

Sri Lanka Institute of Information Technology

4<sup>th</sup> Year – 1<sup>st</sup> Semester

ESBP II

Assignment 6

**VMOTION**

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**Weekday Batch**

## **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?**

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

## 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
<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.

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

Servidor 1 VMware ESXi, 5.0.0, 623860

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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...

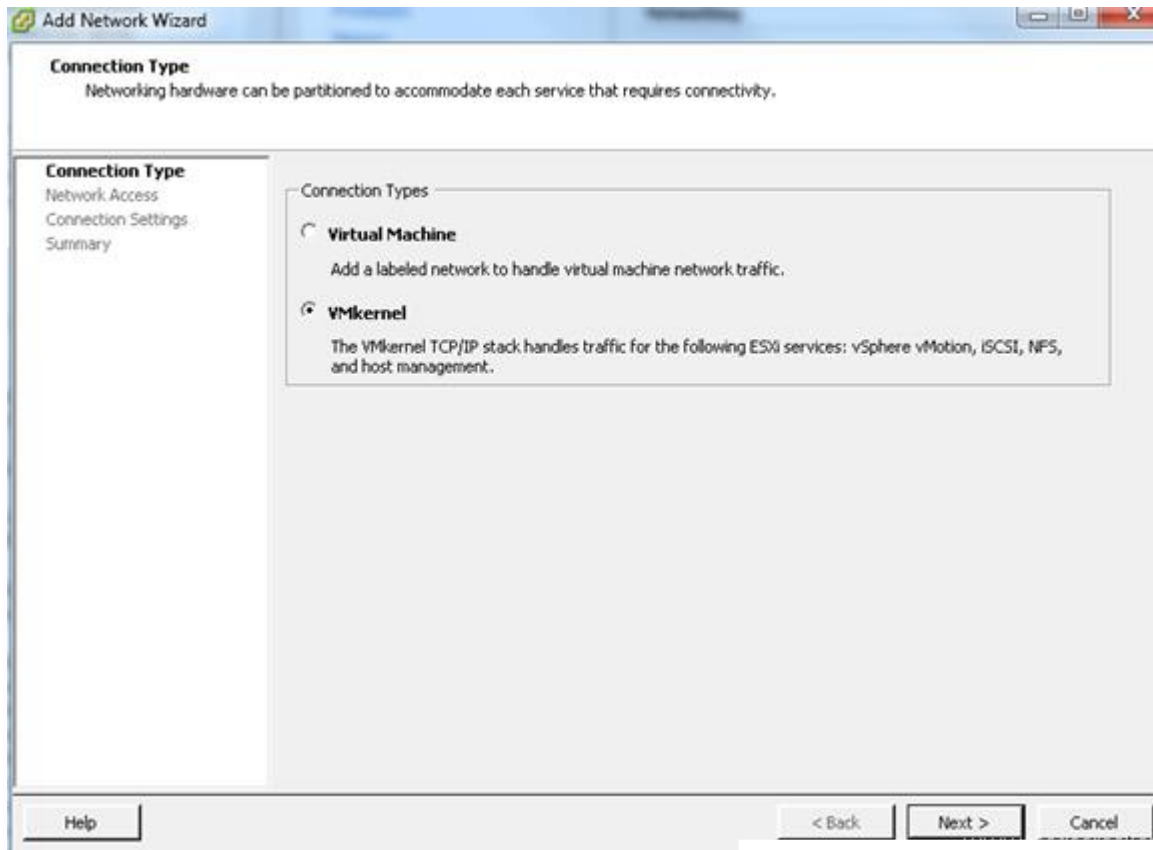
Virtual Machine Port Group

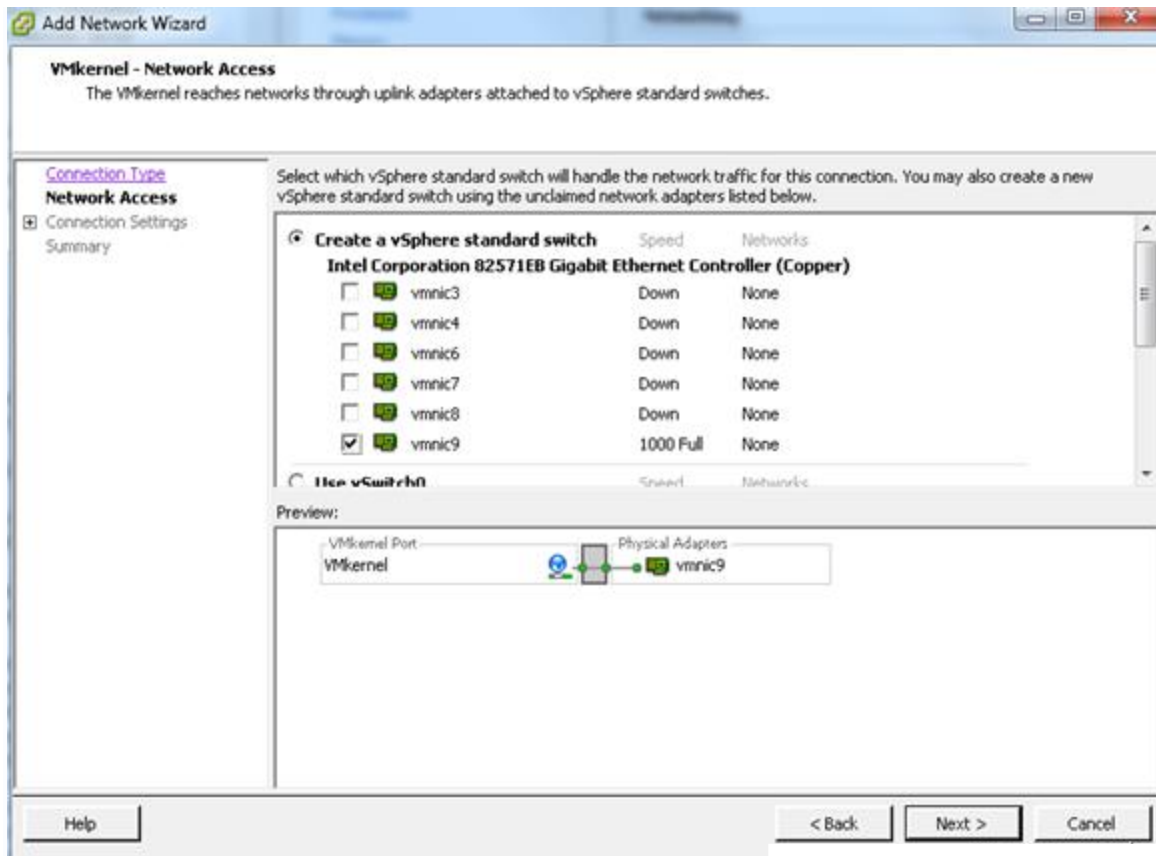
- VLAN 4 Servers I
- 7 virtual machine(s)

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:

VLAN ID (Optional):

☒ Use this port group for vMotion  
☐ Use this port group for Fault Tolerance logging  
☐ Use this port group for management traffic

Preview:



The diagram shows a 'VMkernel Port' labeled 'Vmotion' connected to a 'Physical Adapter' labeled 'vmnic9'.

