Sri Lanka Institute of Information Technology

4th Year – 1st Semester

ESBPII

Assignment

vMotion

IT13120658

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June Intake Batch

GitHub URL: https://github.com/poornimasilva/ESBPII_LABS

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

vMotion pros:

• Dynamic allocation services of the software allow you to allocate resources and memory while the processes are running.

• Security service of the software is flexible and allows you to implement user defined policy enforcement.

• The software supports all major operating systems as well as wide range of hardware.

• vMotion allows to precisely identify the optimal placement for virtual machine.

• Virtual machines can be optimized within resource pools automatically.

vMotion cons:

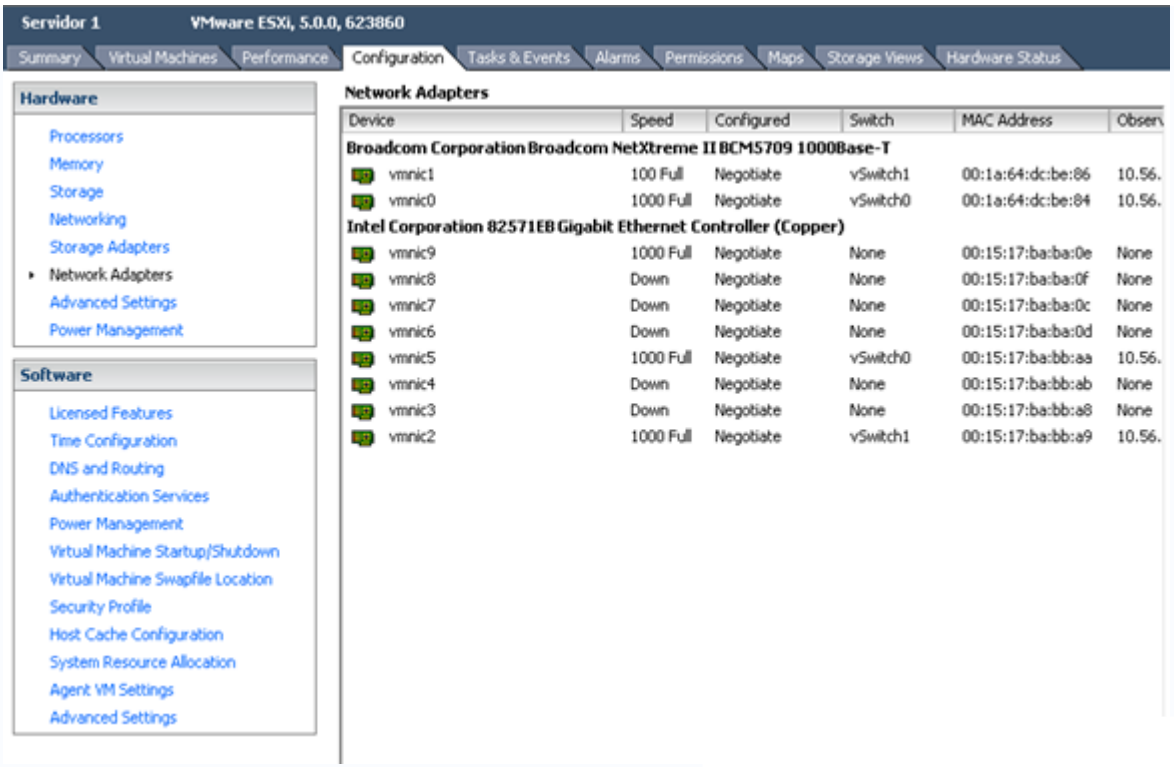
• There is no module for performance management on the software.

• Unlike its competitors, the software does not offer any reporting capabilities.

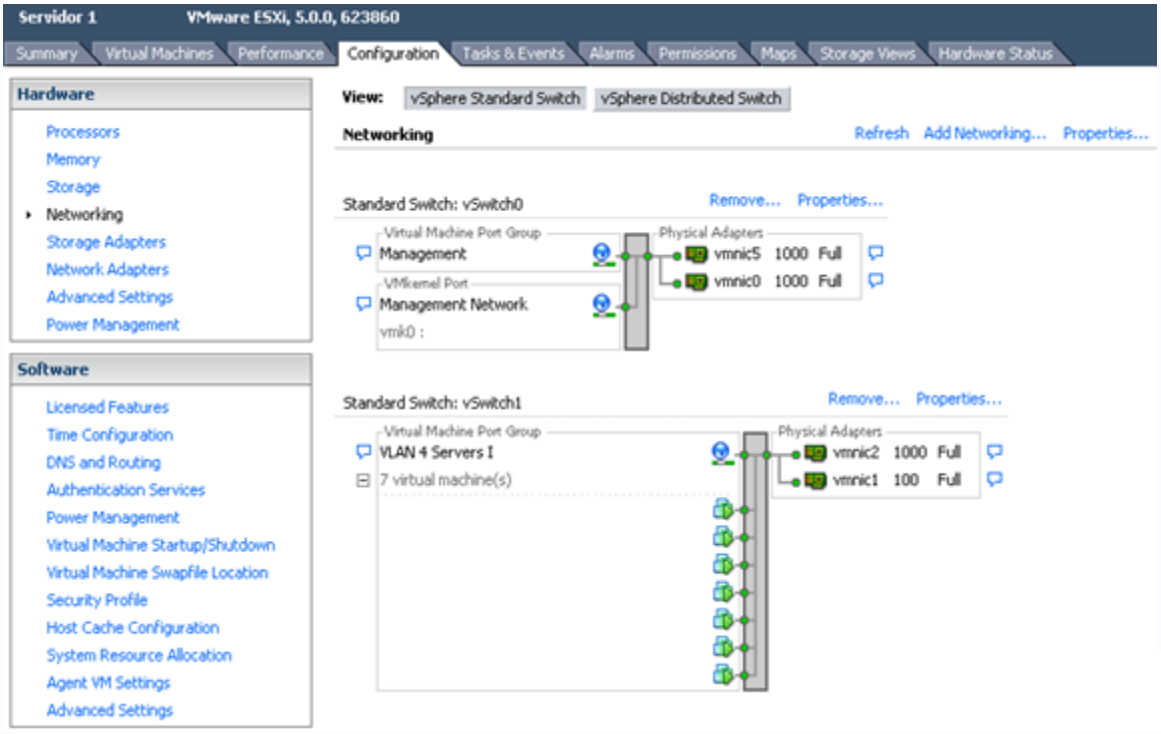
• Configuration features of the software do not include auto recovery, configuration history, and NIC teaming capabilities.

• There are no performance management features of adaptive analysis, memory compression, and continuous resource allocation on the software.

