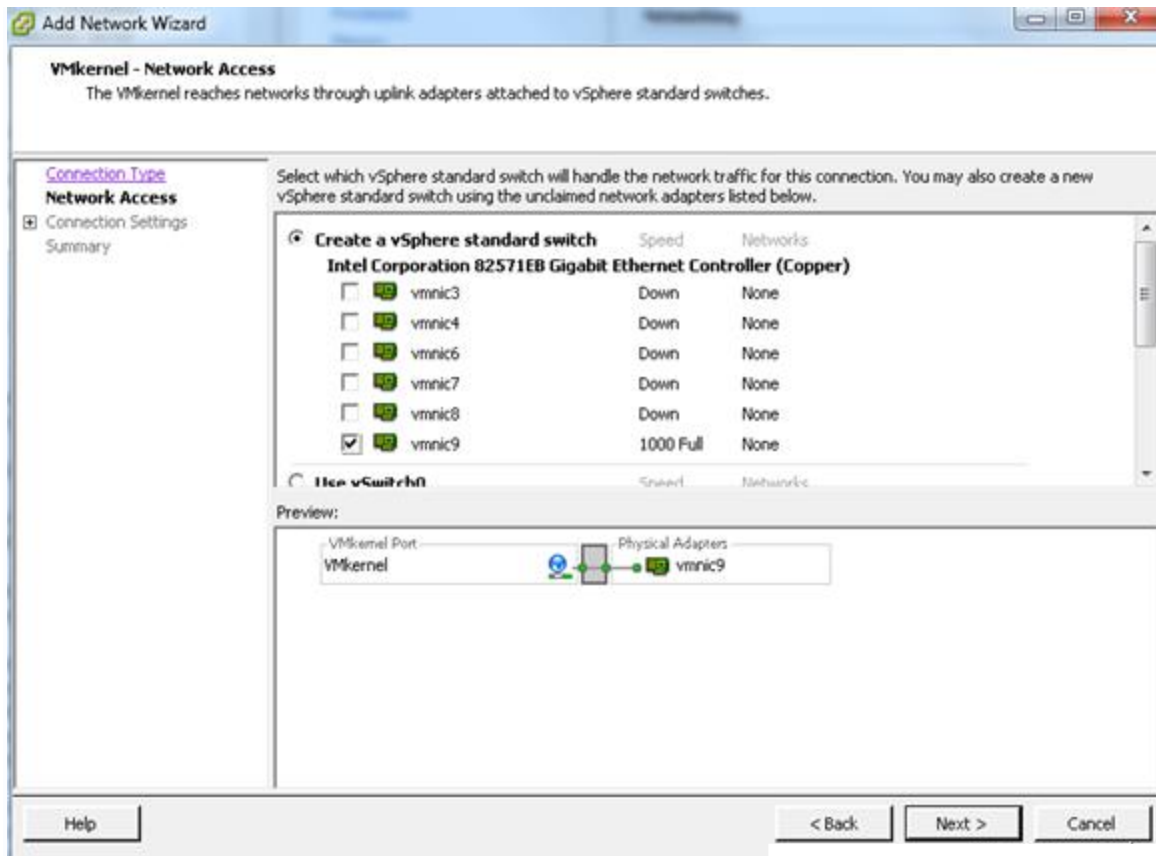
- VLAN 4 Servers I
- 7 virtual machine(s)

Physical Adapters

- vmnic2 1000 Full
- vmnic1 100 Full

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





4. 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**.

Add Network Wizard

VMkernel - Connection Settings

Use network labels to identify VMkernel connections while managing your hosts and datacenters.

Connection Type

Network Access

Connection Settings

IP Settings

Summary

Port Group Properties

Network Label:

vmotion

VLAN ID (Optional):

None (0)

☒ Use this port group for vMotion

☐ Use this port group for Fault Tolerance logging

☐ Use this port group for management traffic

Preview:

VMkernel Port

vmotion

Physical Adapters

vmnic9

Help

< Back

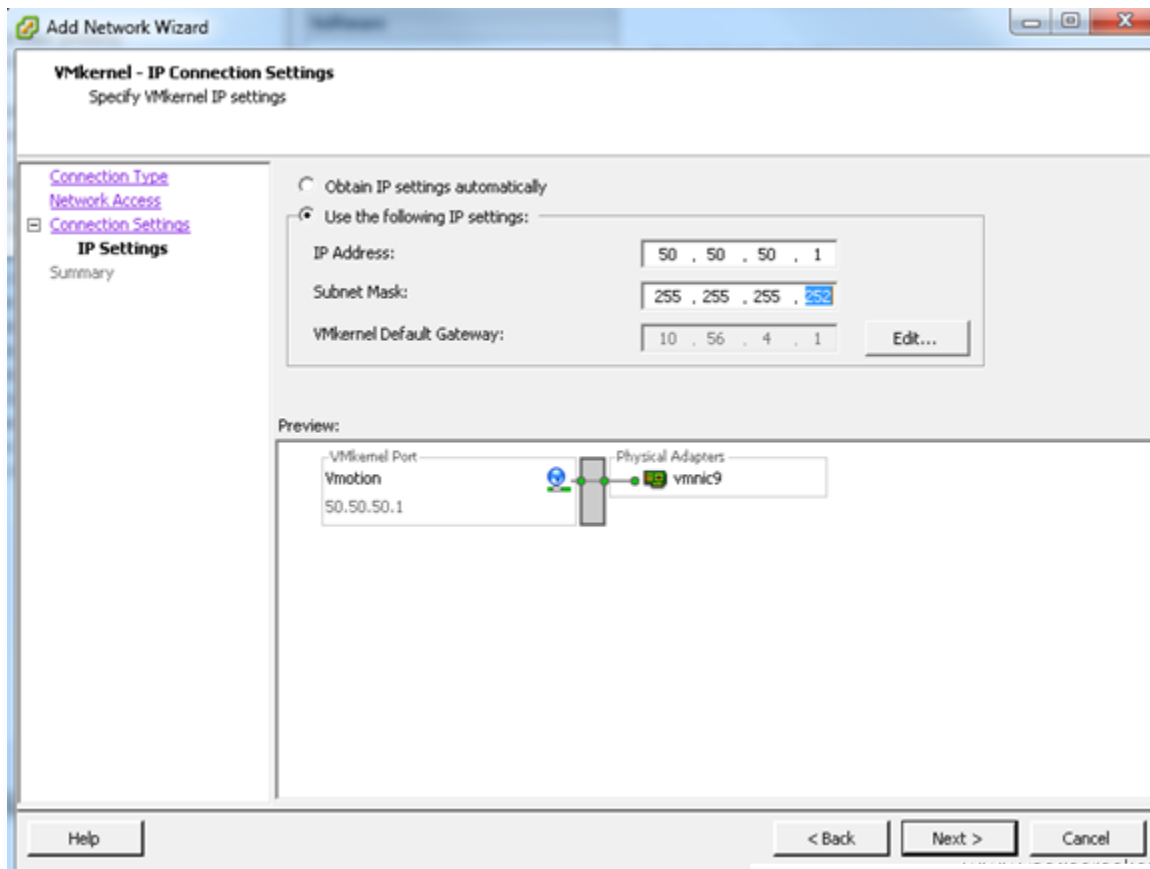
Next >

Cancel

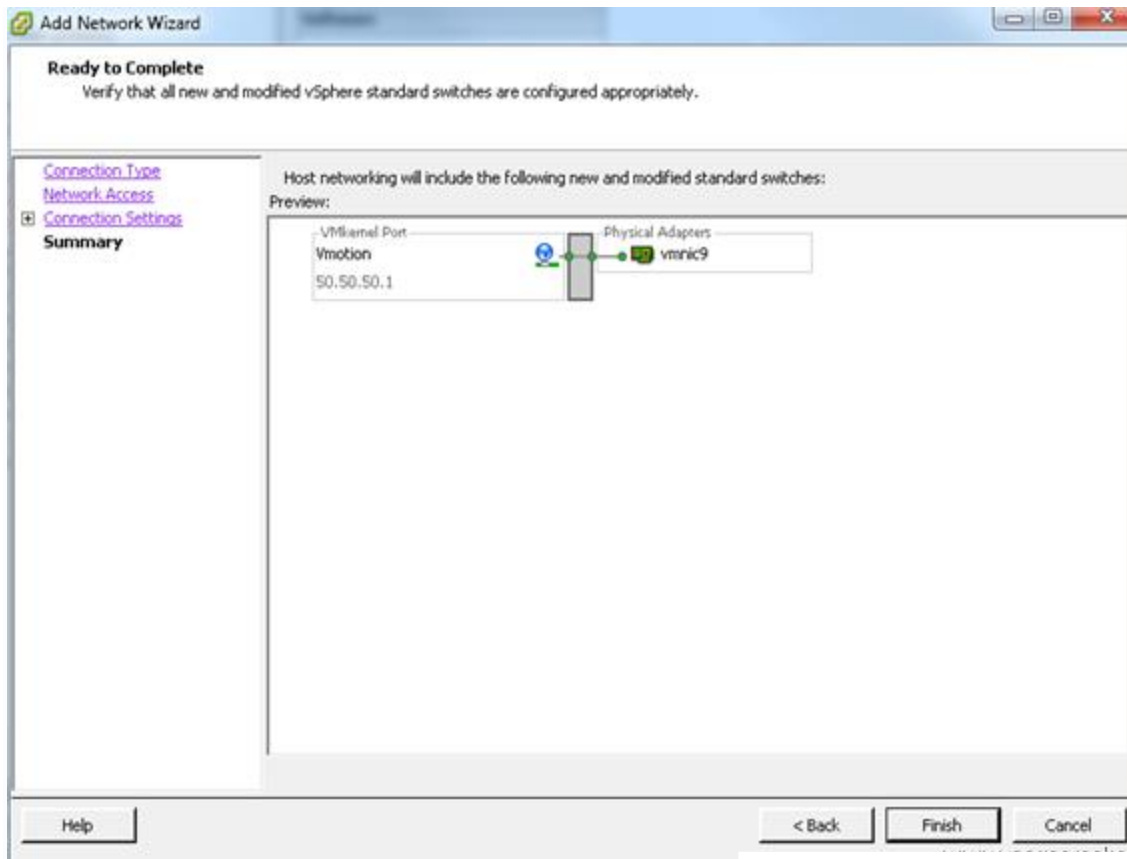