Help

< Back

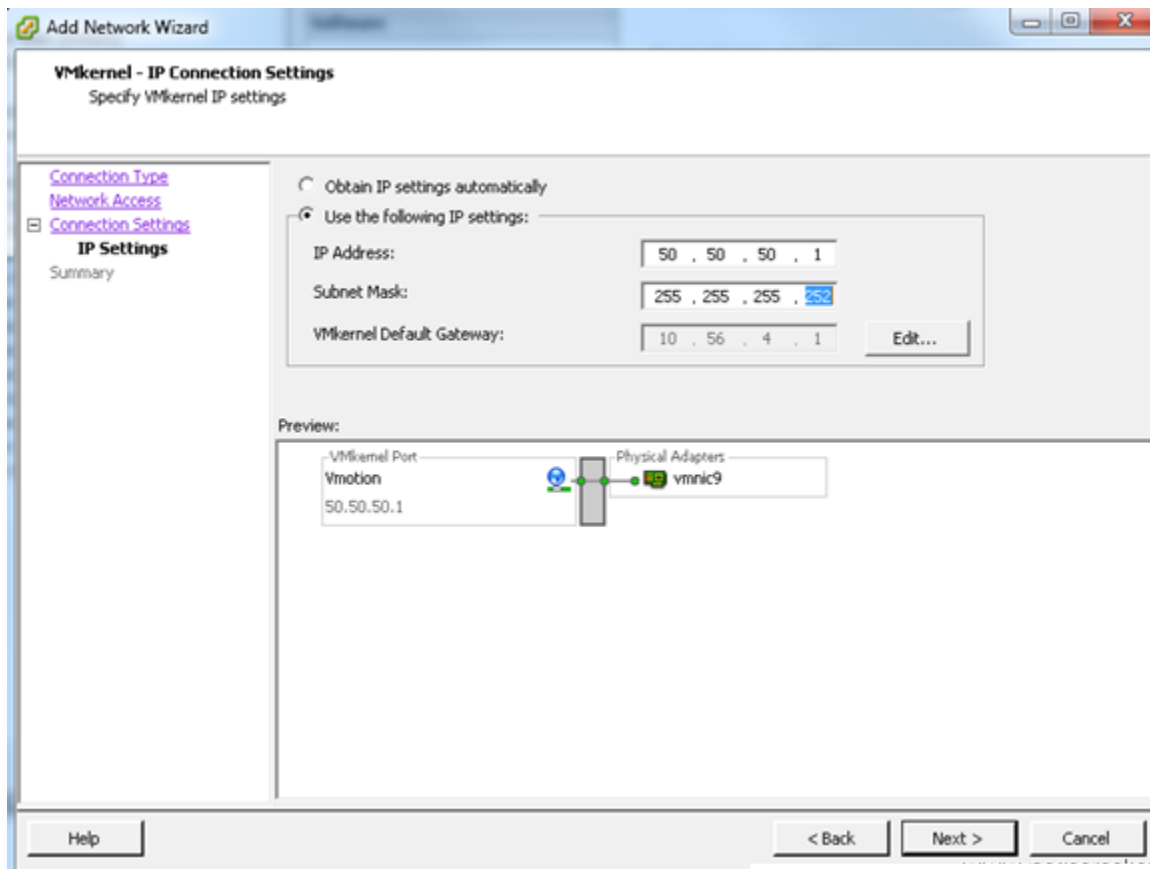
Next >

Cancel

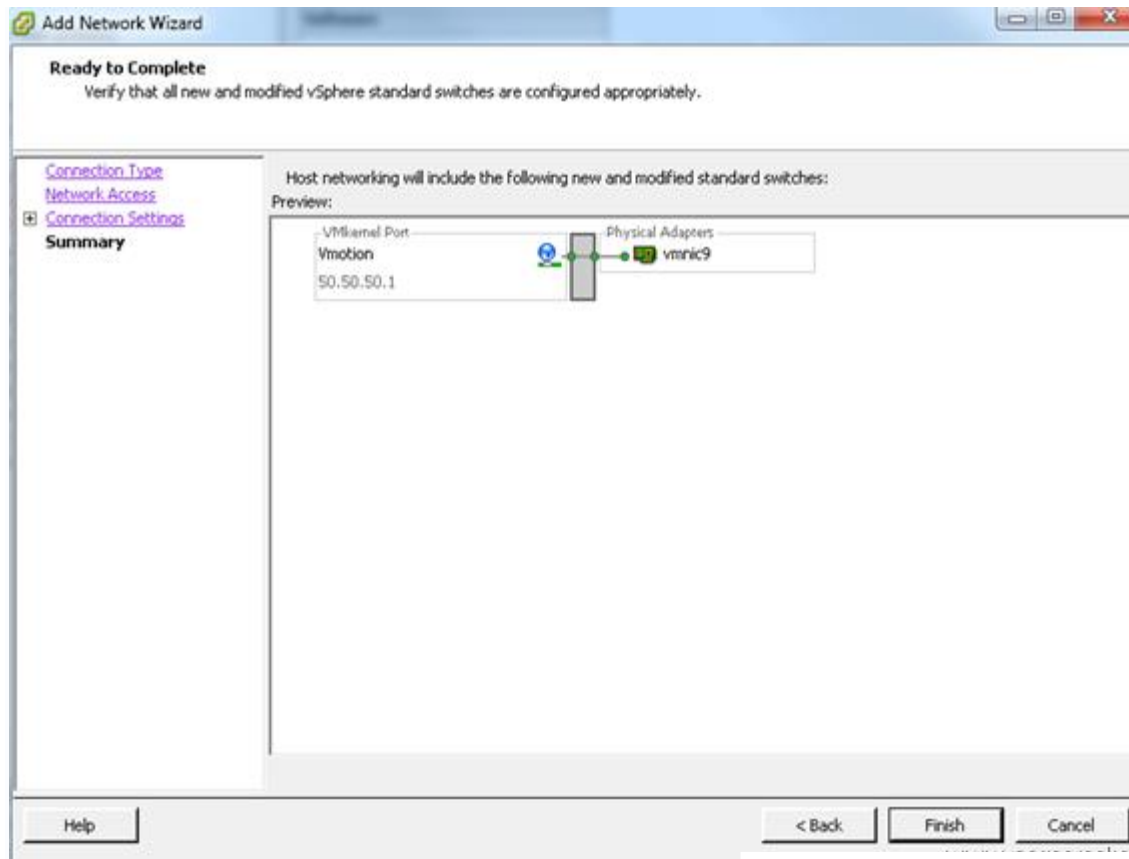
5. **IP Address: 50.50.50.1**

**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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- Storage Adapters
- **Network Adapters**
- Advanced Settings
- Power Management