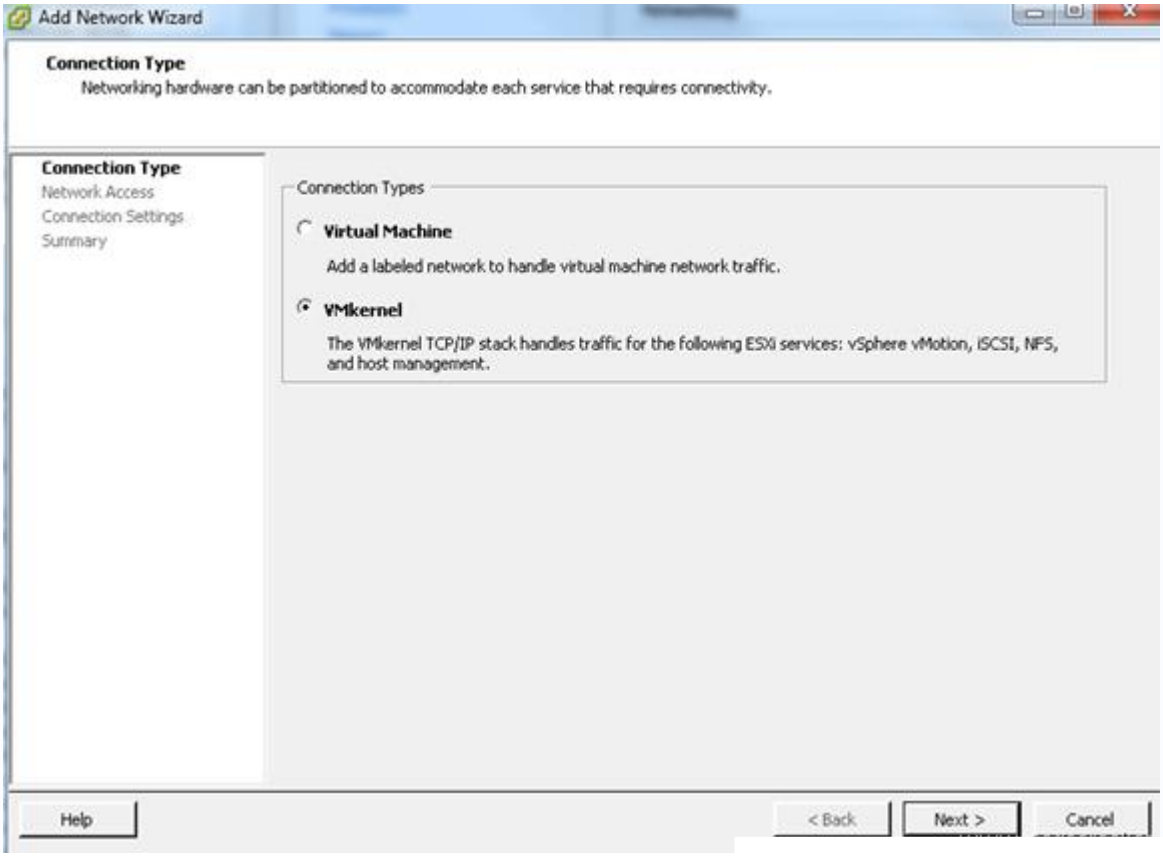
1. tab **Configuration-> Networking**

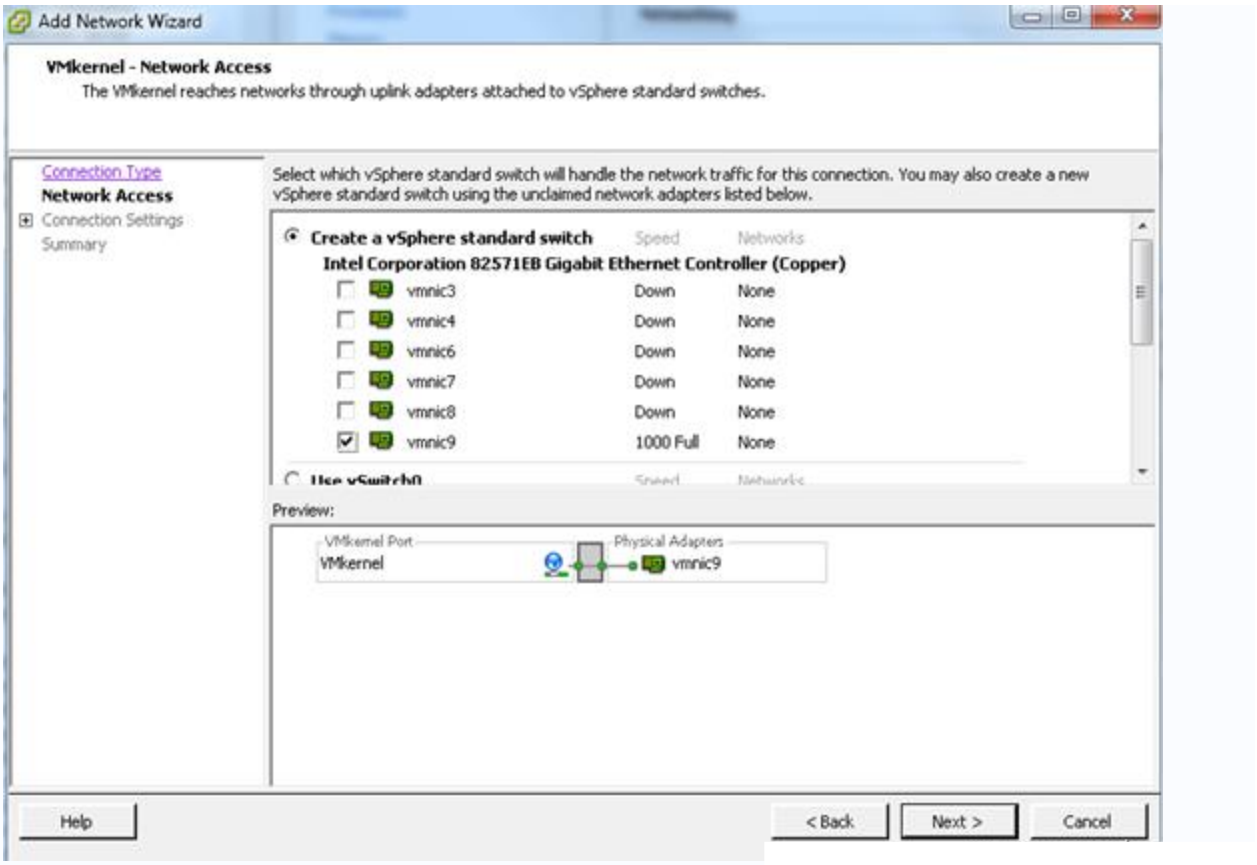


2. Click on **Add Networking** to create the vSwitch.



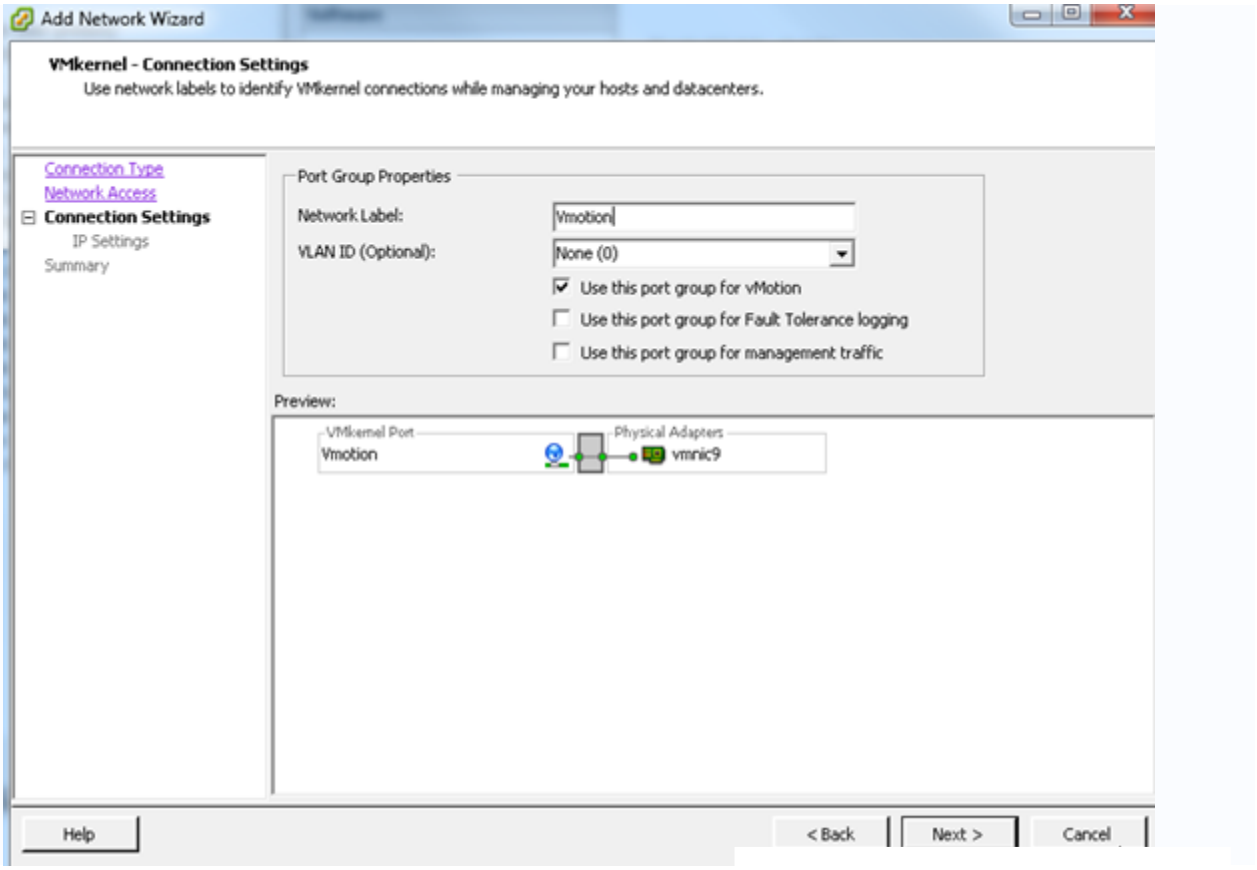
