Enterprise Standards and Best Practices For IT Infrastructure.

Sri Lanka Institute of Information Technology.

4th Year Second Semester.

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Practical Session: WE/Tuesday

Practical: Lab Assignment Vmotion

vMotion And vMotion Migration.

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 Migration can use the Migration wizard to migrate a powered-on virtual machine from one host to another using vMotion technology. To relocate the disks of a powered-on virtual machine, migrate the virtual machine using Storage vMotion.

vMotion can be used to,

- Improve overall hardware utilization.
- Allow continued virtual machine operation while accommodating scheduled hardware downtime.
- Allow vSphere distributed scheduler (DRS) to balance virtual machine across hosts.

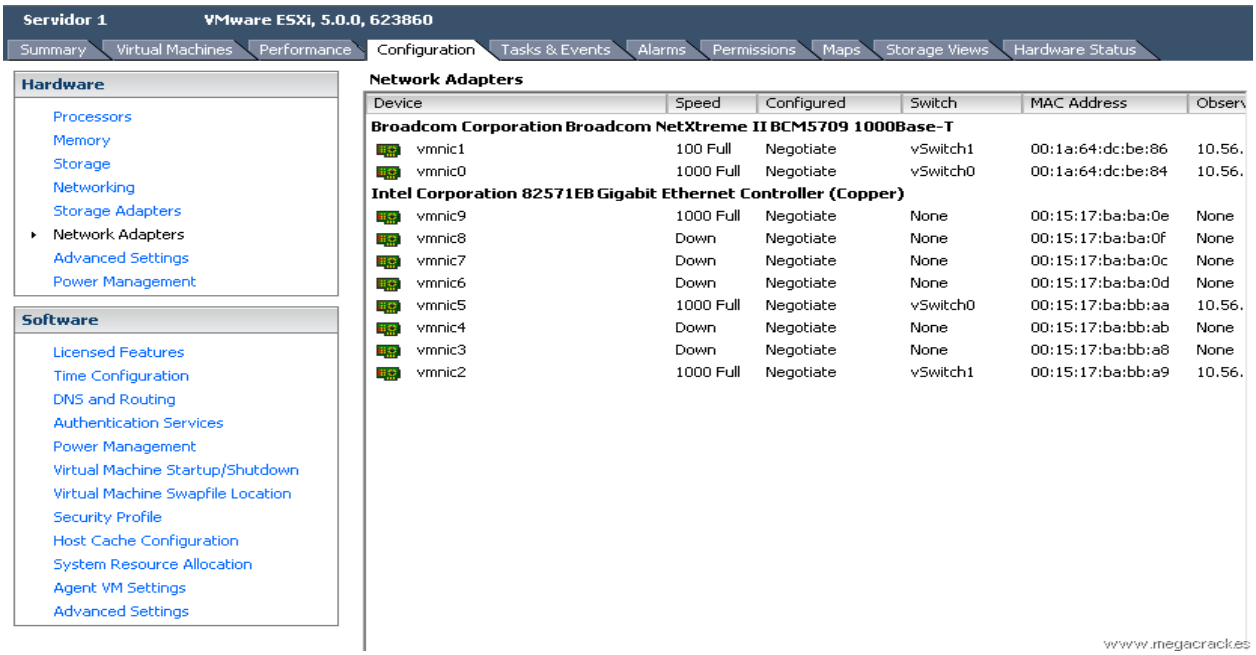
Advantages of the vMotion Migration.