5. **IP Address: 50.50.50.1**

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

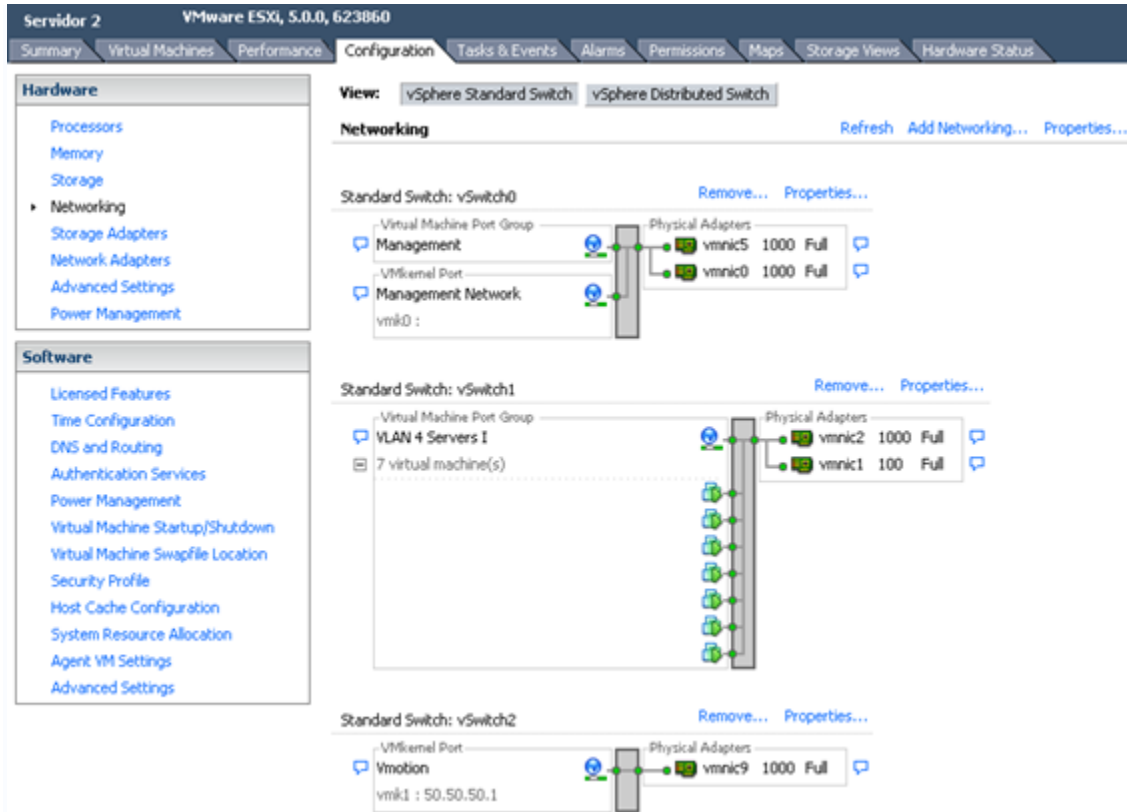
Click on **Next**.