3. Select **VMKernel** and click on **Next.**





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

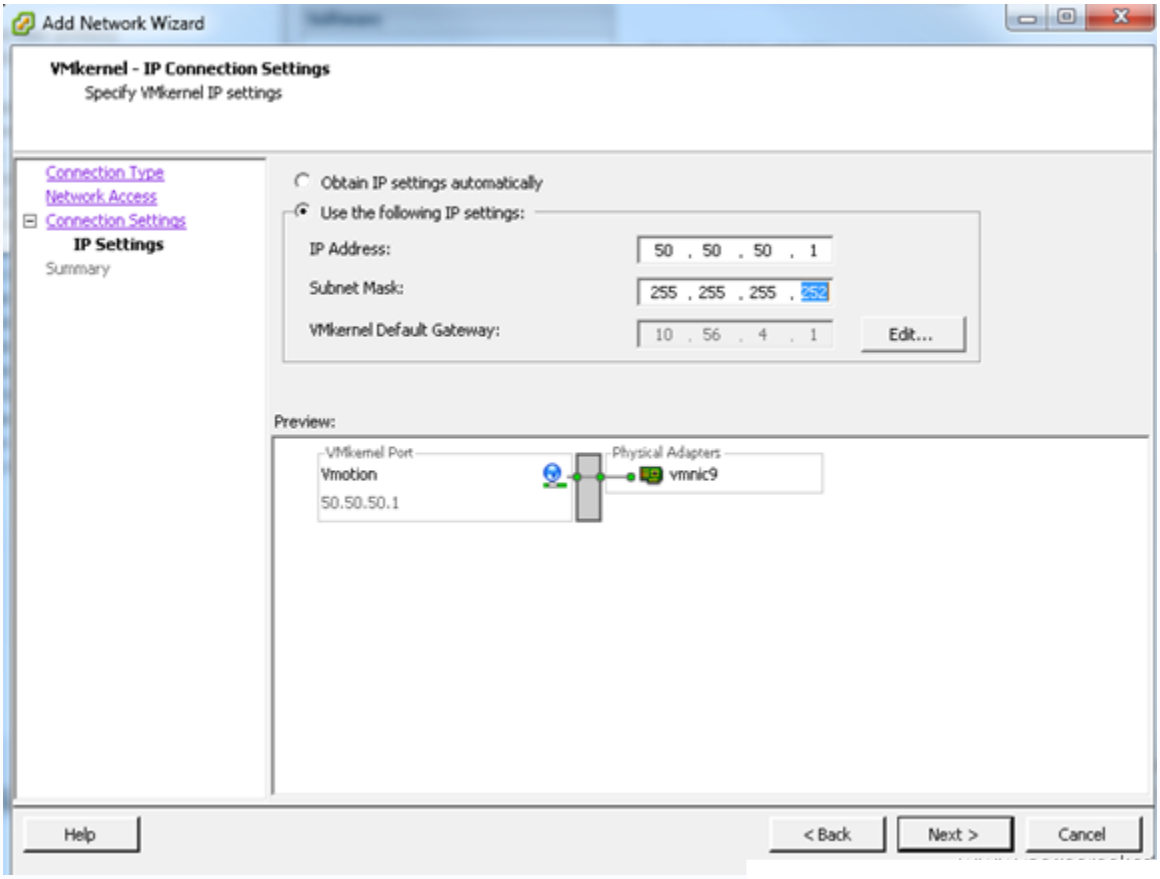
We wrote a **Label Network** different if you want (optional) and click on **Next.** We for example we put **Vmotion.**