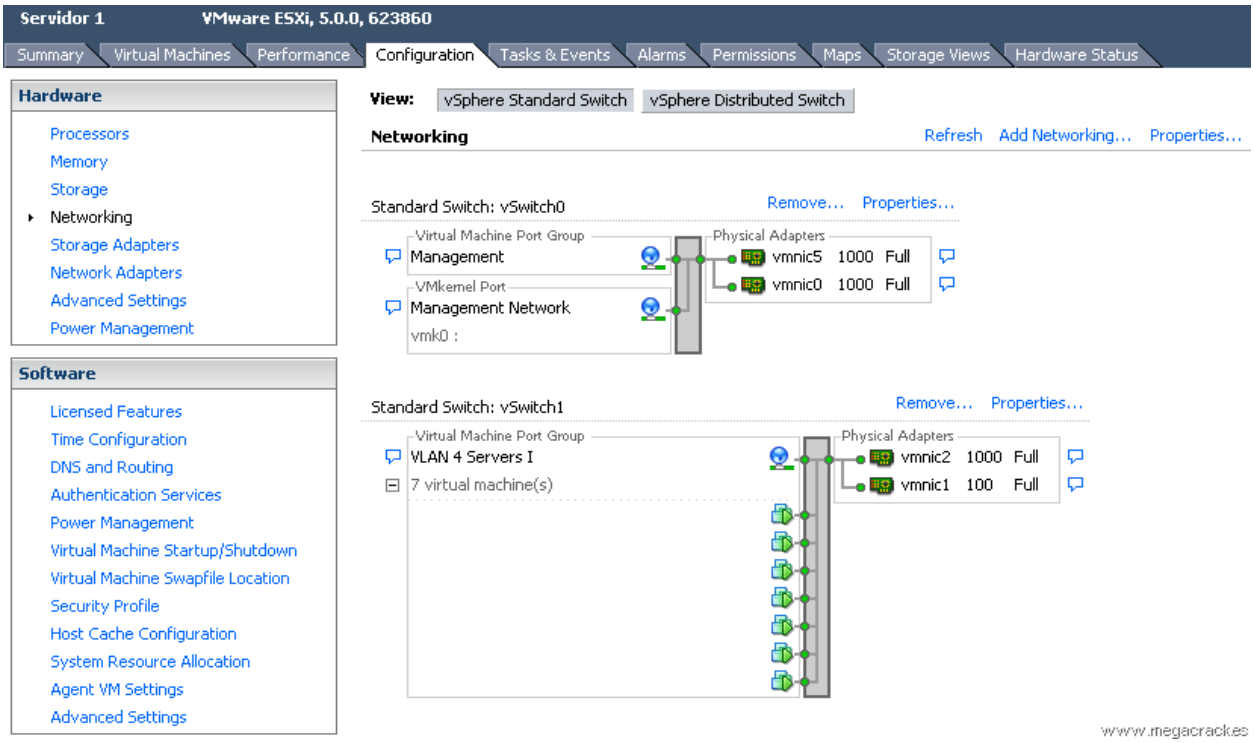
- Automatically optimize and allocate entire pools of resources.
- Move VM's from failing or underperforming priorities.
- Minimizes scheduled Downtime.

Disdvantages of the vMotion Migration.