6. Click on **Finish**.



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



8. Now look at the tab **Configuration-> Networking**

Servidor 2 VMware ESXi, 5.0.0, 623860

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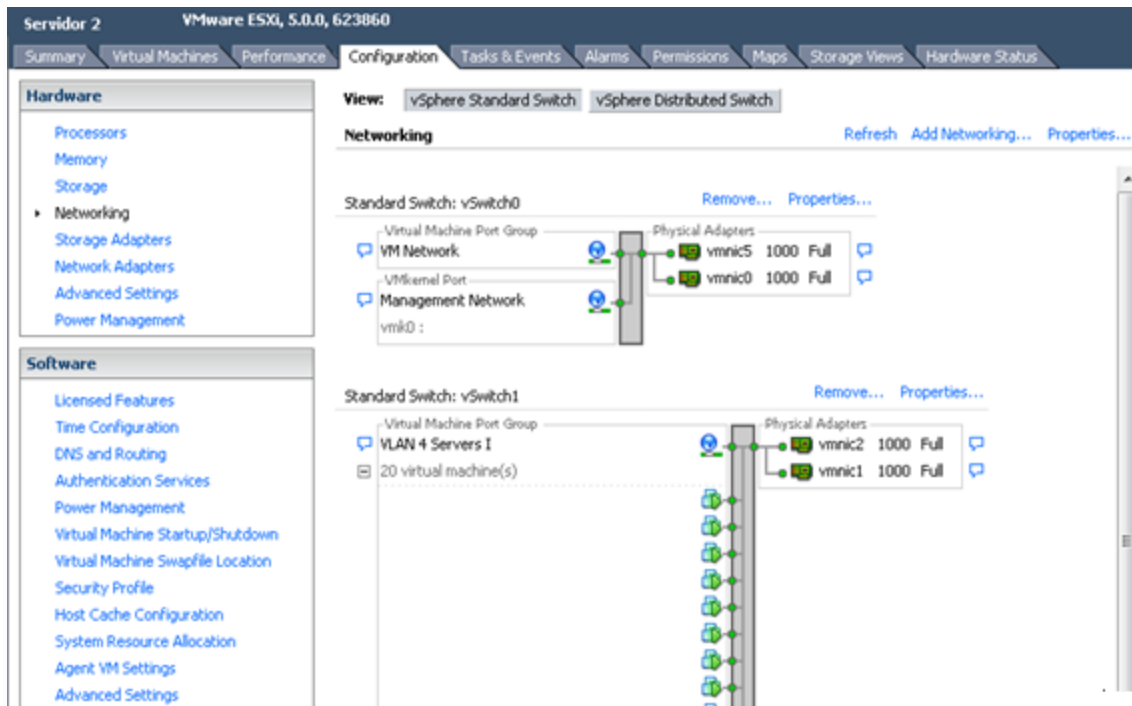