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

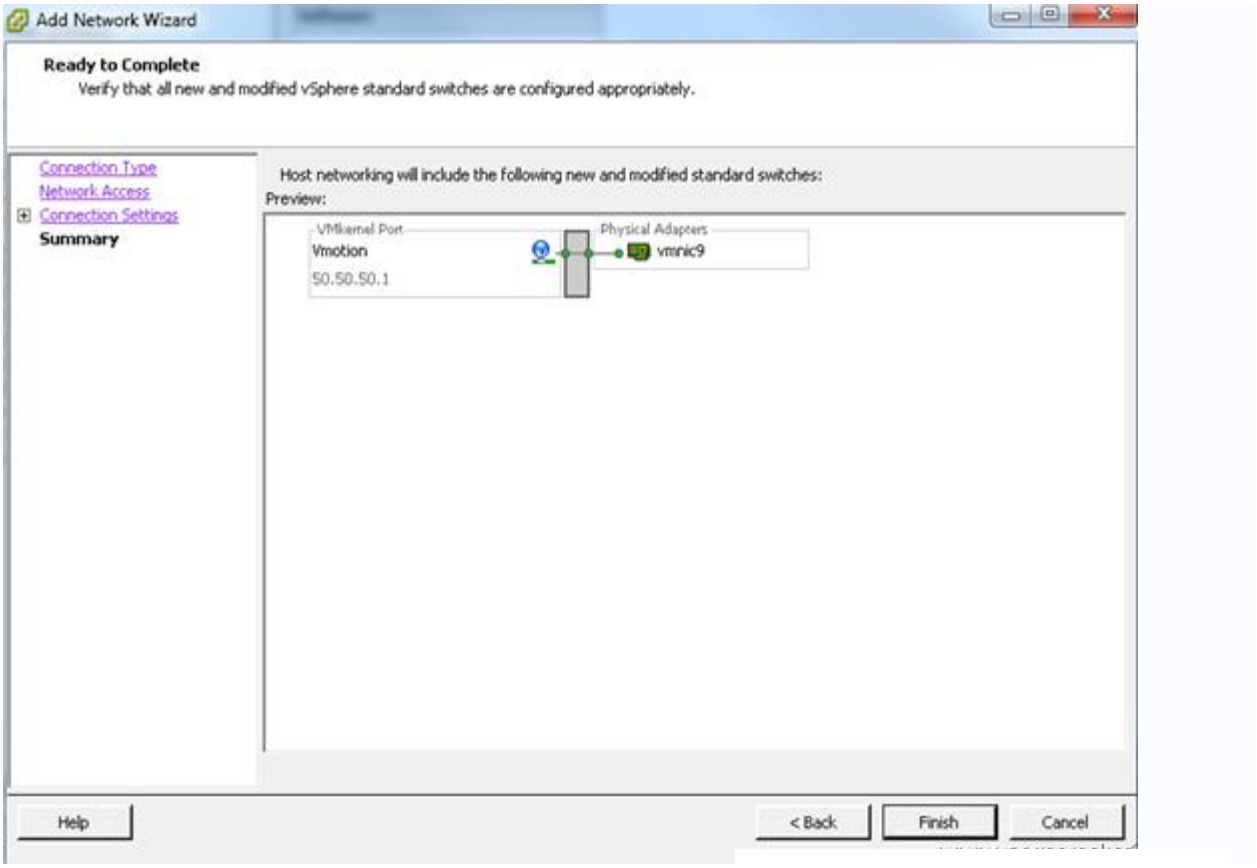
5. **IP Address: 50.50.50.1**

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

