

Sri Lanka Institute of Information Technology

4th Year – 2nd Semester

ESBII – VMotion Assignment

Submitted By: IT13405328

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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.

How VMotion Work?

First, the entire state of a virtual machine is encapsulated by a set of files stored on shared storage. VMware's clustered Virtual Machine File System (VMFS) allows multiple installations of ESX Server to access the same virtual machine files concurrently.

Second, the active memory and precise execution state of the virtual machine is rapidly transferred over a high speed network. This allows the virtual machine to instantaneously switch from running on the source ESX Server to the destination ESX Server. VMotion keeps the transfer period imperceptible to users by keeping track of on-going memory transactions in a bitmap. Once the entire memory and system state has been copied over to the target ESX Server, VMotion suspends the source virtual machine, copies the bitmap to the target ESX Server, and resumes the virtual machine on the target ESX Server. This entire process takes less than two seconds on a Gigabit Ethernet network.

Third, the networks used by the virtual machine are also virtualized by the underlying ESX Server. This ensures that even after the migration, the virtual machine network identity and network connections are preserved. VMotion manages the virtual MAC address as part of the process. Once the destination machine is activated, VMotion pings the network router to ensure that it is aware of the new physical location of the virtual MAC address. Since the migration of a virtual machine with VMotion preserves the precise execution state, the network identity, and the active network connections, the result is zero downtime and no disruption to users

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.

tab Configuration-> Networking

Servidor 1 VMware ESXi, 5.0.0, 623860

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- Advanced Settings

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...](#)