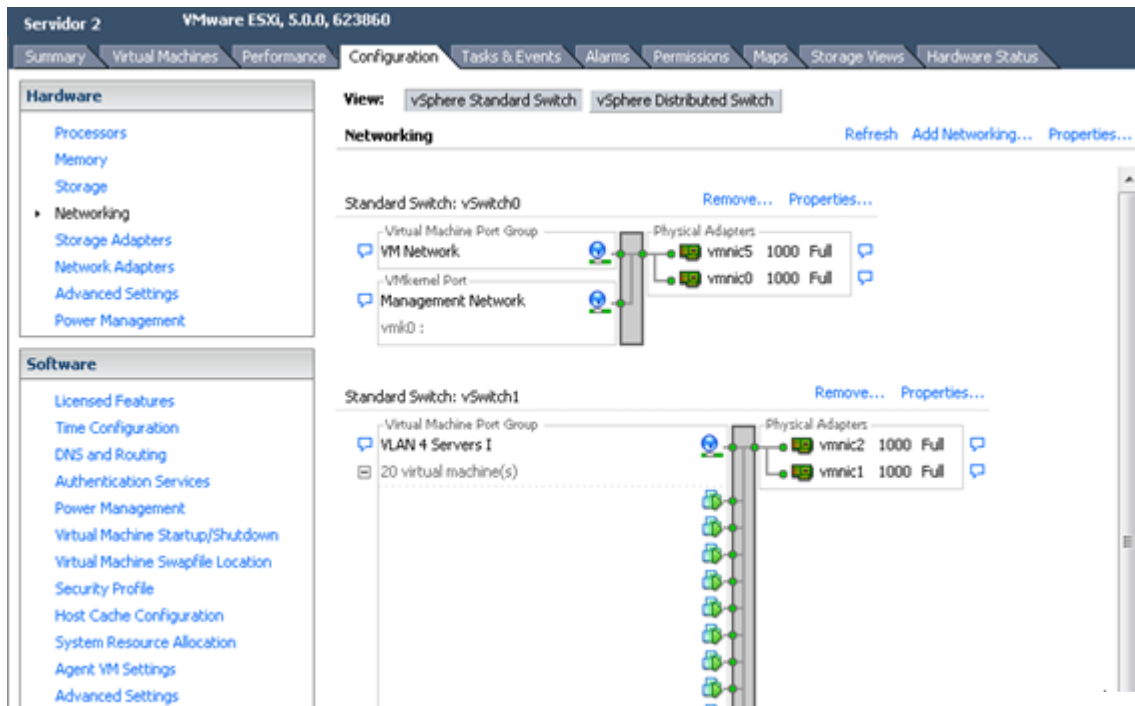
**Software**

- 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

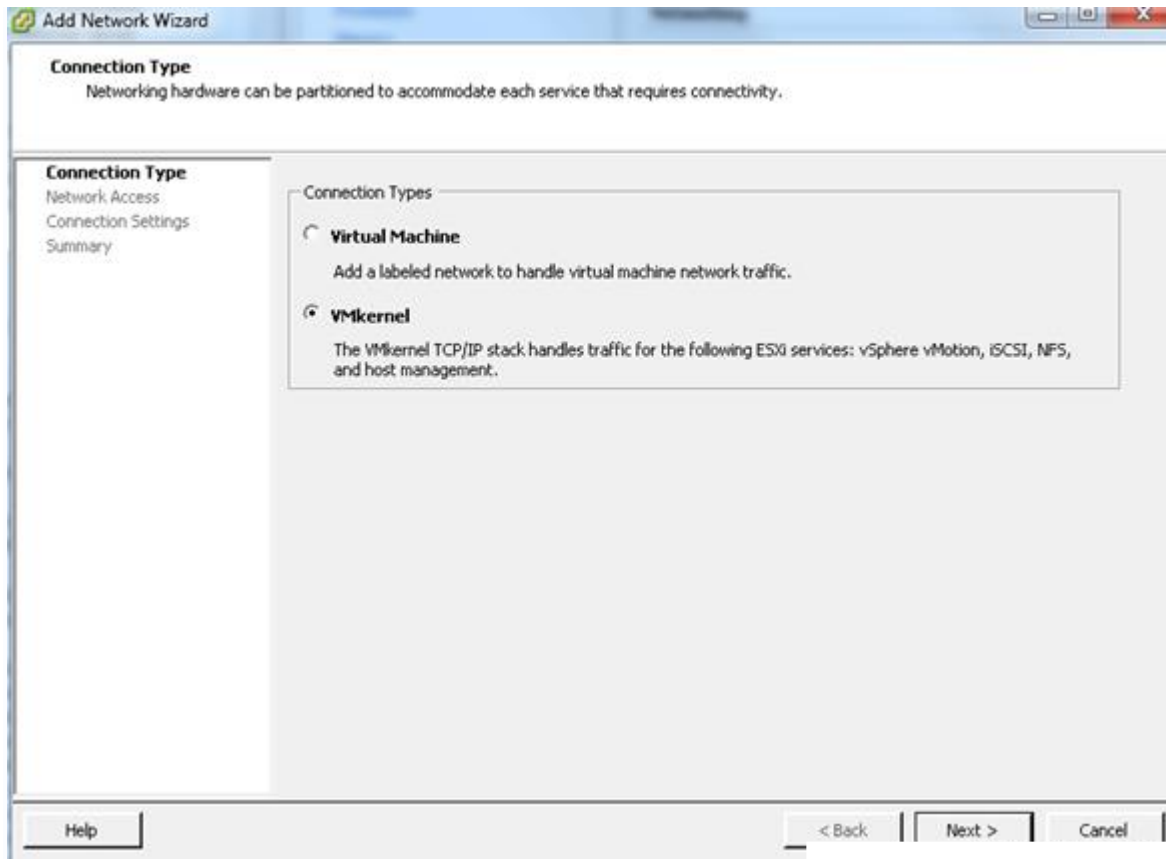
**Network Adapters**

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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.