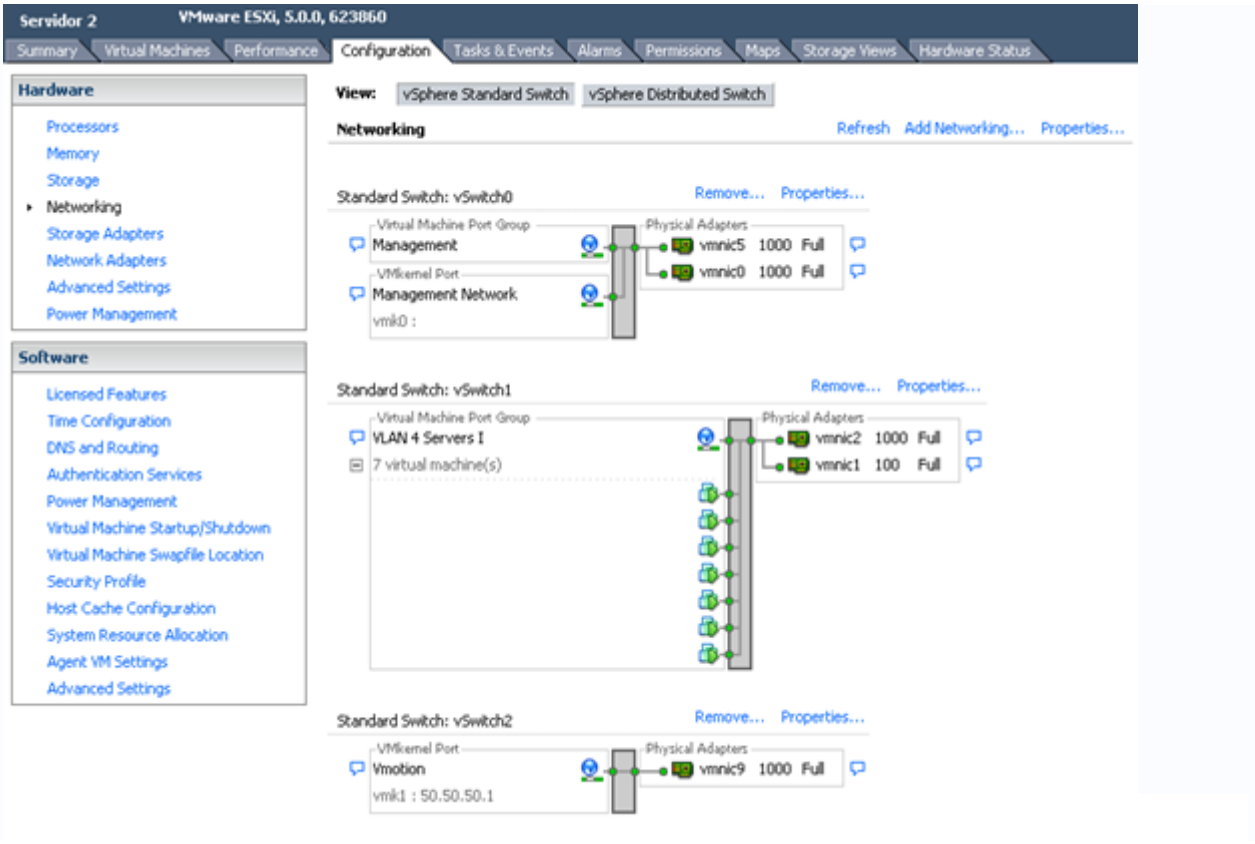
   Click on **Next.**



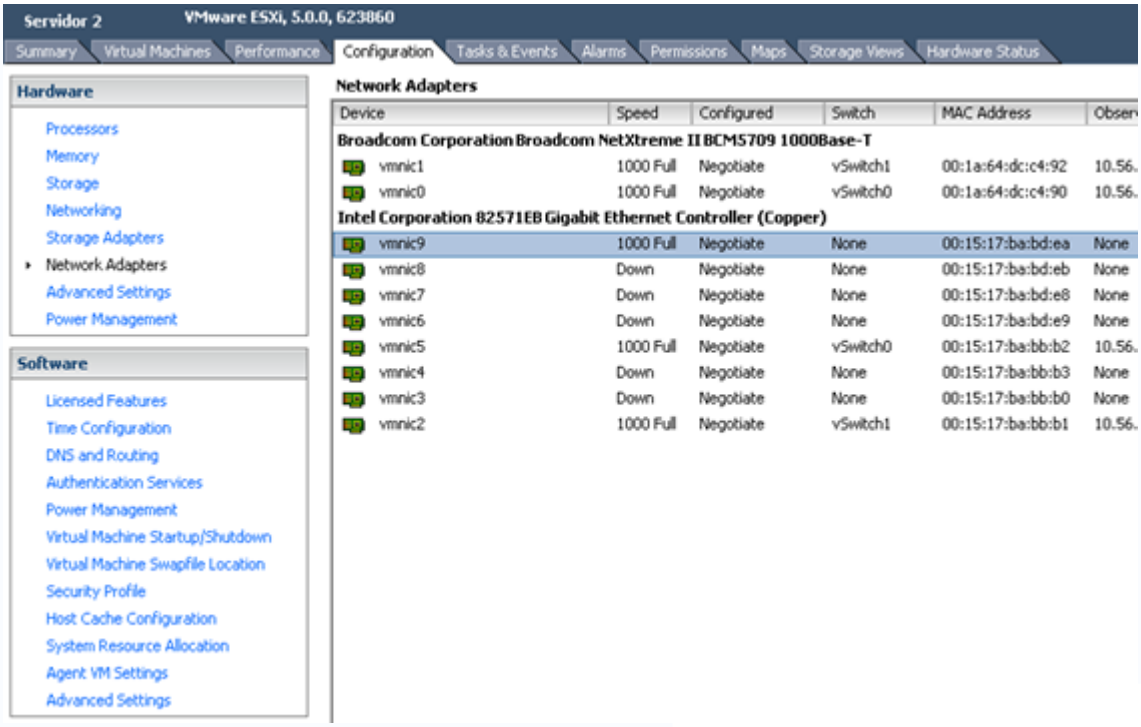
6. Click on **Finish.**



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**