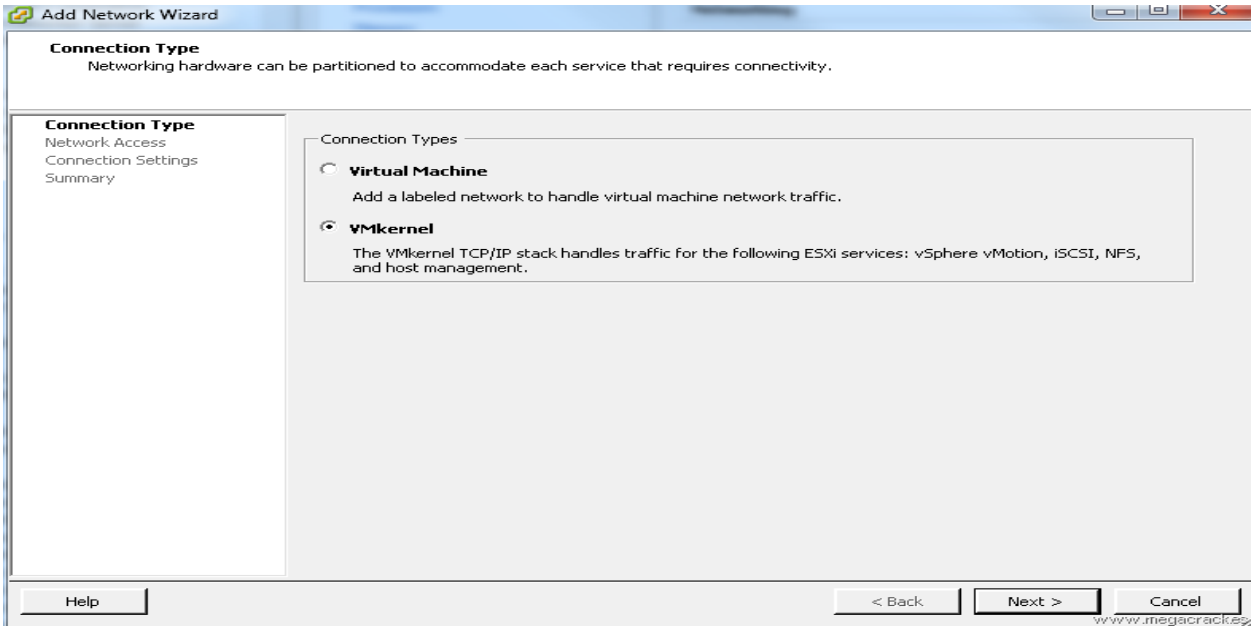
- VM type type may not be part of organization standard.
- Swivel is often deployed in the DMZ and a VM infrastructure may not be present.

1) Log in to the vmware vSphere Client to do the vmware vsphere migration. Go to the **Configuration** tab and click on **Network Adapters**.