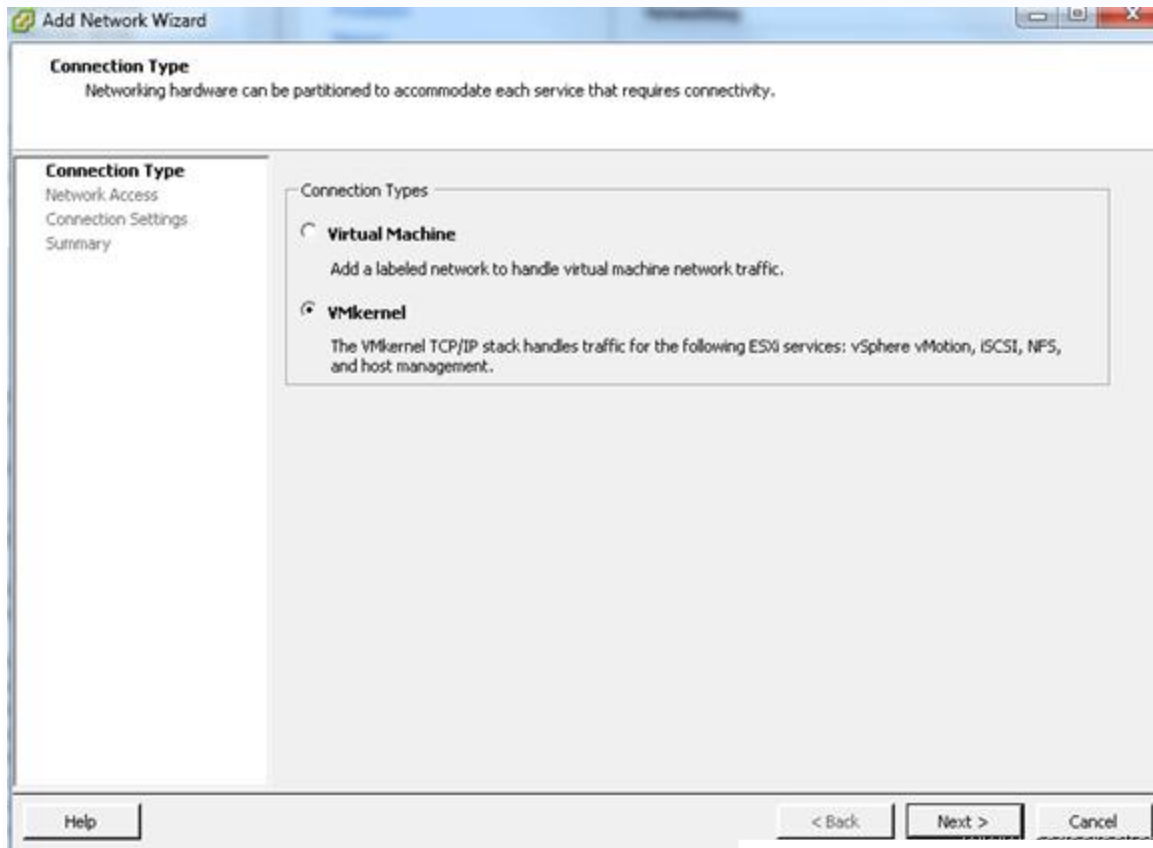
Virtual Machine Port Group

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

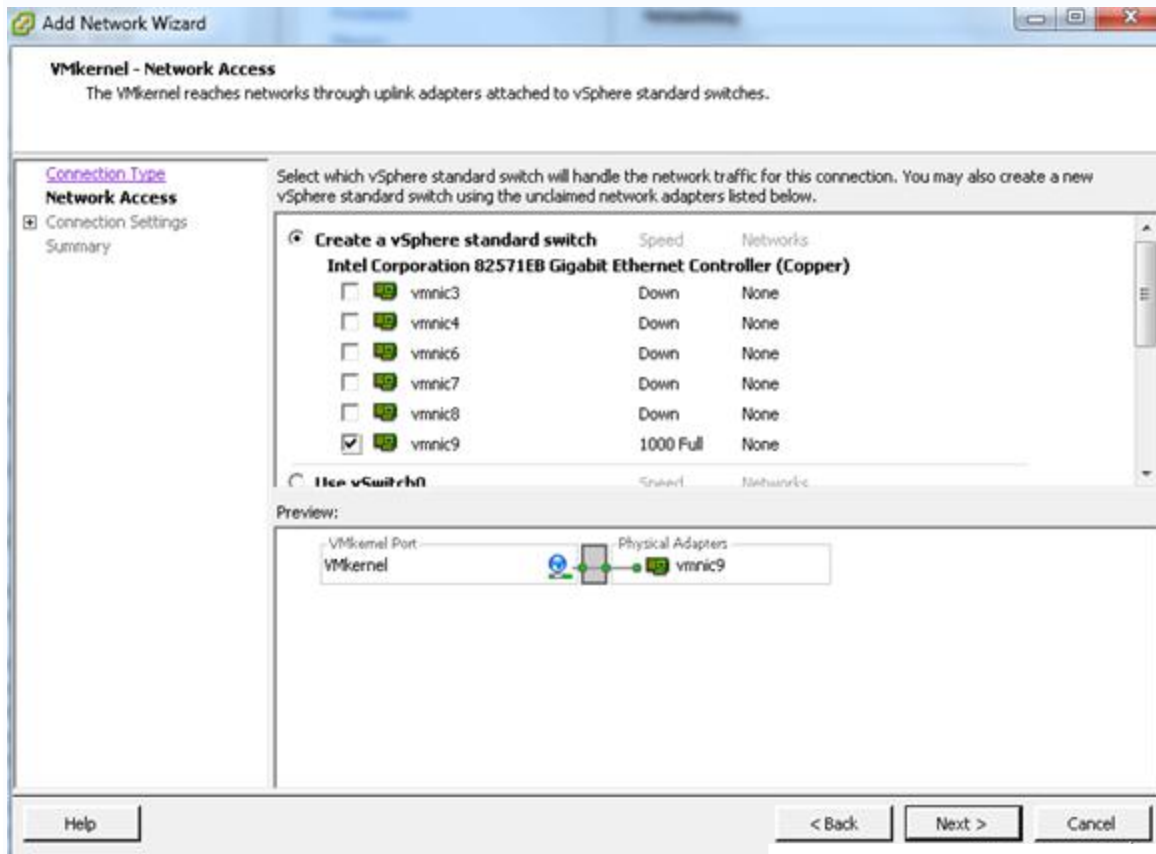
Physical Adapters

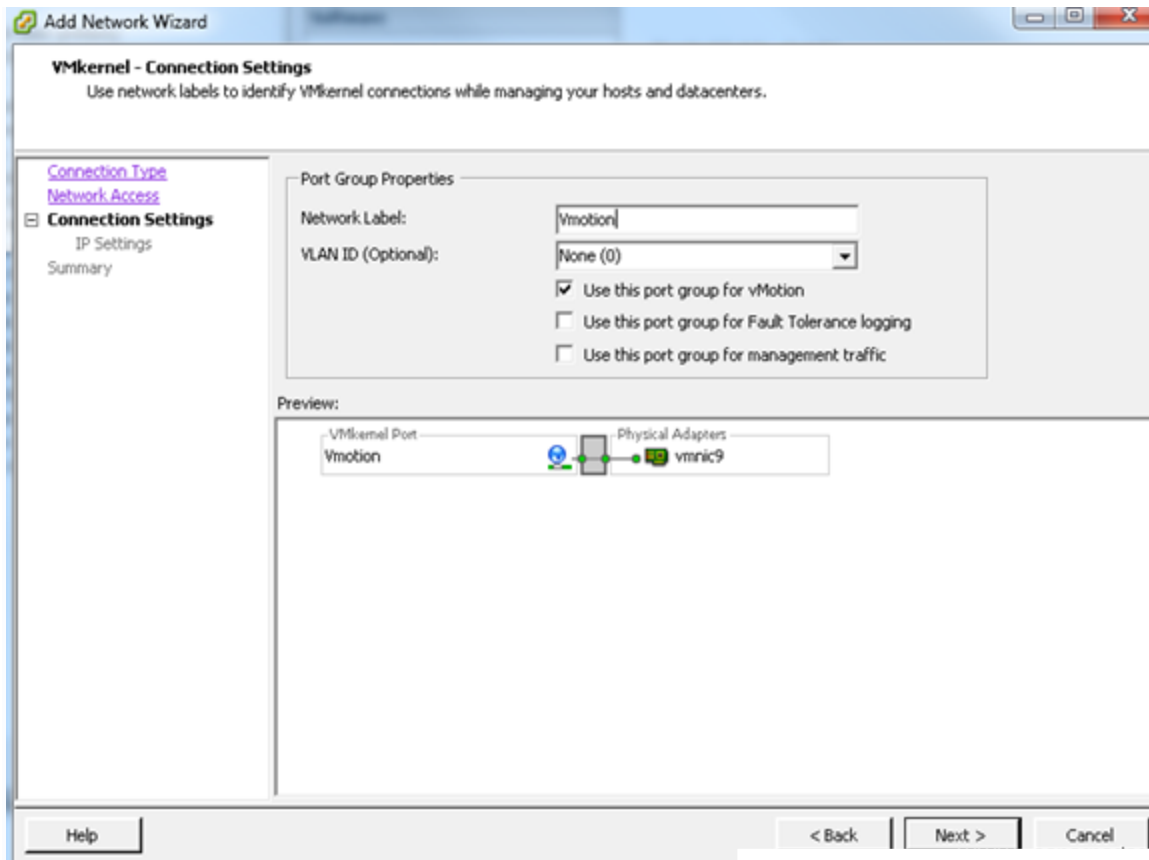
- vmnic2 1000 Full
- vmnic1 100 Full

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