<b>Intel Corporation 82571EB Gigabit Ethernet Controller (Copper)</b>					
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.

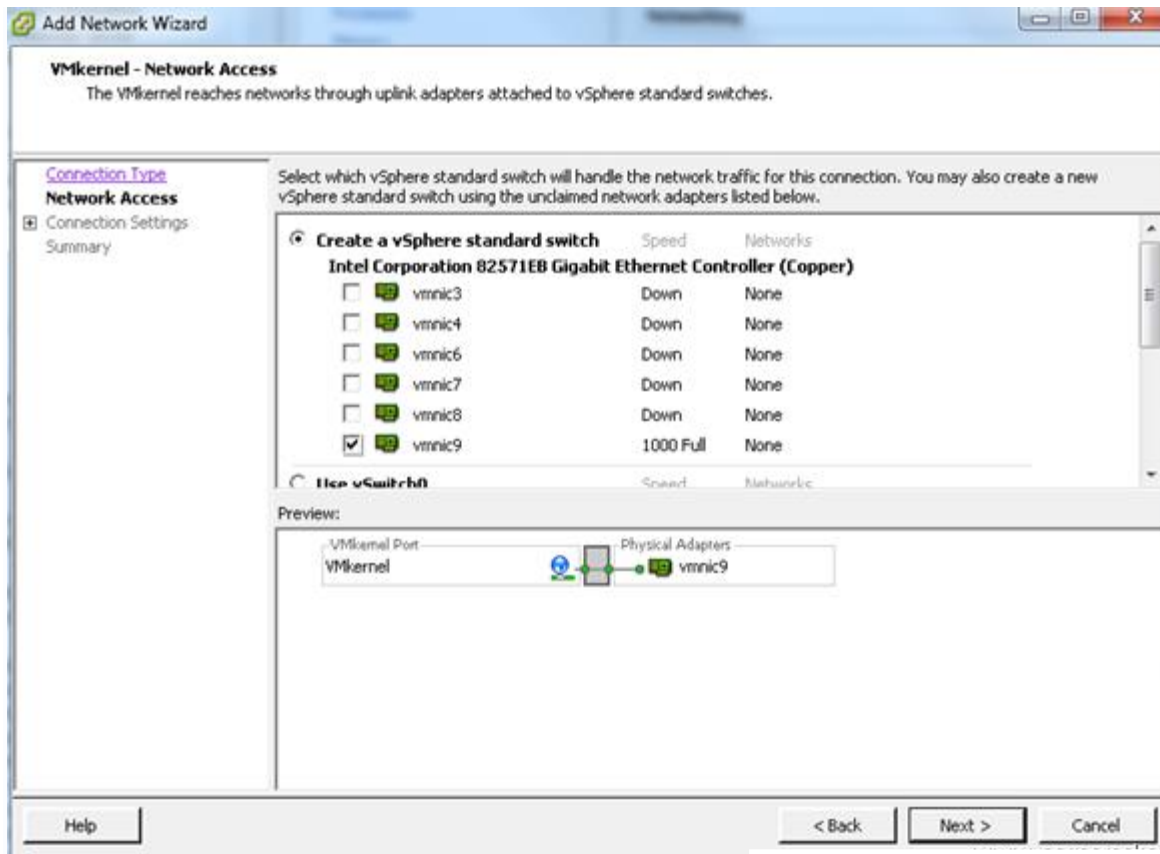
9. Click on **Add Networking** to create the vSwitch.