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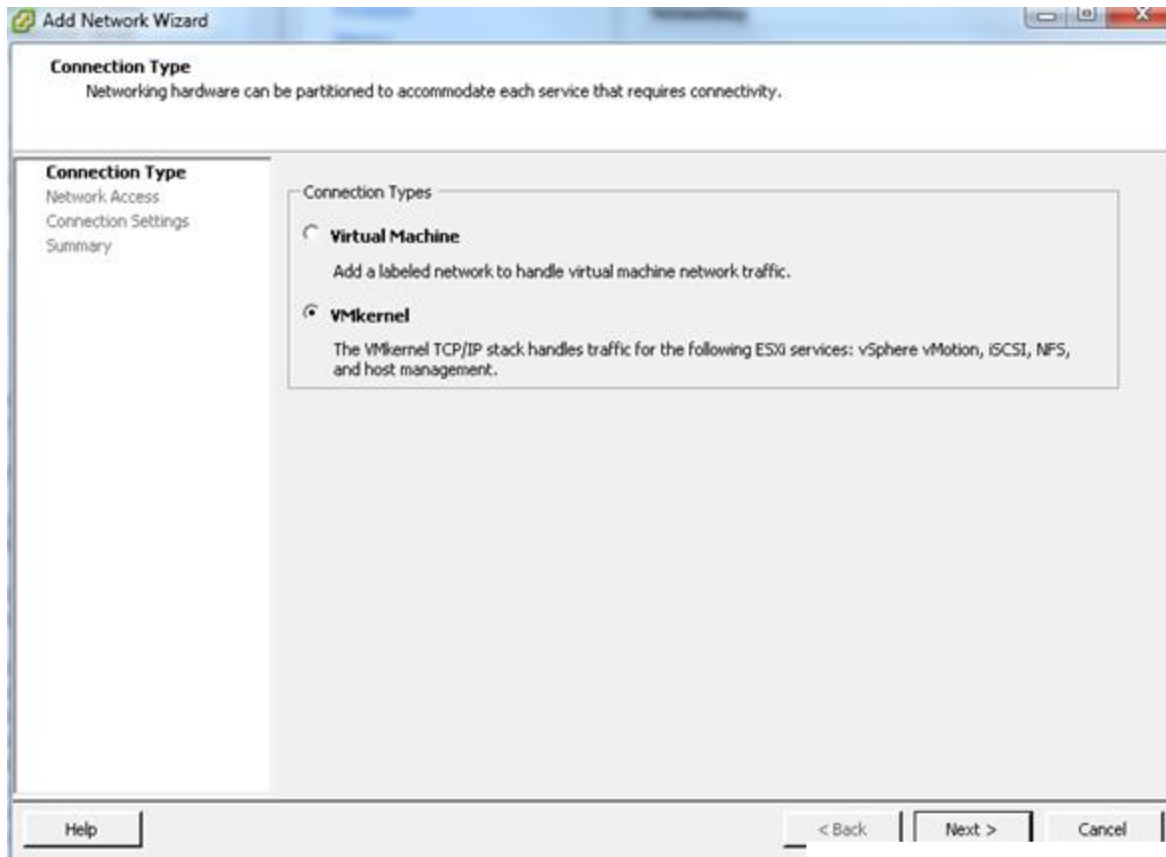
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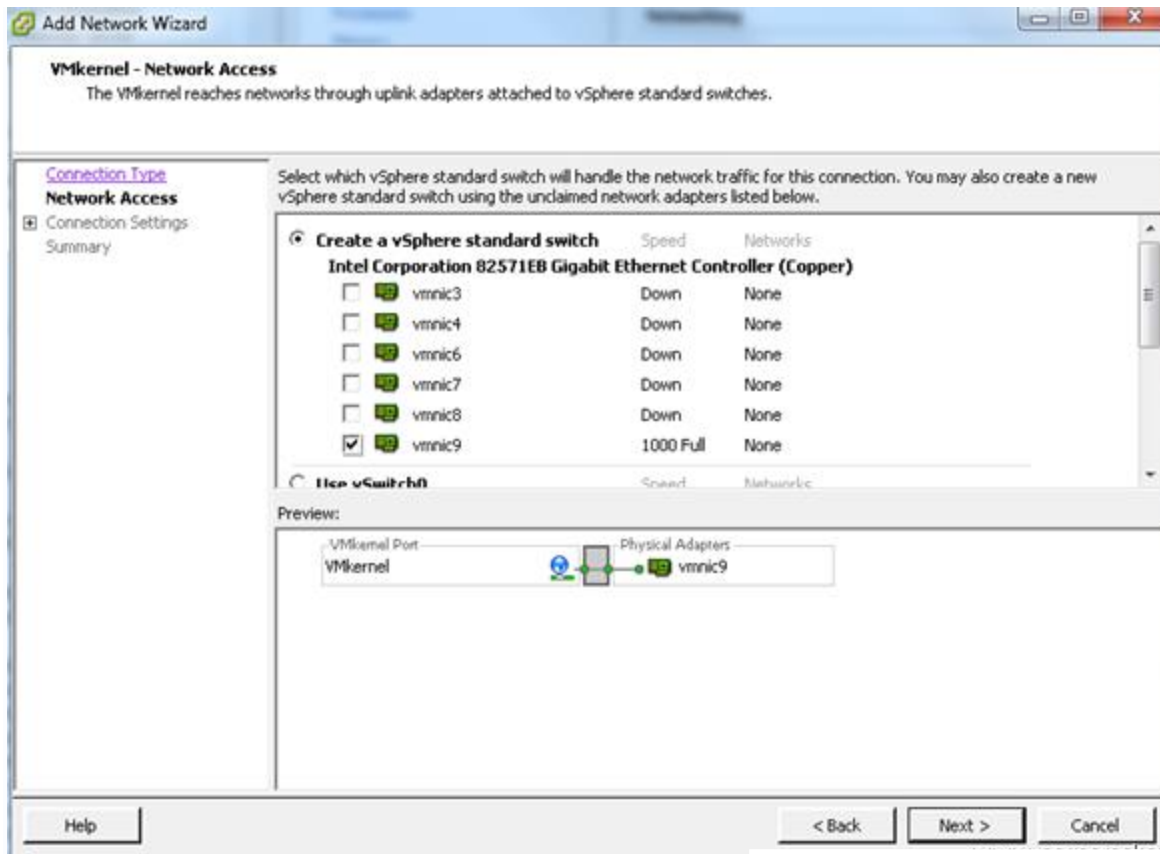
9. Click on **Add Networking** to create the vSwitch.