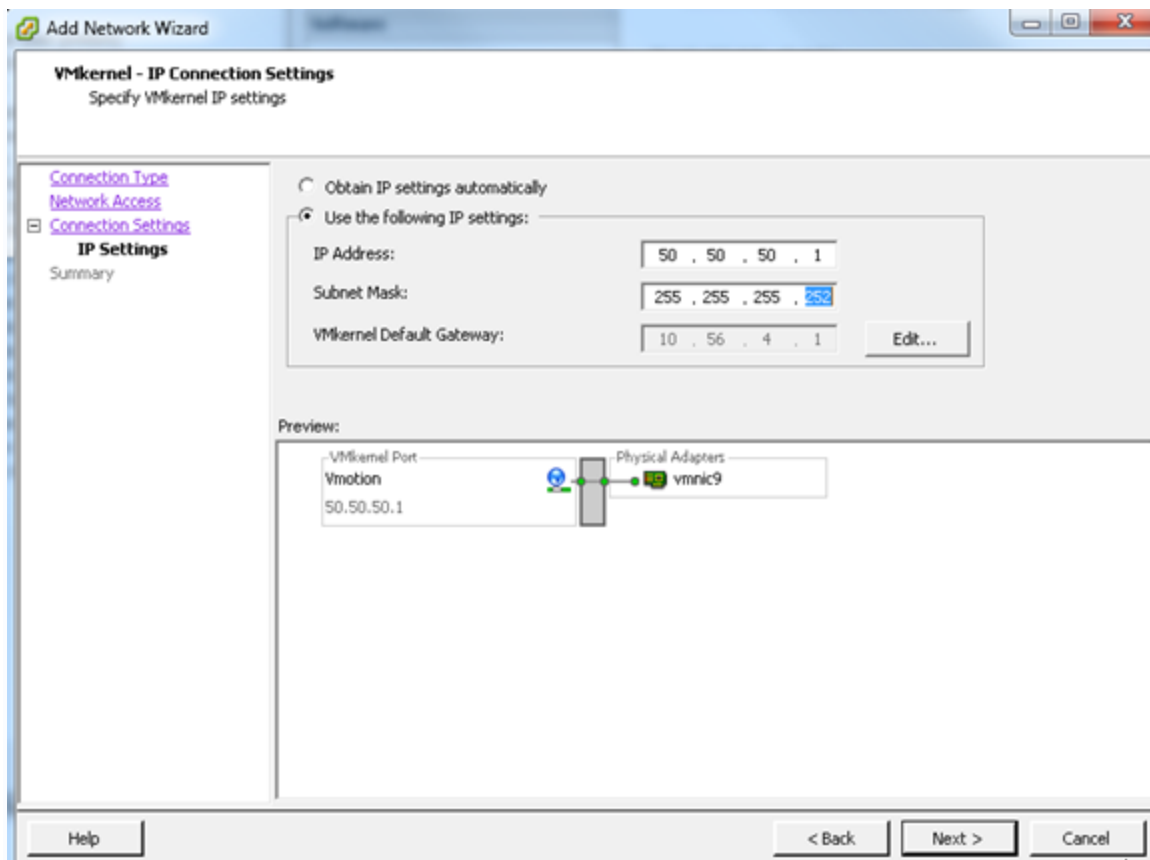
Select **VMKernel** and click on **Next**.





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

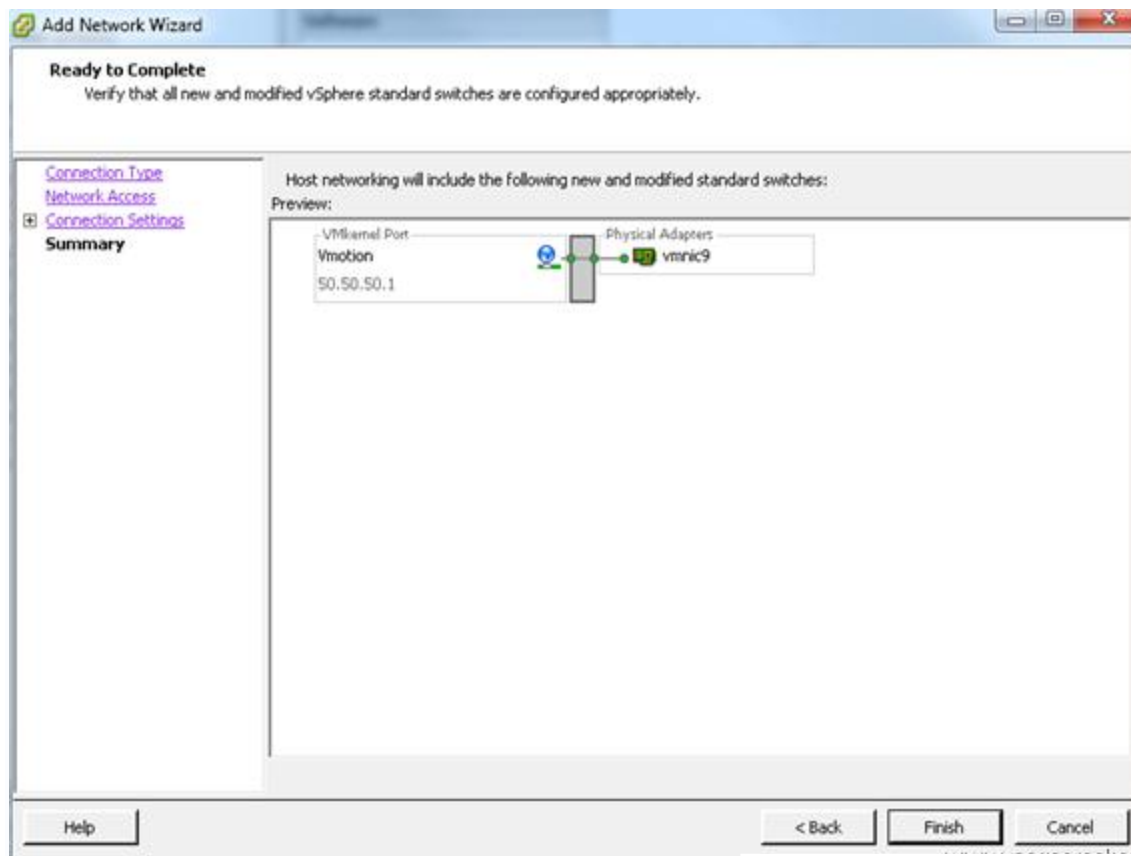
We wrote a **Label Network** different if you want (optional) and click on **Next**. We for example we put **Vmotion**.