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



## 11. Use this port group for VMotion.



Add Network Wizard

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

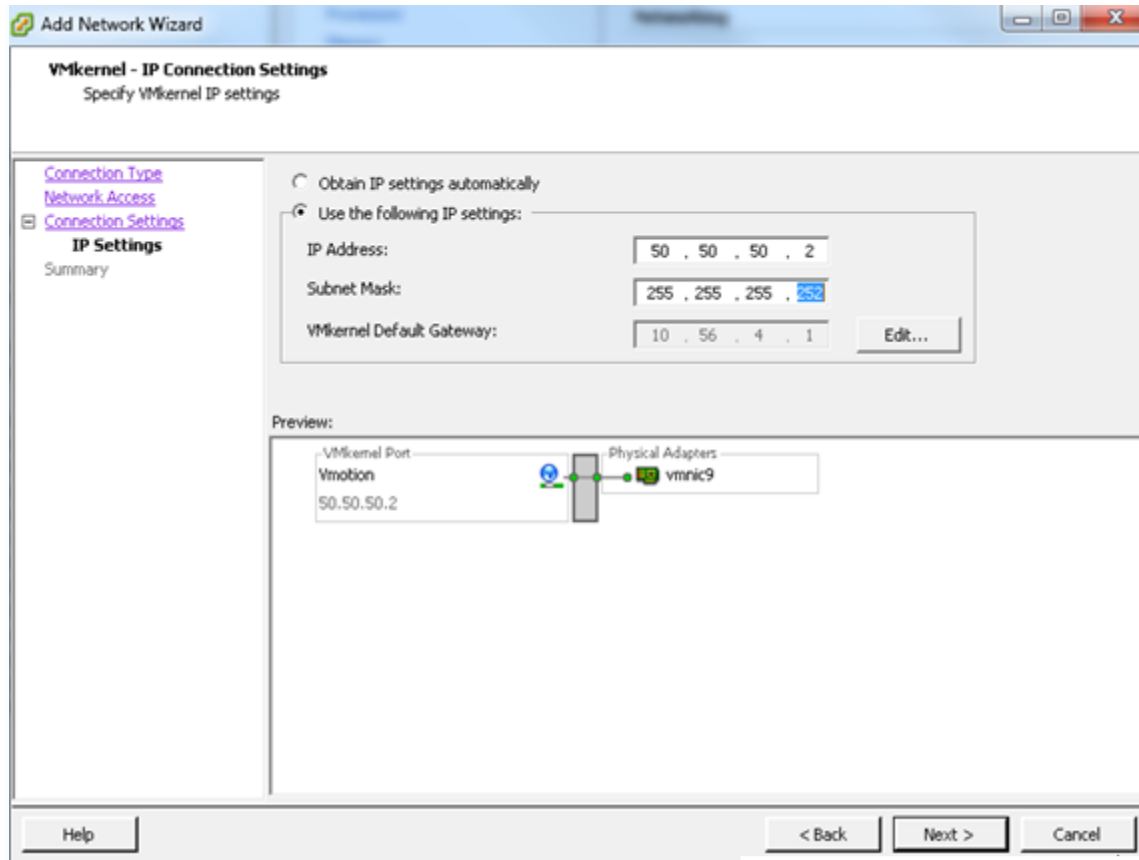
Next >

Cancel

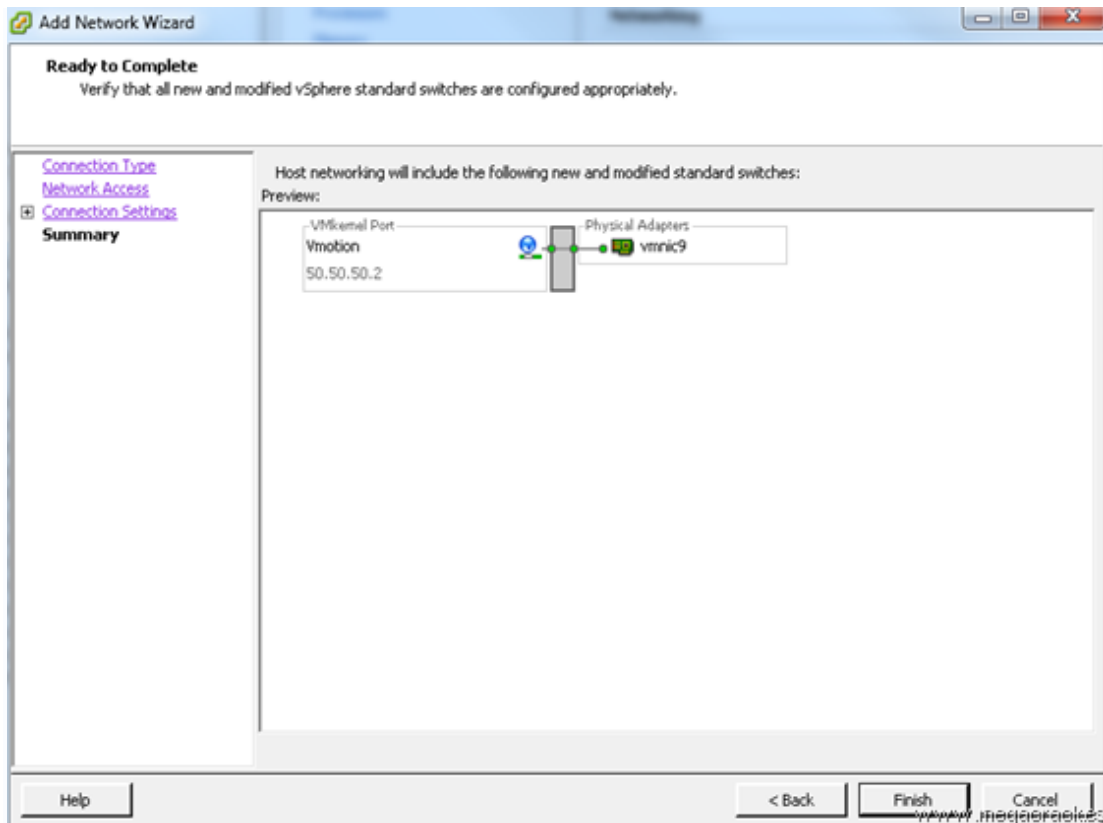
12. **IP Address: 50.50.50.2** (This ip must be different from the server that configured earlier 1).