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



11. Use this port group for VMotion.



Add Network Wizard

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Preview:

VMkernel Port

vmotion

Physical Adapters

vmnic9

Help

< Back

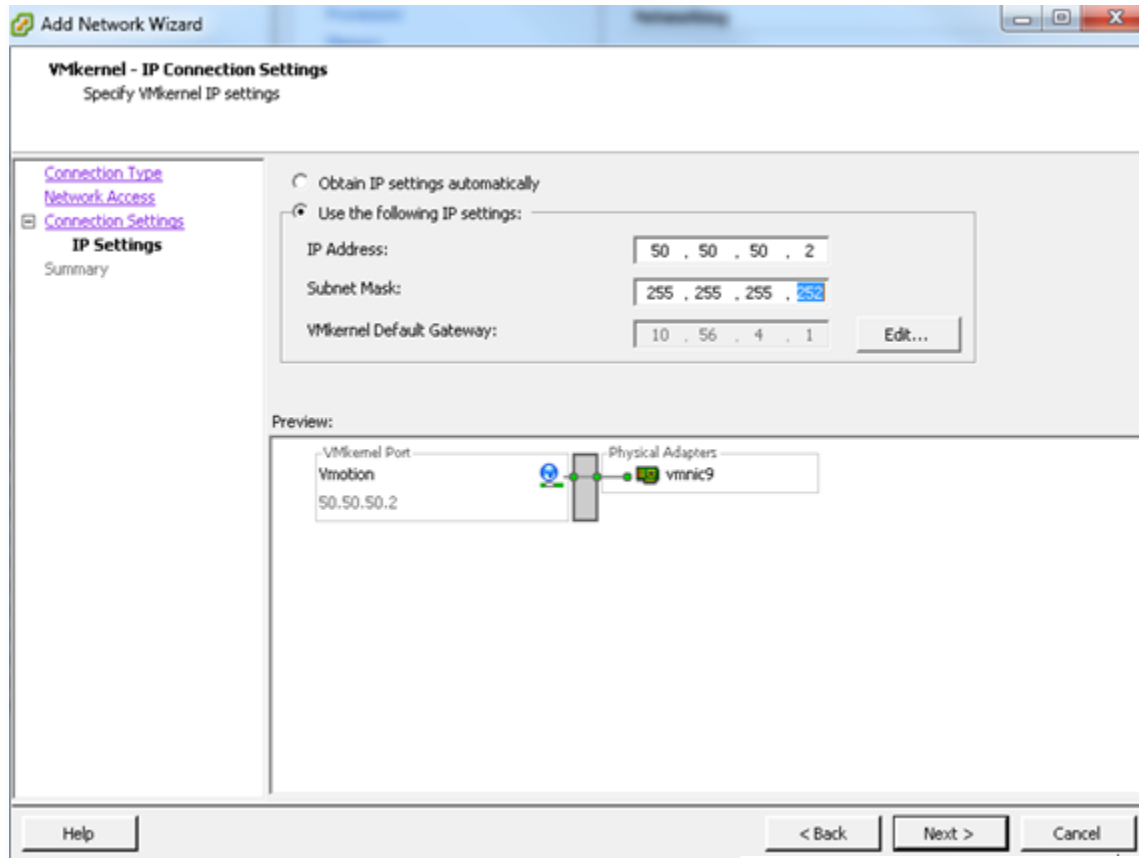
Next >

Cancel

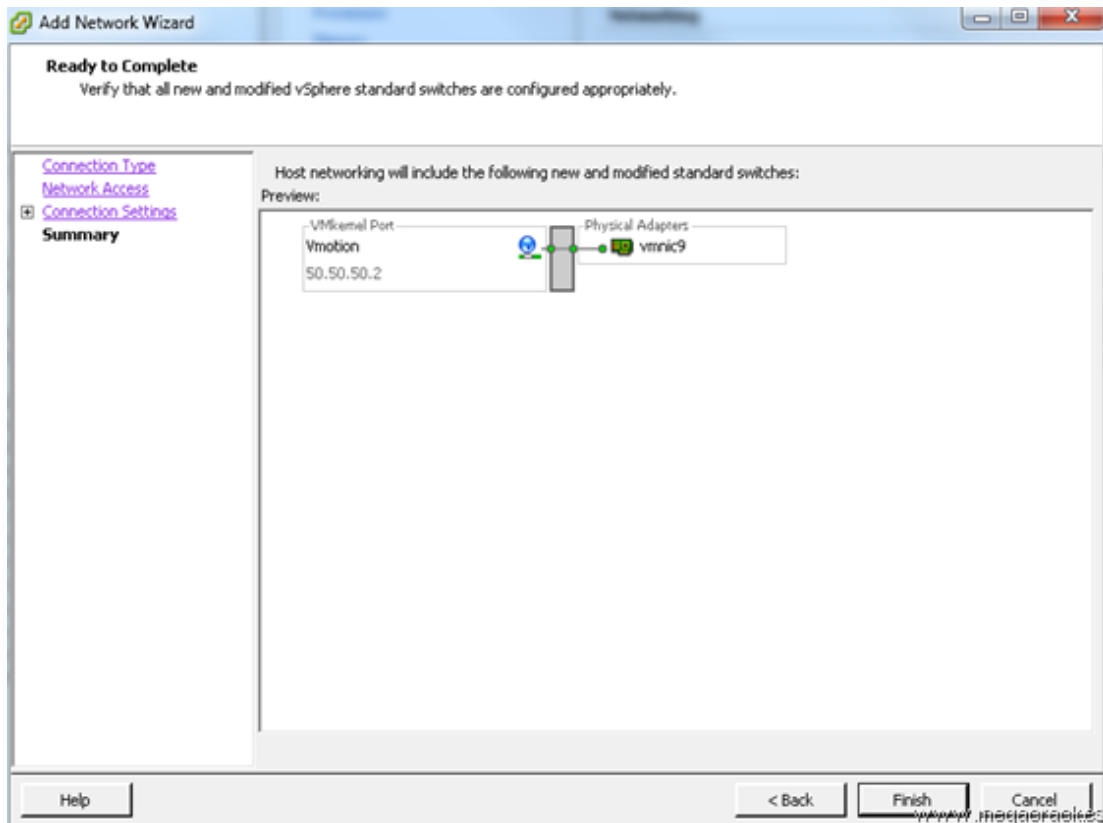
12. **IP Address: 50.50.50.2** (This ip must be different from the server that configured earlier 1).