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**.

Servidor 2 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
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- Host Cache Configuration
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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 1
- 7 virtual machine(s)

Physical Adapters

- vmnic2 1000 Full
- vmnic1 100 Full

Standard Switch: vSwitch2 Remove... Properties...

VMkernel Port

- vmk1 : 50.50.50.1

Physical Adapters

- vmnic9 1000 Full

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

Servidor 2 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

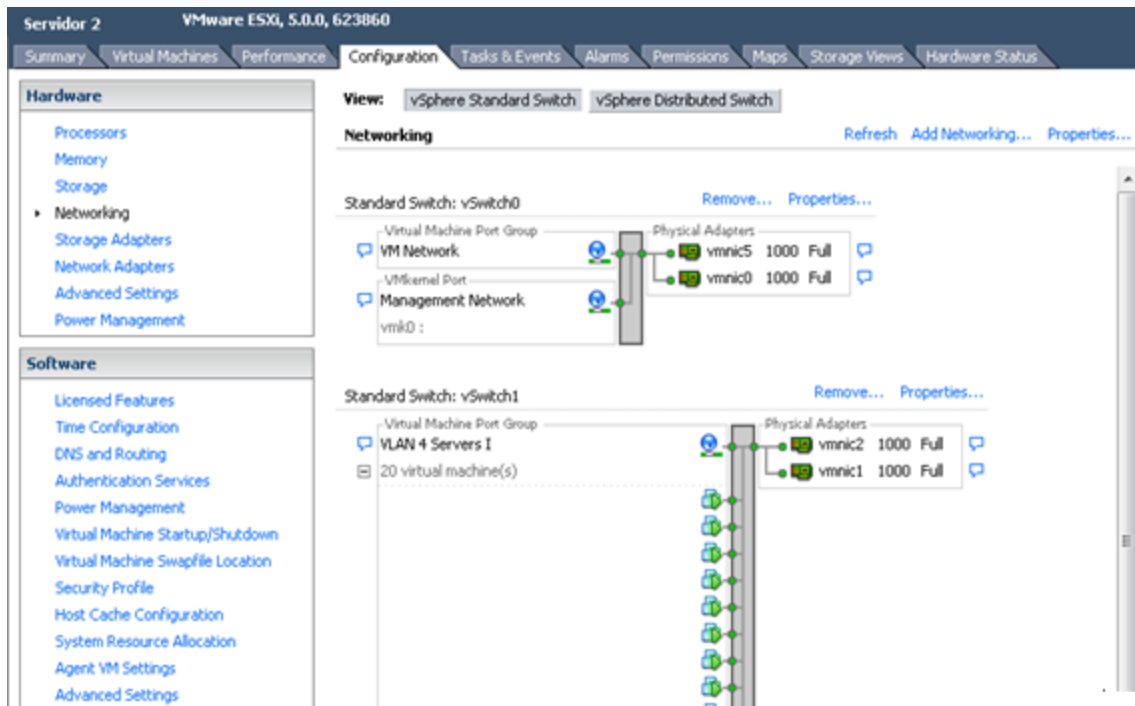
Software

- Licensed Features
- Time Configuration
- DNS and Routing
- Authentication Services
- Power Management
- Virtual Machine Startup/Shutdown
- Virtual Machine Swapfile Location
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Network Adapters

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vmnic1	1000 Full	Negotiate	vSwitch1	00:1a:64:dc:c4:92	10.56.
vmnic0	1000 Full	Negotiate	vSwitch0	00:1a:64:dc:c4:90	10.56.
Intel Corporation 82571EB Gigabit Ethernet Controller (Copper)					
vmnic9	1000 Full	Negotiate	None	00:15:17:ba:bd:ea	None
vmnic8	Down	Negotiate	None	00:15:17:ba:bd:eb	None
vmnic7	Down	Negotiate	None	00:15:17:ba:bd:e8	None
vmnic6	Down	Negotiate	None	00:15:17:ba:bd:e9	None
vmnic5	1000 Full	Negotiate	vSwitch0	00:15:17:ba:bb:b2	10.56.
vmnic4	Down	Negotiate	None	00:15:17:ba:bb:b3	None
vmnic3	Down	Negotiate	None	00:15:17:ba:bb:b0	None
vmnic2	1000 Full	Negotiate	vSwitch1	00:15:17:ba:bb:b1	10.56.

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



The screenshot displays the VMware ESX Configuration interface for 'Servidor 2' (VMware ESX, 5.0.0, 623860). The 'Configuration' tab is active, and the 'Networking' section is selected. The interface is divided into two main panels: 'Hardware' and 'Software' on the left, and a central configuration area on the right.

Hardware Panel:

- Processors
- Memory
- Storage
- Networking (selected)
- Storage Adapters
- Network Adapters
- Advanced Settings
- Power Management

Software Panel:

- 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

Networking Section:

The 'View' dropdown is set to 'vSphere Standard Switch'. The 'Networking' section shows two standard switches: vSwitch0 and vSwitch1.