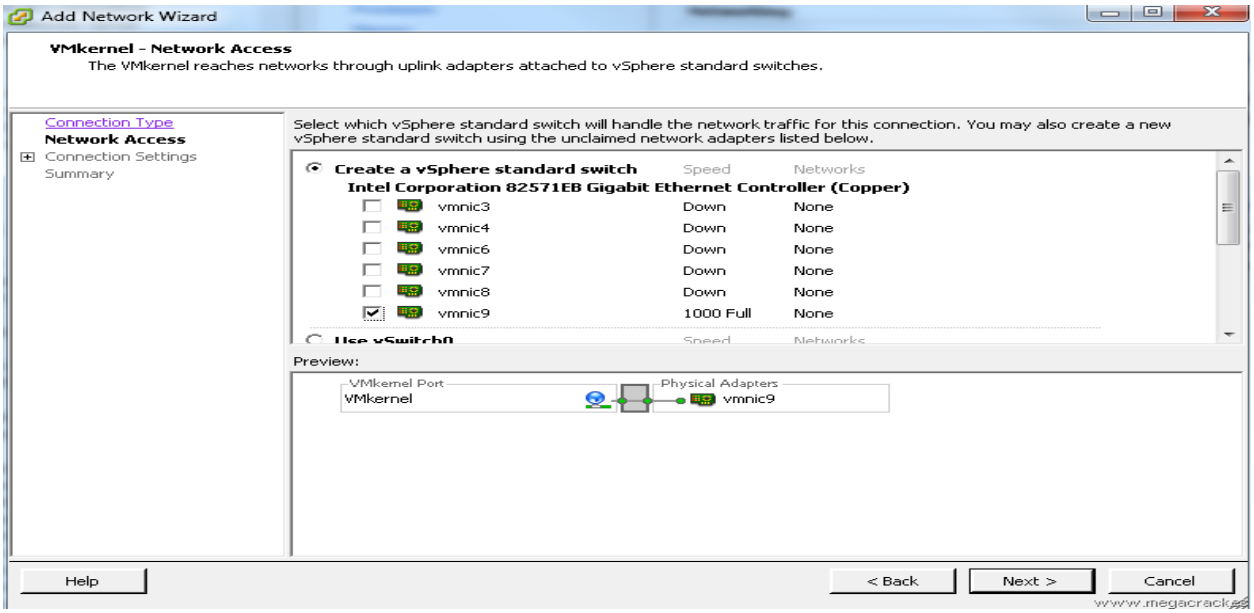




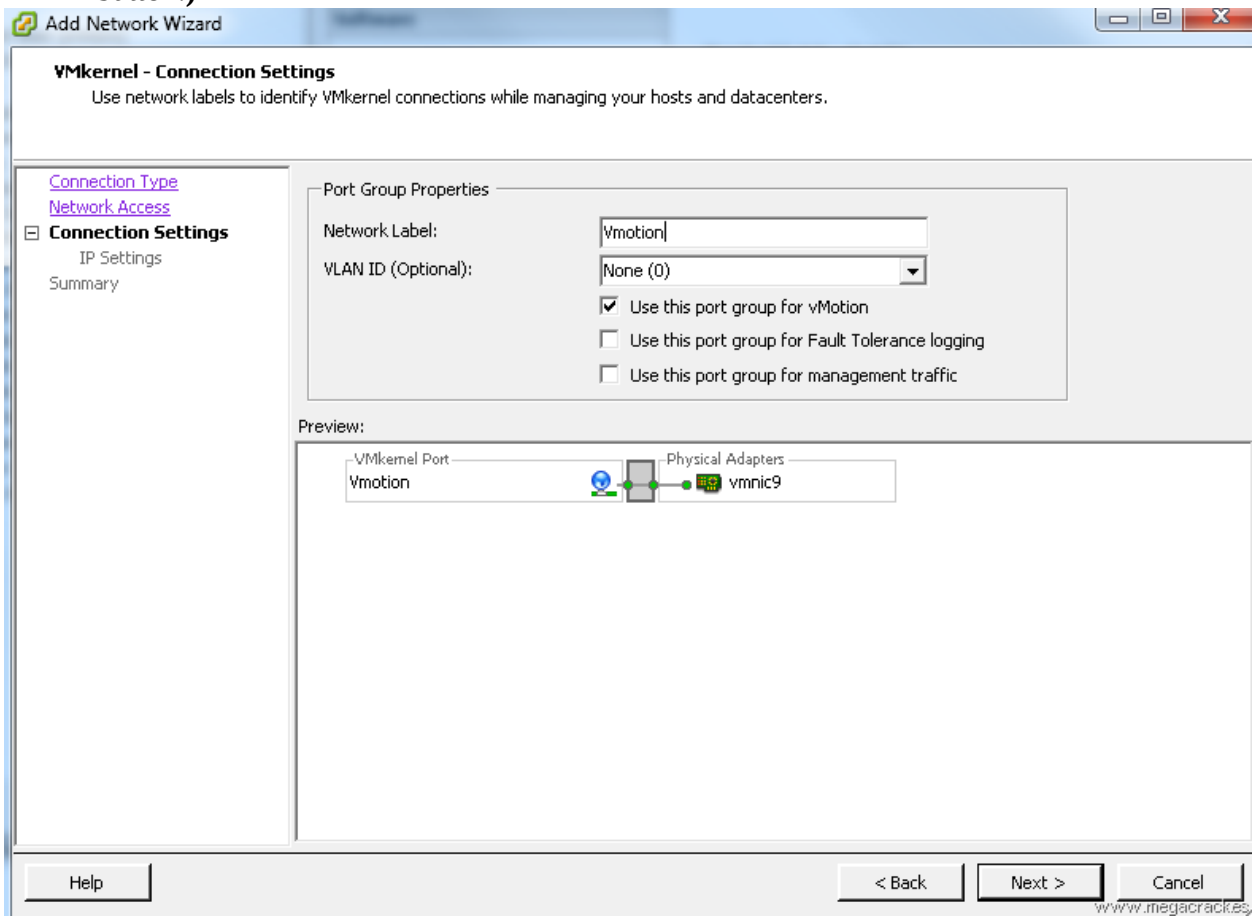
2) Now click on **Add Networking** to create the vSwitch. Select connection type as **VMKernel** in the Add network Wizard. then click Next.