Subnet Mask: 255.255.255.252

Click on **Next**.

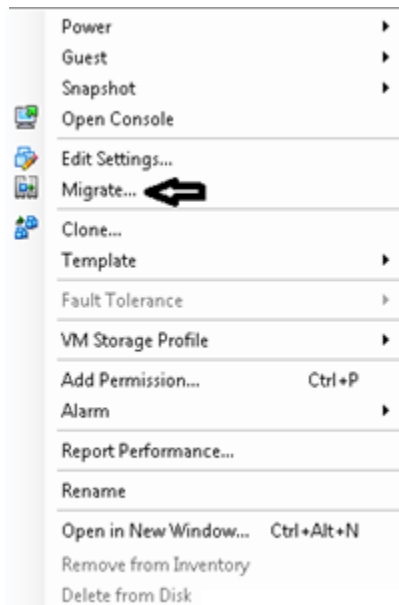


13. Click on **Finish**.

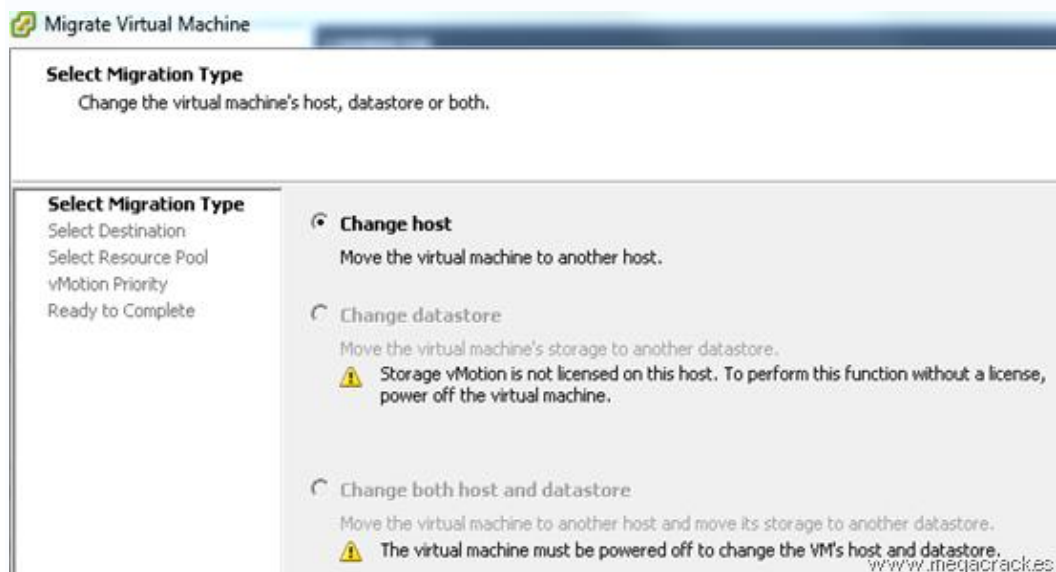


Now what we will do to ensure that the entire system is working properly migrate a VM from one ESXi to the other using Vmotion functionality you just configured.