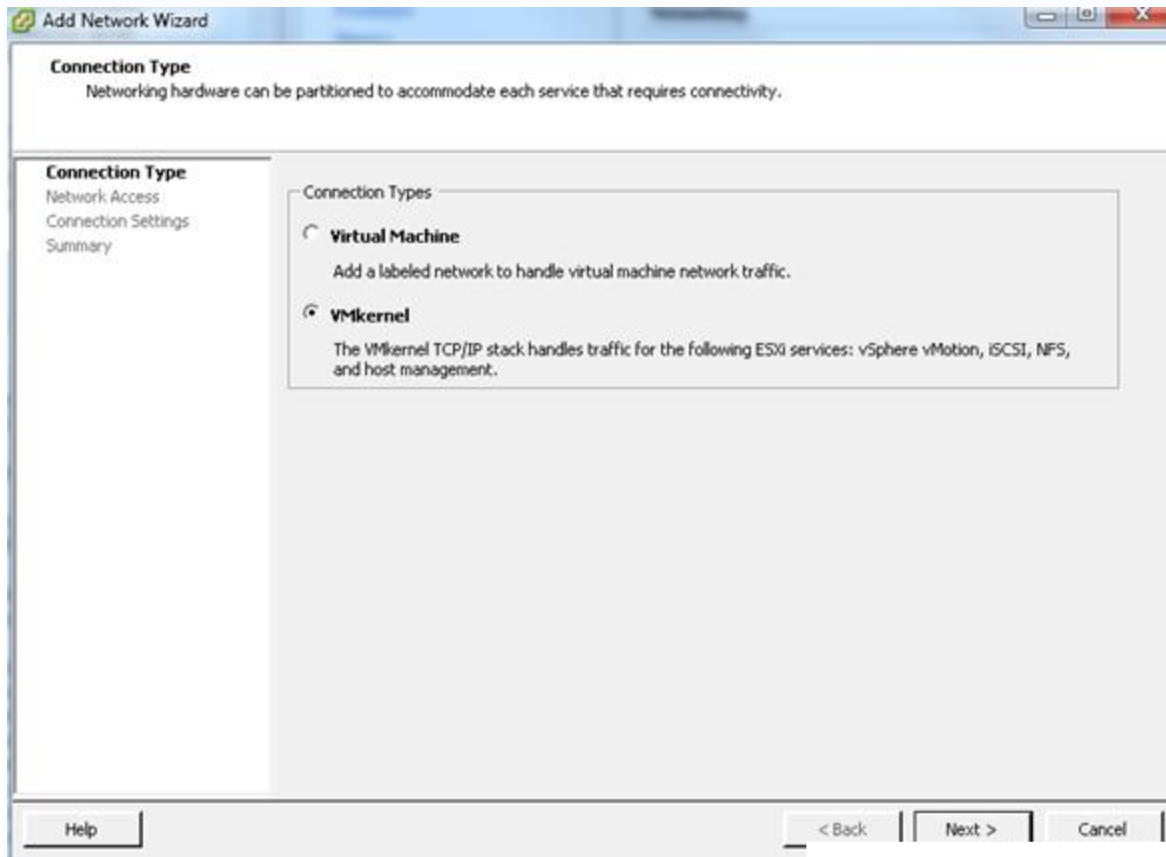
Standard Switch: vSwitch0

- Virtual Machine Port Group: VM Network (vmmk0)
- Physical Adapters: vmnic5 (1000 Full), vmnic0 (1000 Full)