3) After appearing this window then click next button. Do not change any default selection.



4) Making a network card or cards that have connected from one server to another (in our case **vmnic9**) And click on **Next (**give the network label as vMotion. And select the first option as the VLAN ID. This is key step of the scenario. After doing that click next button.**)**



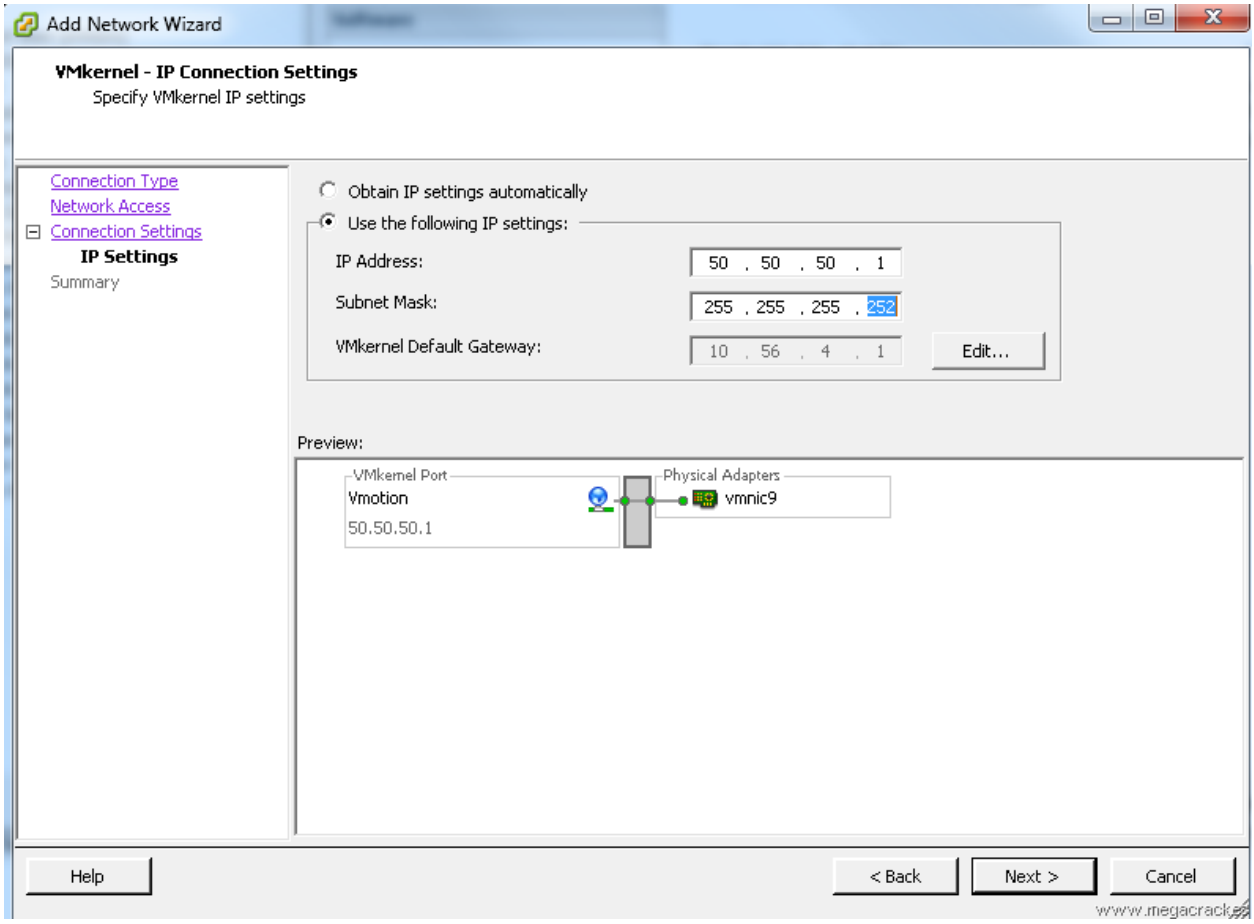
5) We set **Use this port group for vMotion.**