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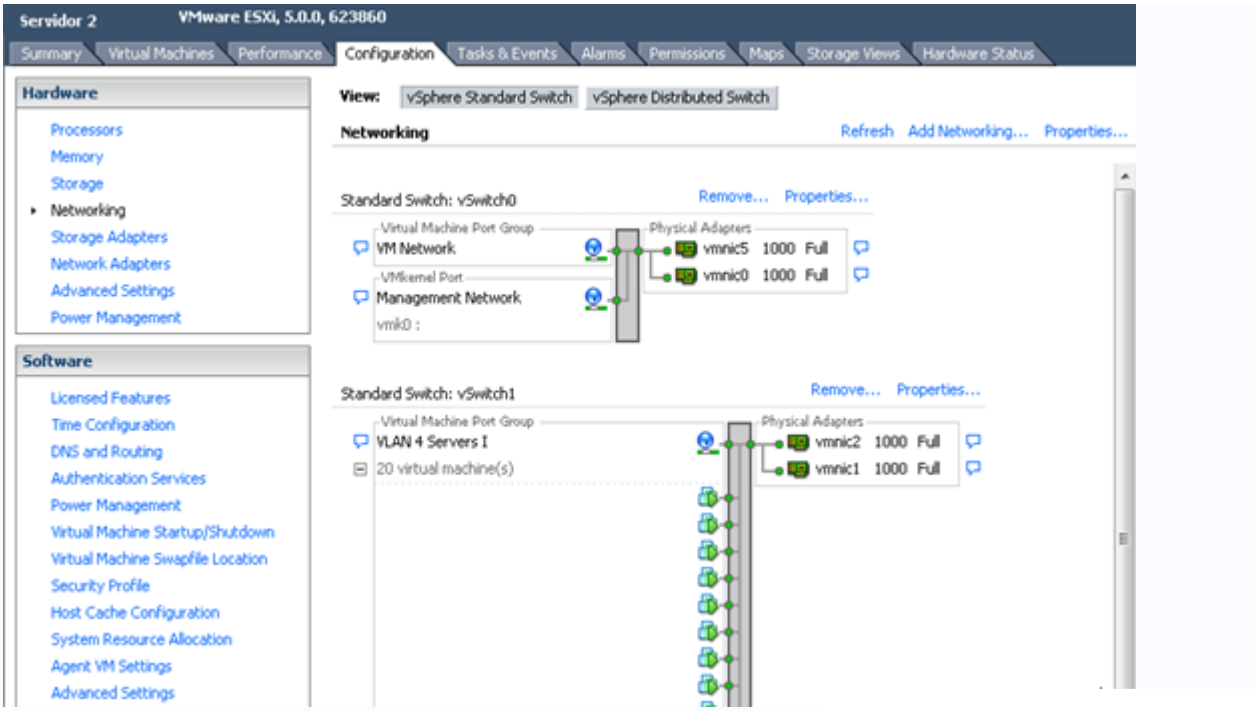
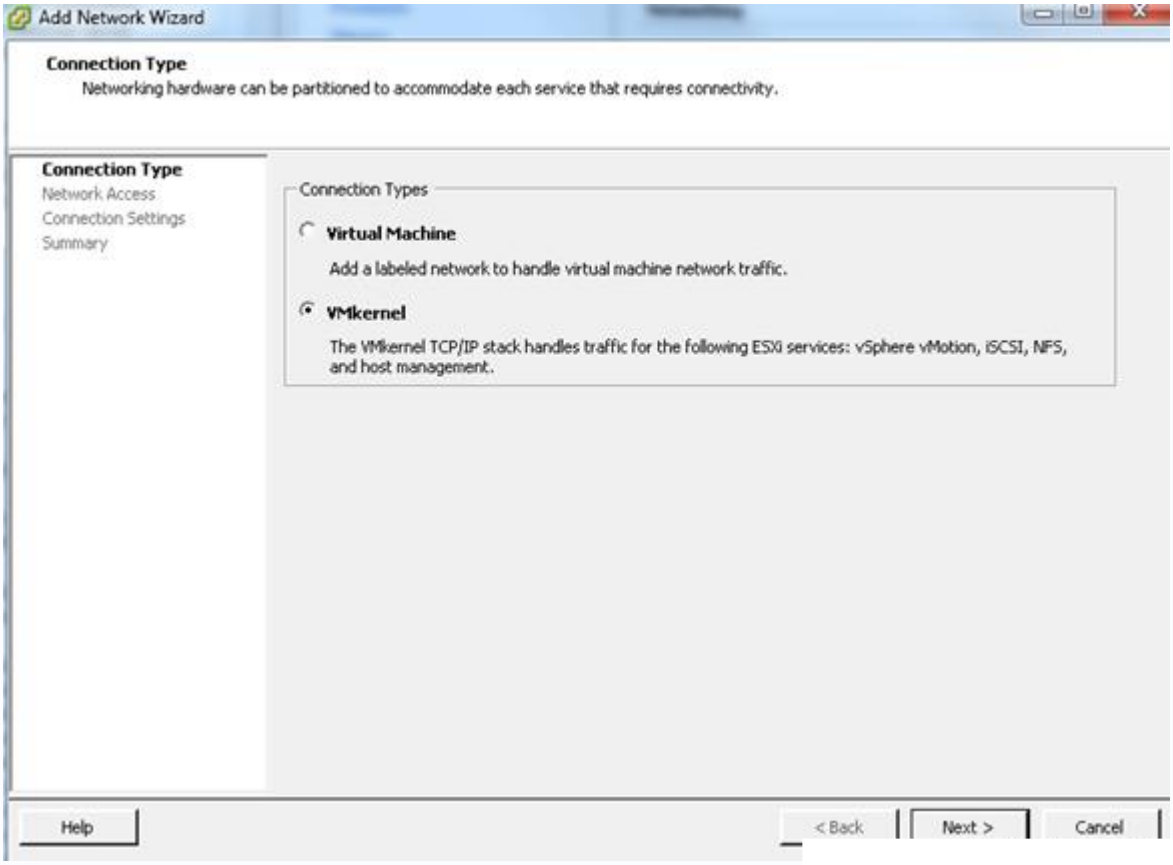
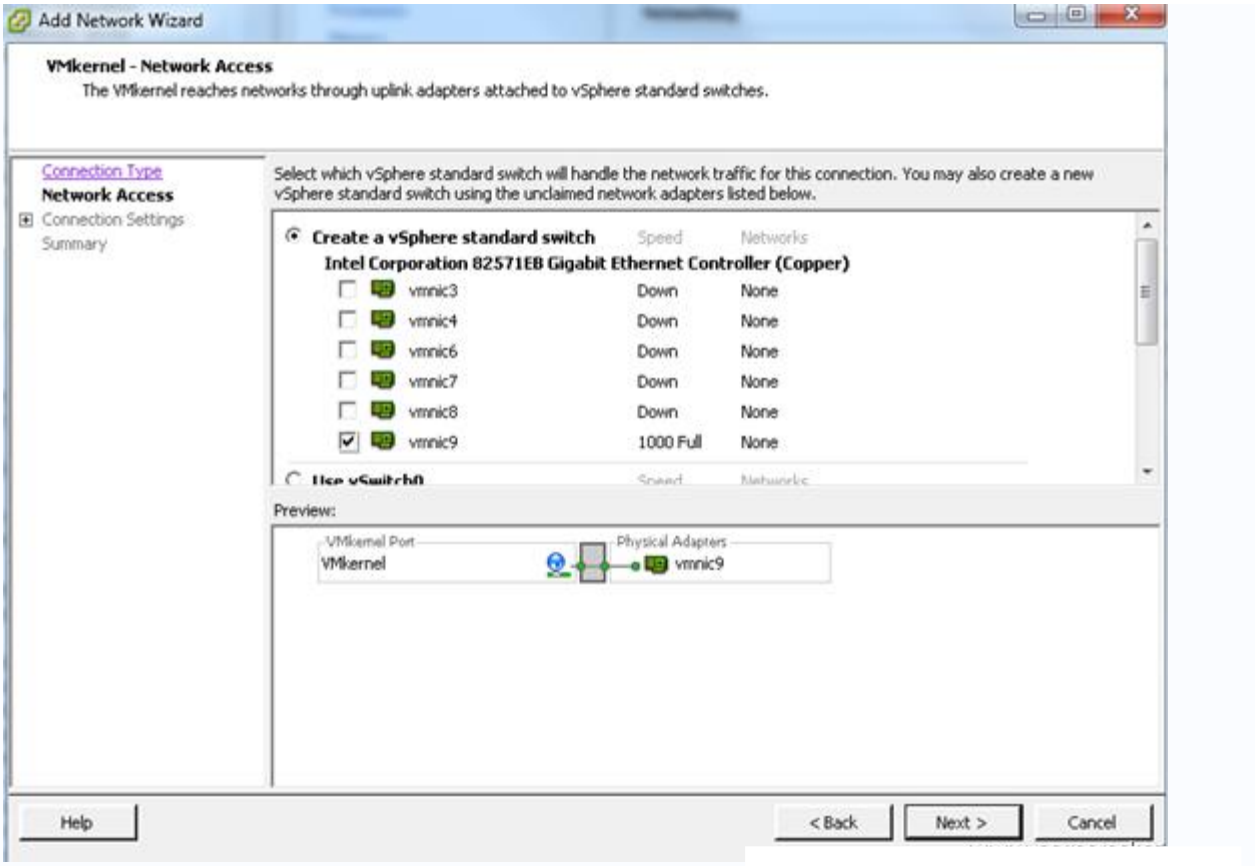
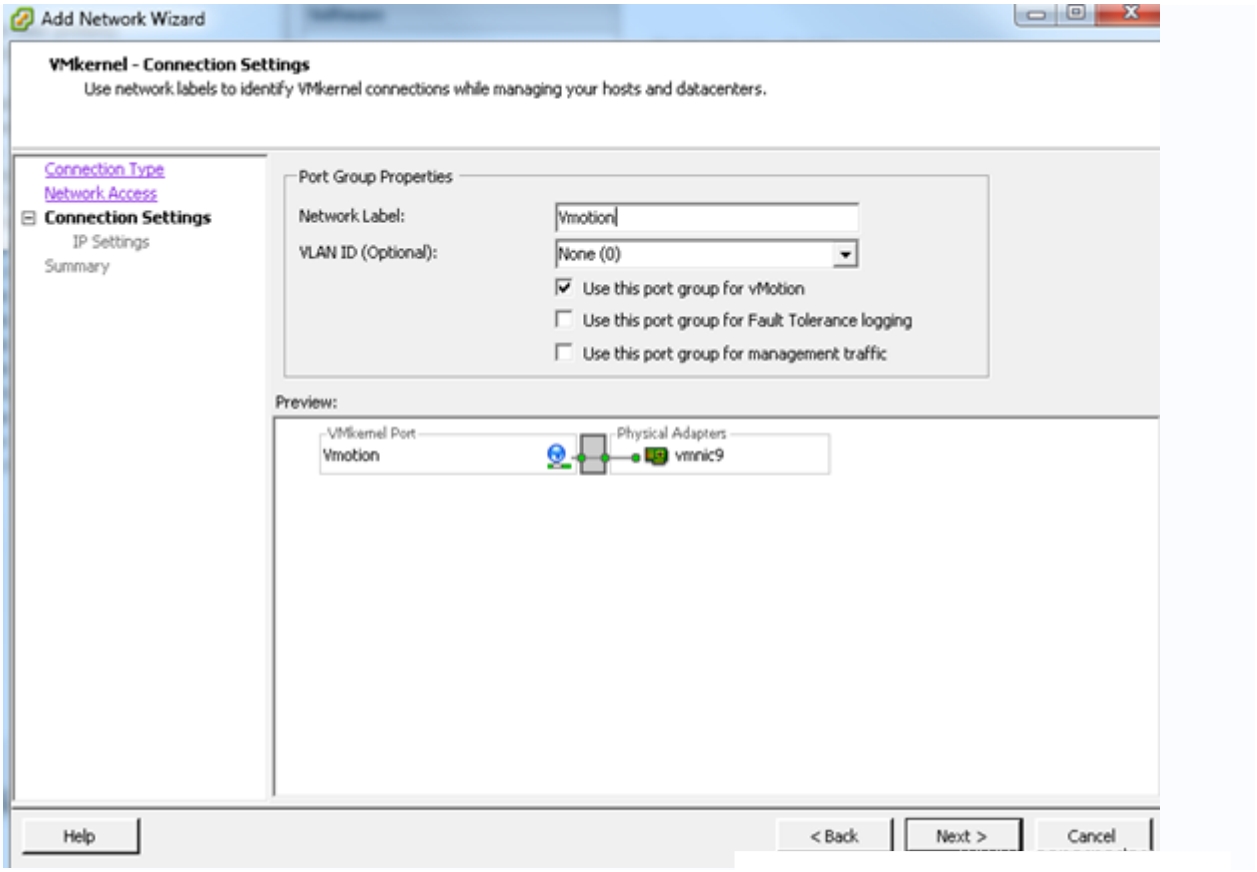