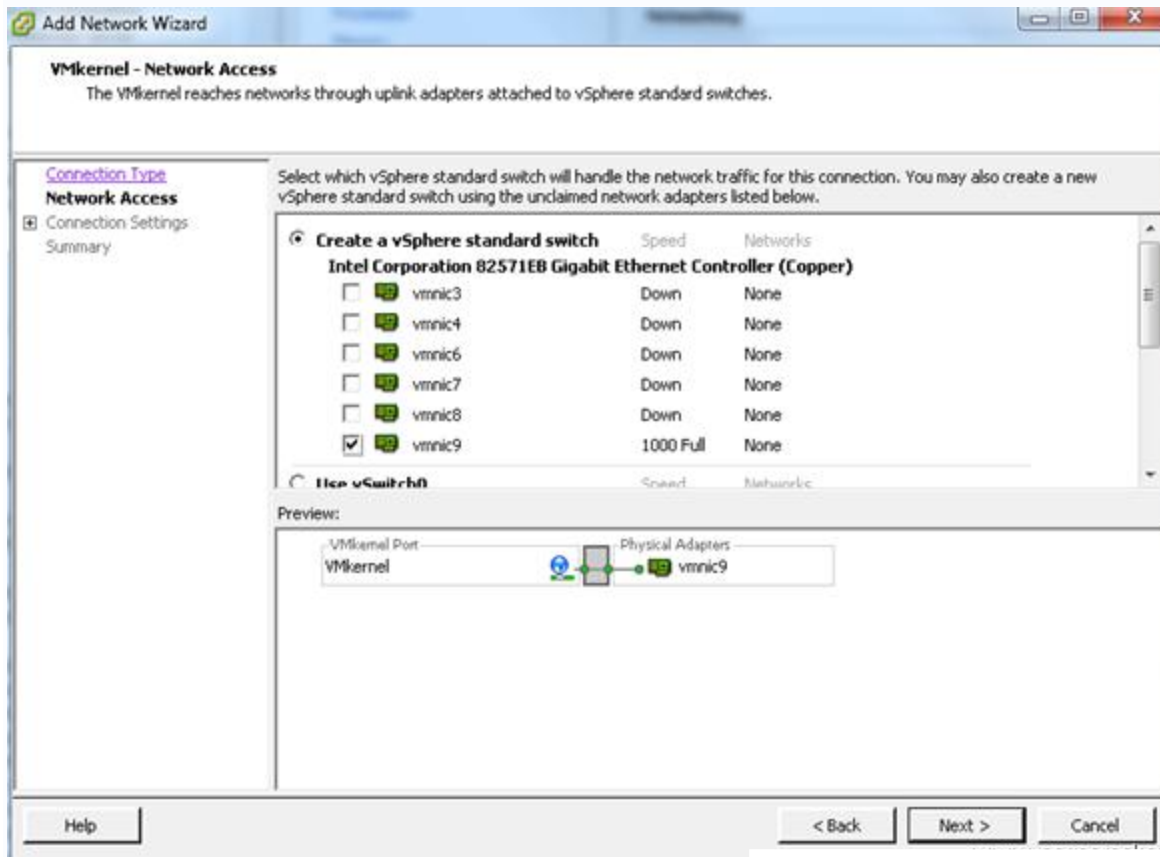
Standard Switch: vSwitch1

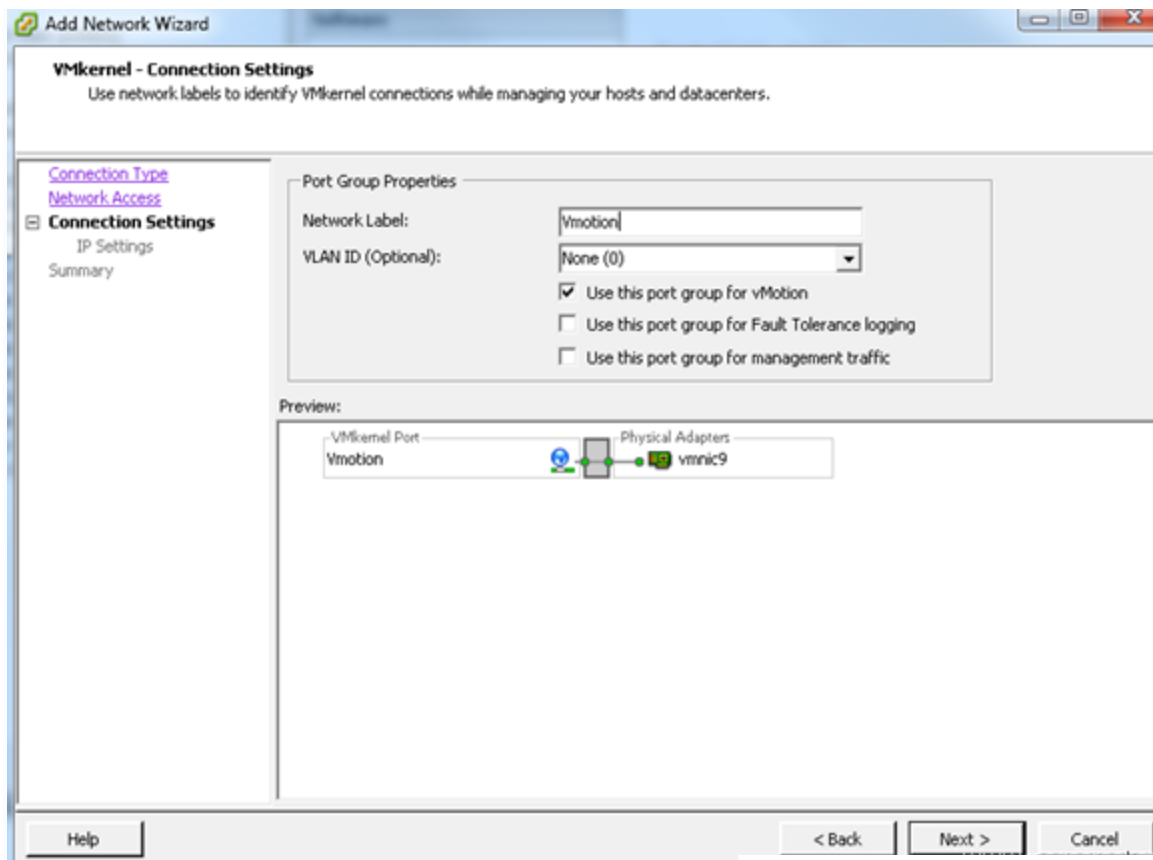
- Virtual Machine Port Group: VLAN 4 Servers I (20 virtual machine(s))
- Physical Adapters: vmnic2 (1000 Full), vmnic1 (1000 Full)