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

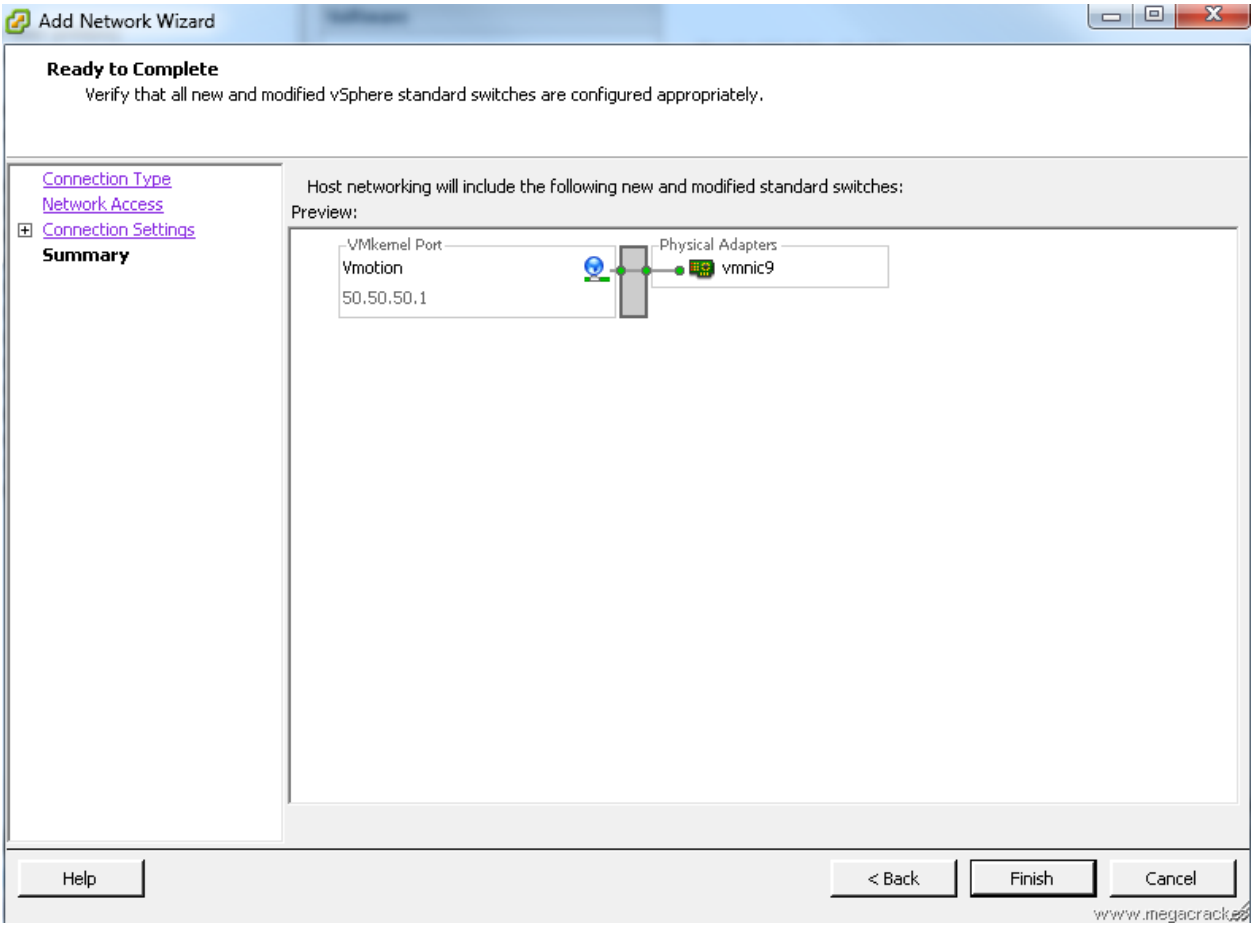