10. Select **VMKernel** and click on **Next.**



11. **Use this port group for VMotion.**

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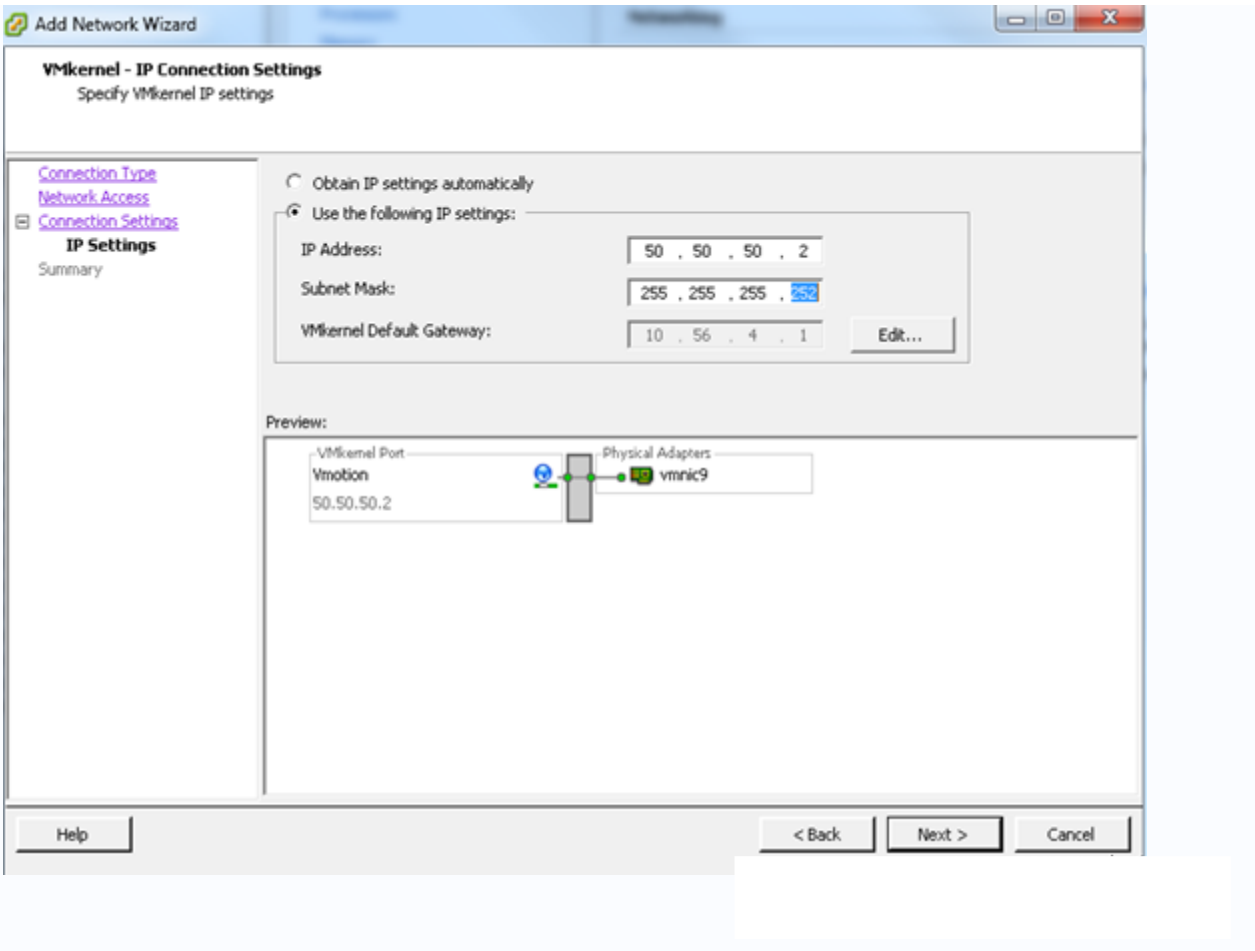
Use this port group for management traffic
Preview:
VMkernel Port
Vmotion
Physical Adapters
vmnic9
Help
< Back
Next >
Cancel

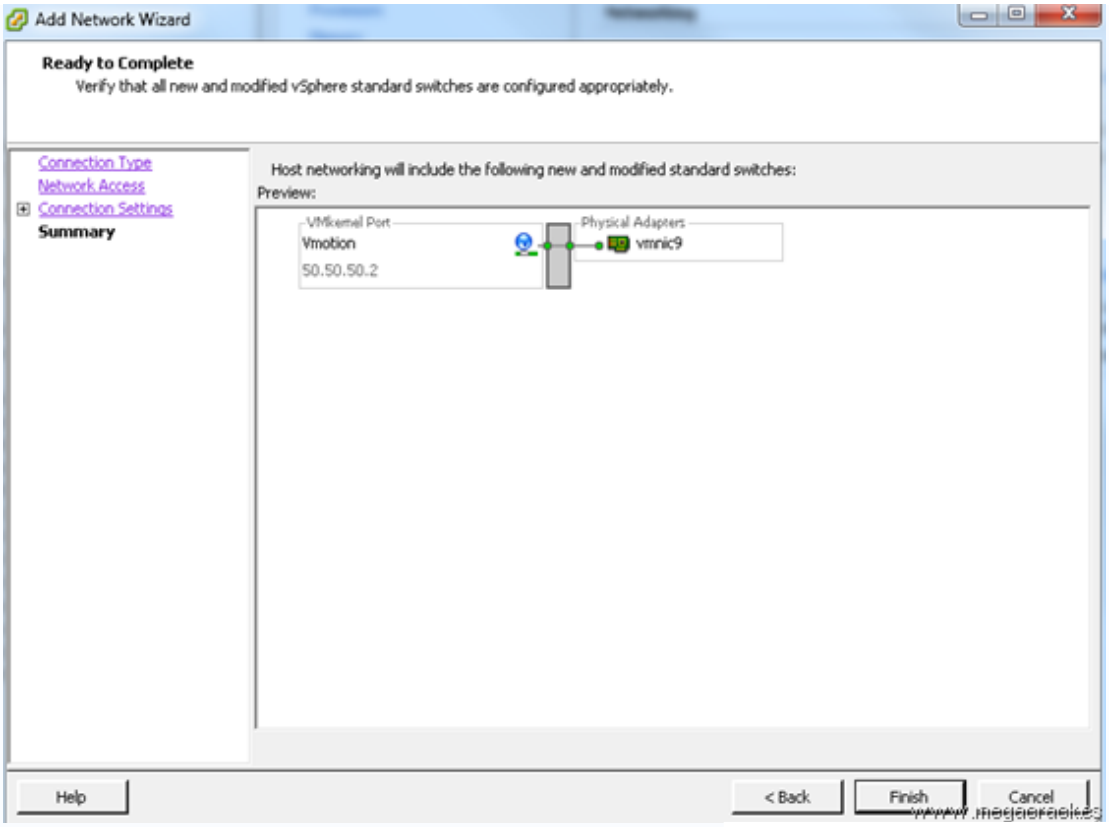
12. **IP Address: 50.50.50.2** (This ip must be different from the server that configured earlier 1).