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

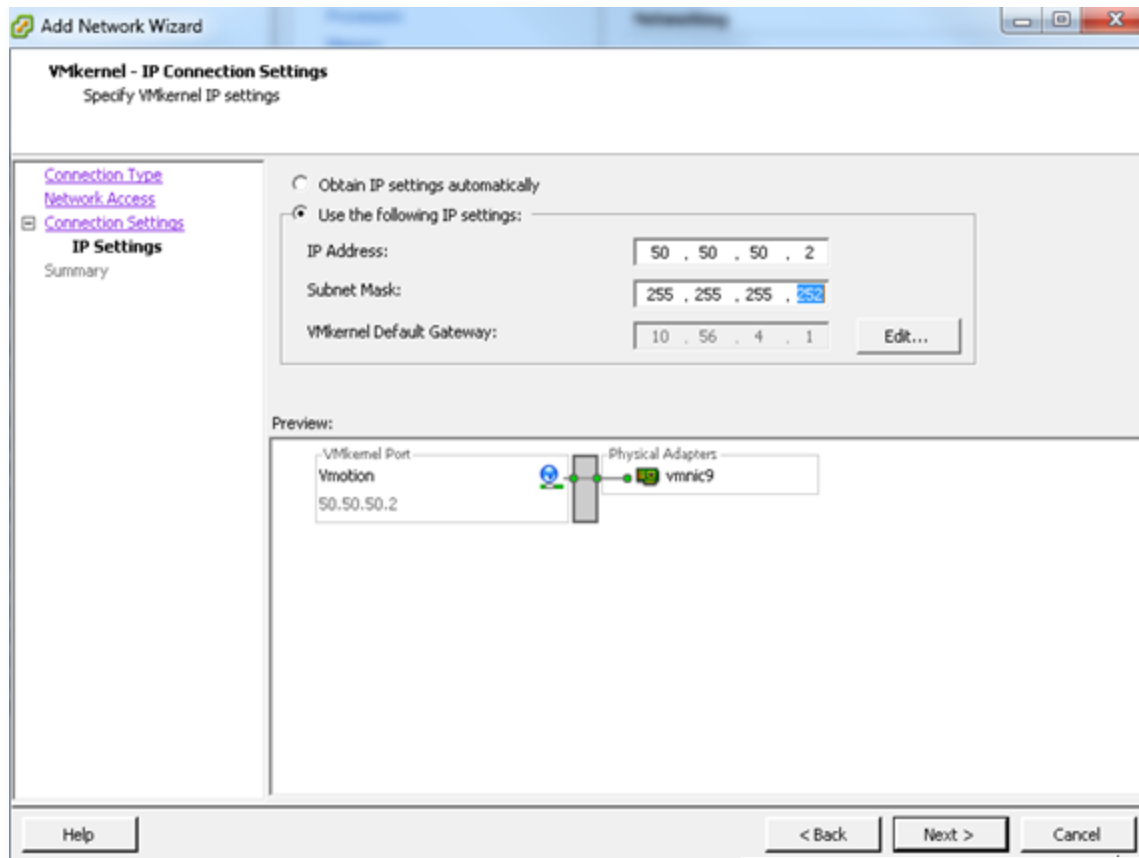


Select **VMkernel** and click on **Next**.





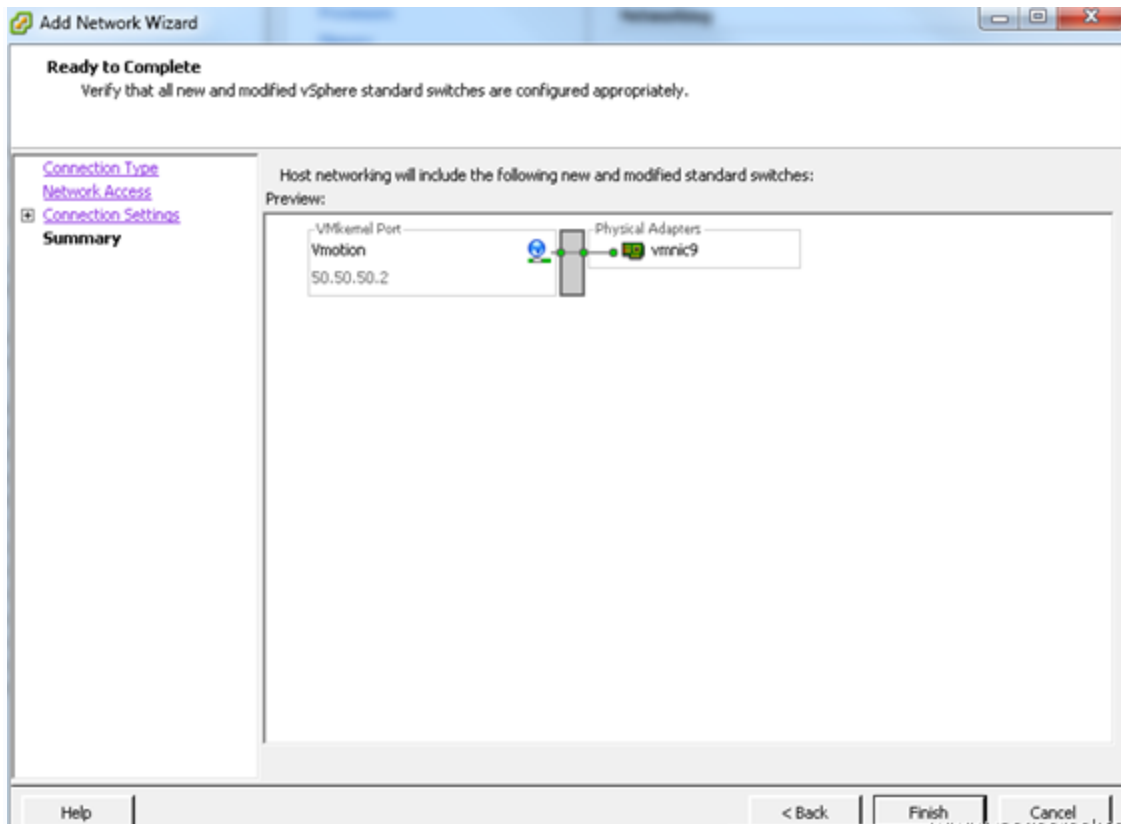
Use this port group for VMotion.



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

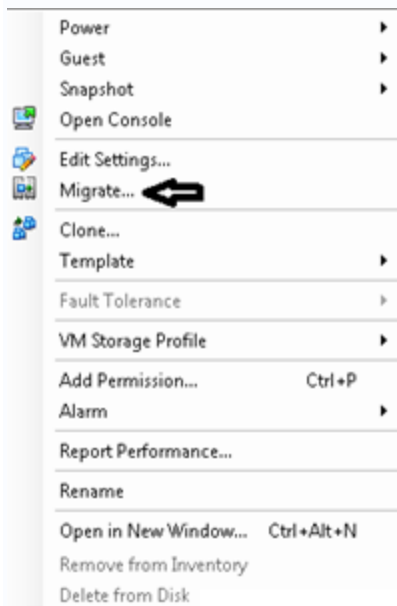
Subnet Mask: 255.255.255.252

Click on **Next**.