**Subnet Mask: 255.255.255.252**

Click on **Next**.



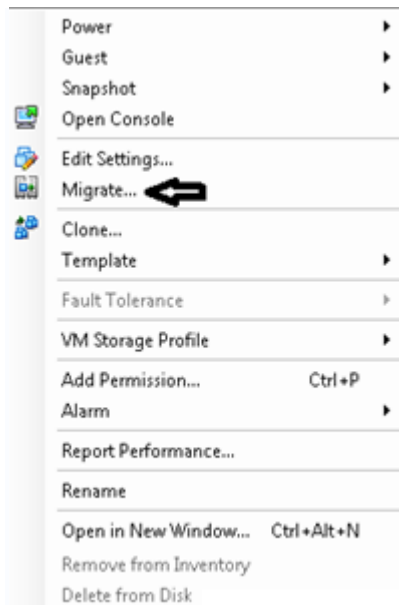
13. Click on **Finish**.



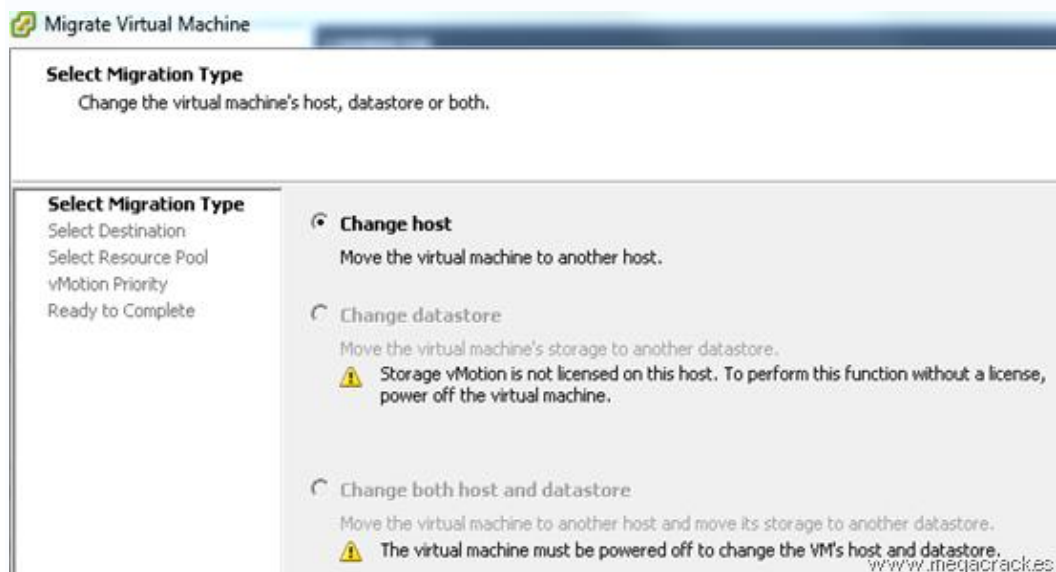
Now what we will do to ensure that the entire system is working properly migrate a VM from one ESXi to the other using Vmotion functionality you just configured.