    Subnet Mask: 255.255.255.252

    Click on **Next.**

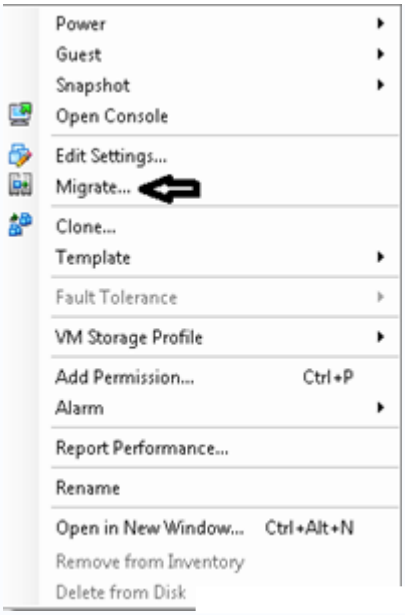


13. Click on **Finish**.

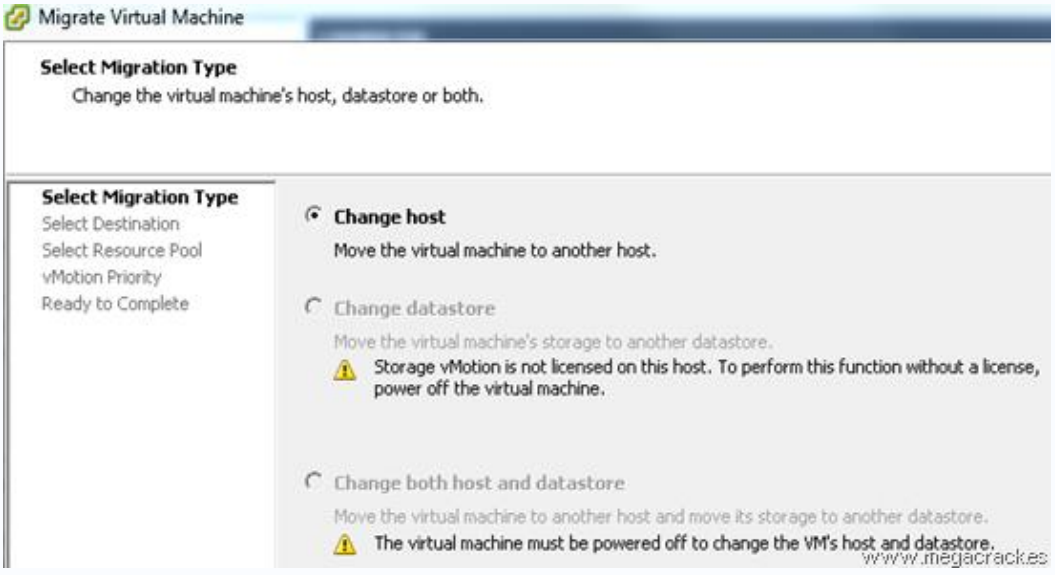


Now what we will do to ensure that the entire system is working properly migrate a VM from one ESXi to the other using Vmotion functionality you just configured.

14. Click on **Migrate.**

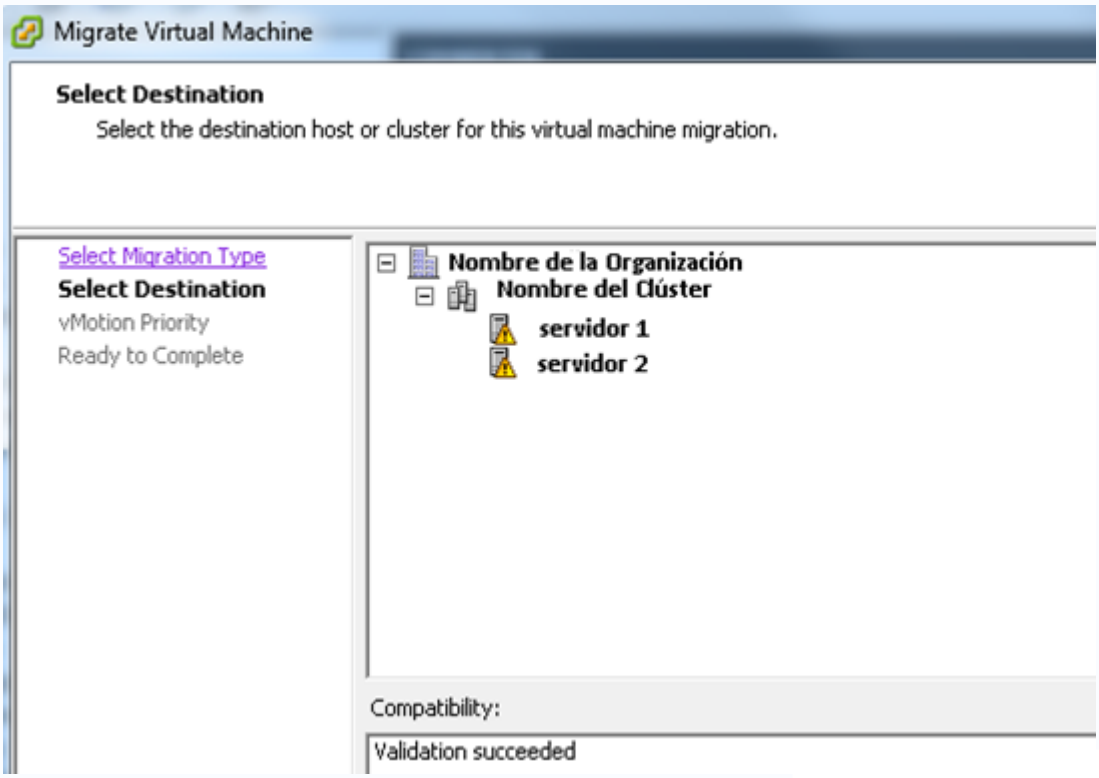


15. Click on **Next.**

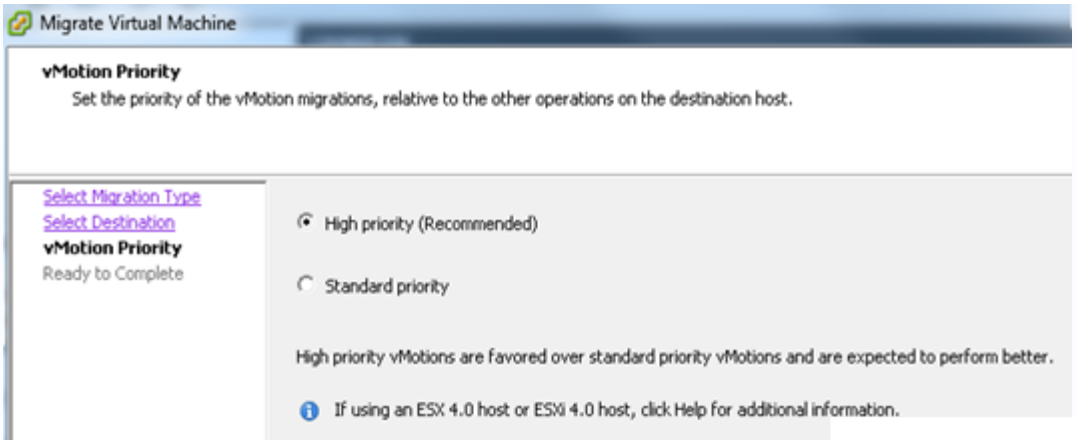


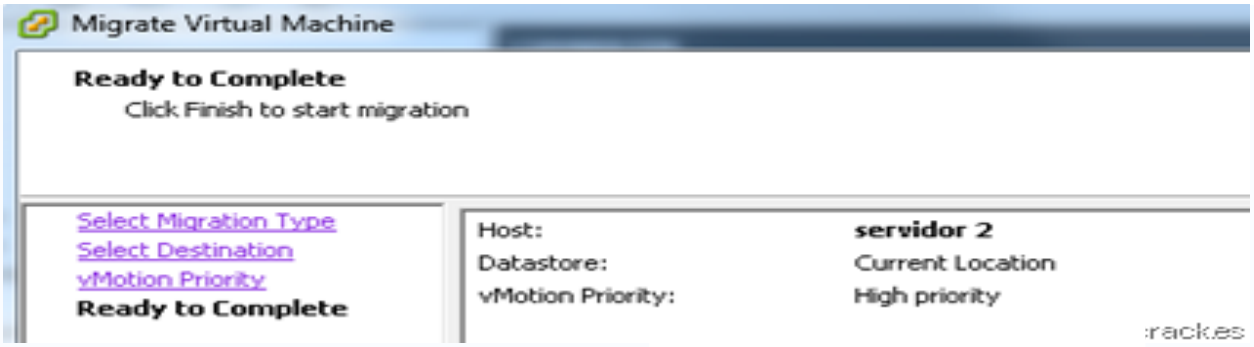
16. Select the target server where to move the virtual machine.

    Click on **Next.**



17. Click on **Next.**





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