14. Click on **Migrate**.

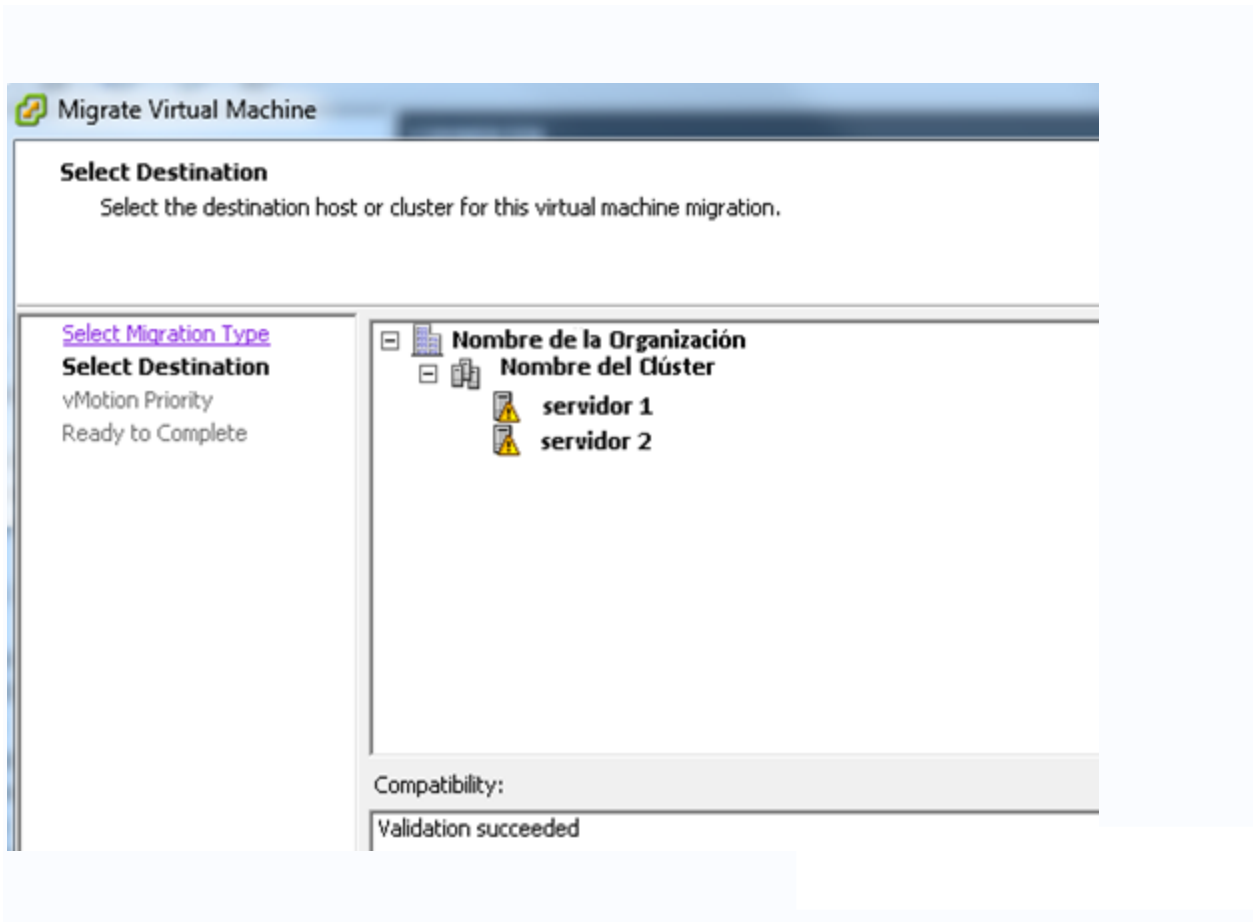


15. Click on **Next**.

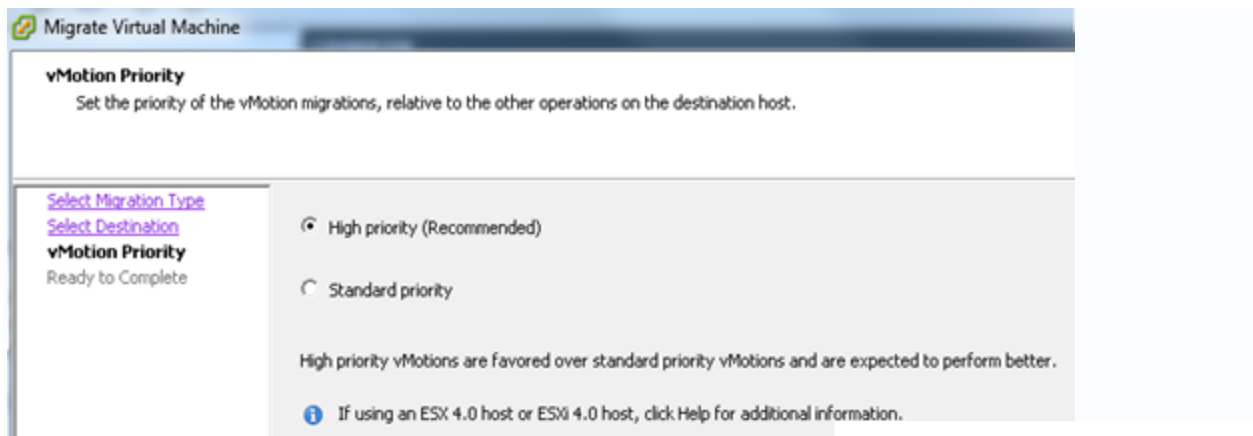



16. Select the target server where to move the virtual machine.

Click on **Next**.



17. Click on **Next**.




Migrate Virtual Machine



Ready to Complete
 Click Finish to start migration

[Select Migration Type](#)
[Select Destination](#)
[vMotion Priority](#)
Ready to Complete

Host: **servidor 2**
 Datastore: **Current Location**
 vMotion Priority: **High priority**

rack.es

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