14. Click on **Migrate**.

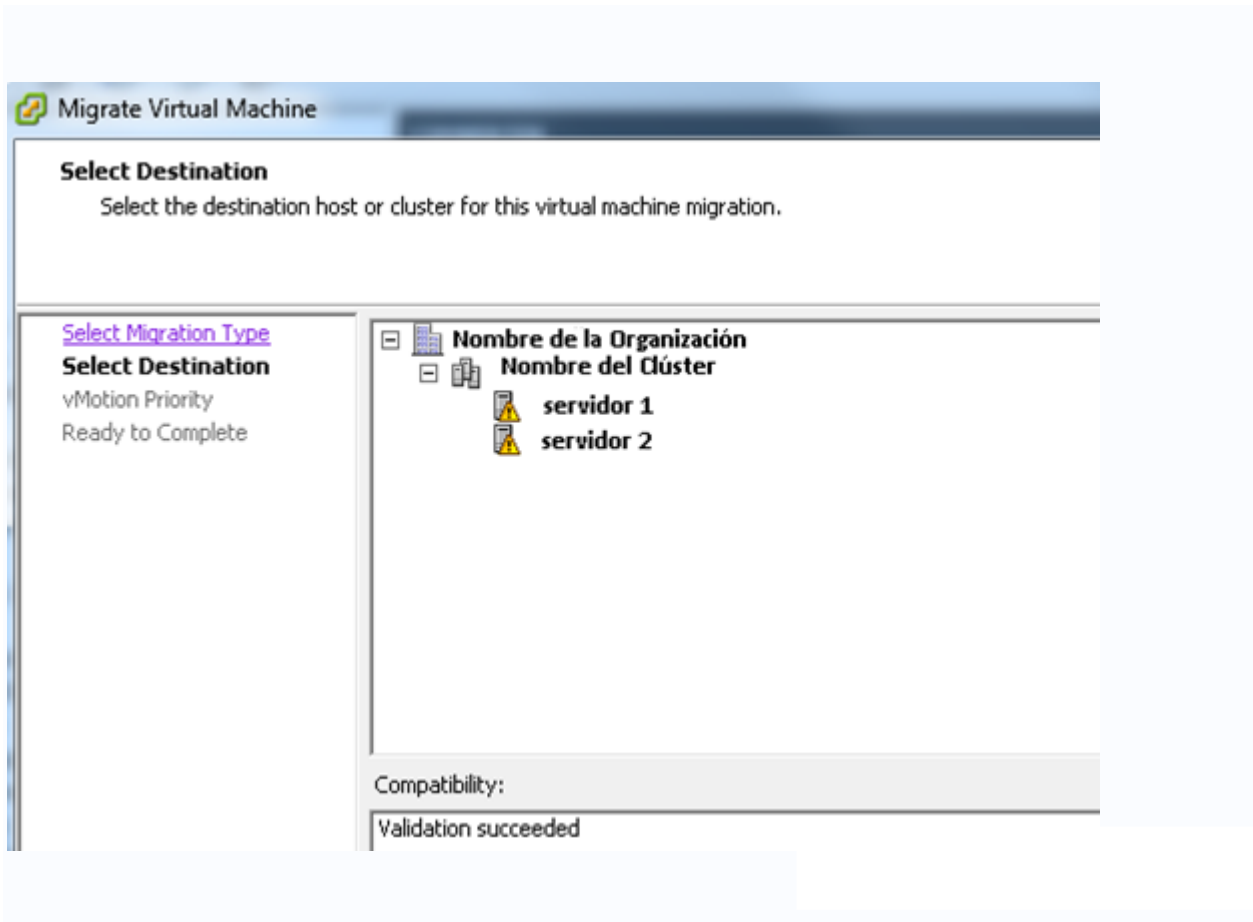


15. Click on **Next**.

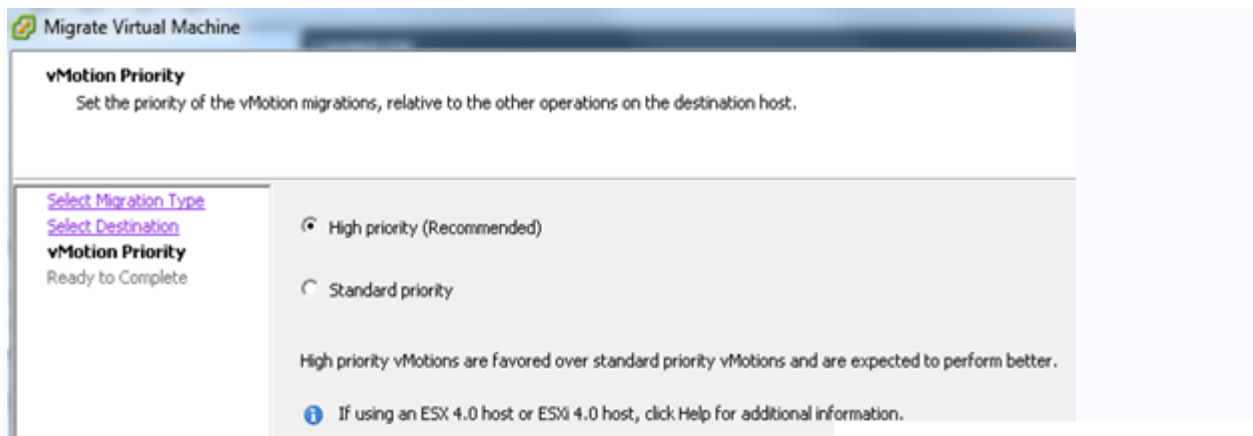



16. Select the target server where to move the virtual machine.

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