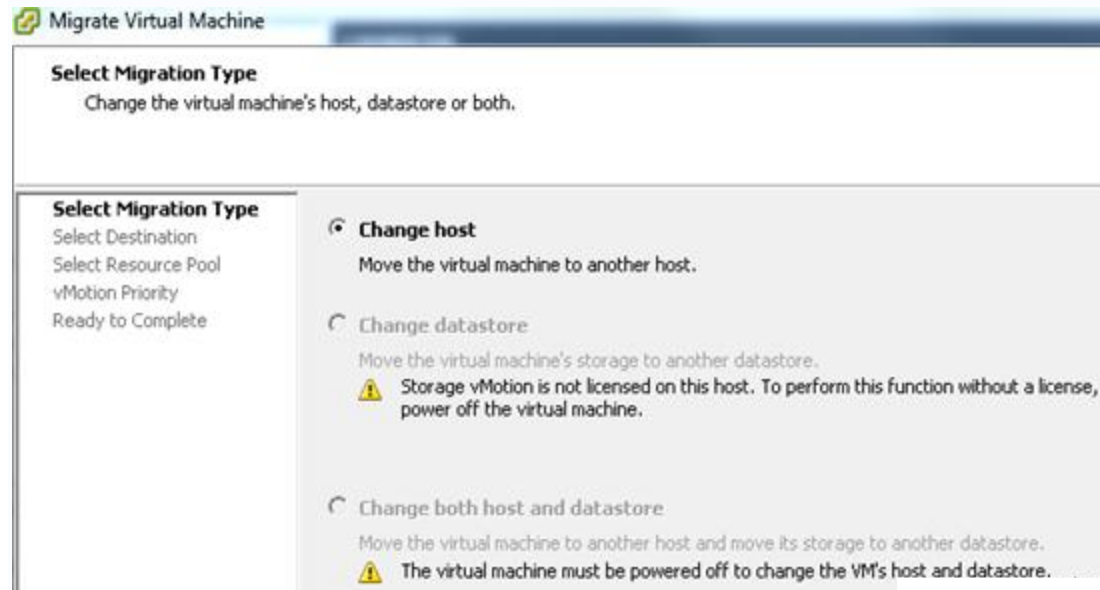


Click on **Finish**.

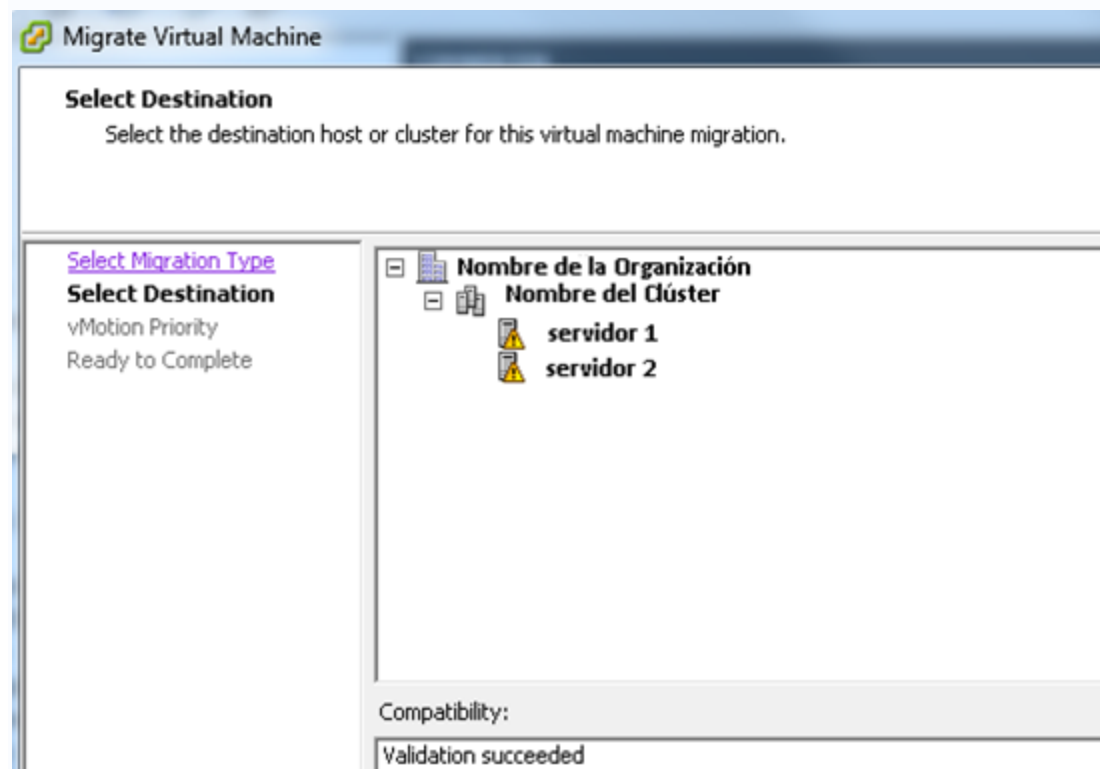
now what we will do to ensure that the entire system is working properly migrate a VM from one ESXi to the other using Vmotion functionality you just configured.



Click on **Migrate**.



Click on **Next**.



Select the target server where to move the virtual machine.

Click on **Next**.

Migrate Virtual Machine

vMotion Priority
Set the priority of the vMotion migrations, relative to the other operations on the destination host.

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

☒ High priority (Recommended)
☐ Standard priority

High priority vMotions are favored over standard priority vMotions and are expected to perform better.

i If using an ESX 4.0 host or ESXi 4.0 host, click Help for additional information.

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

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

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