ip address – 50.50.50.1

Subnet Mask – 255.255.255.0

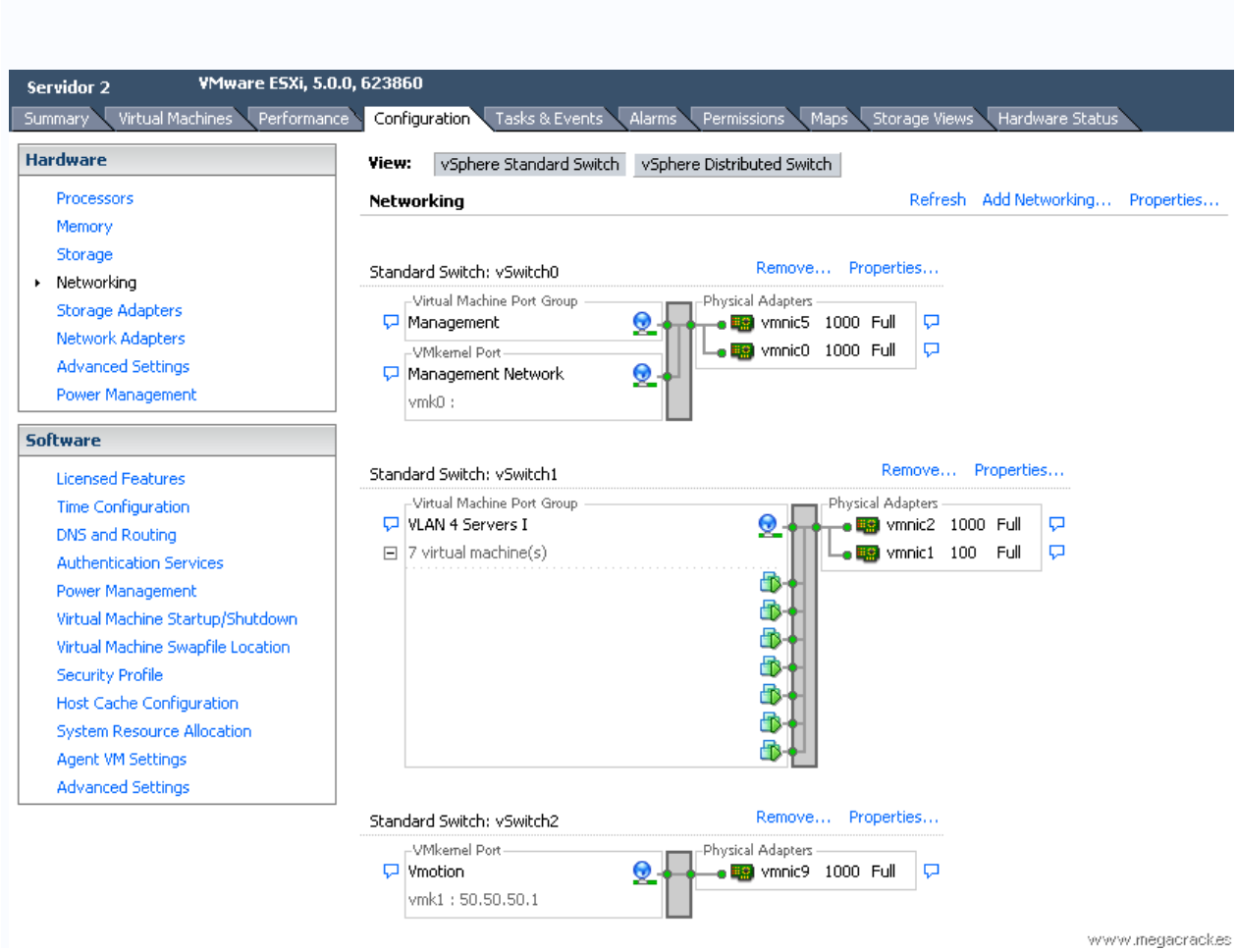
Then click on **Next**.

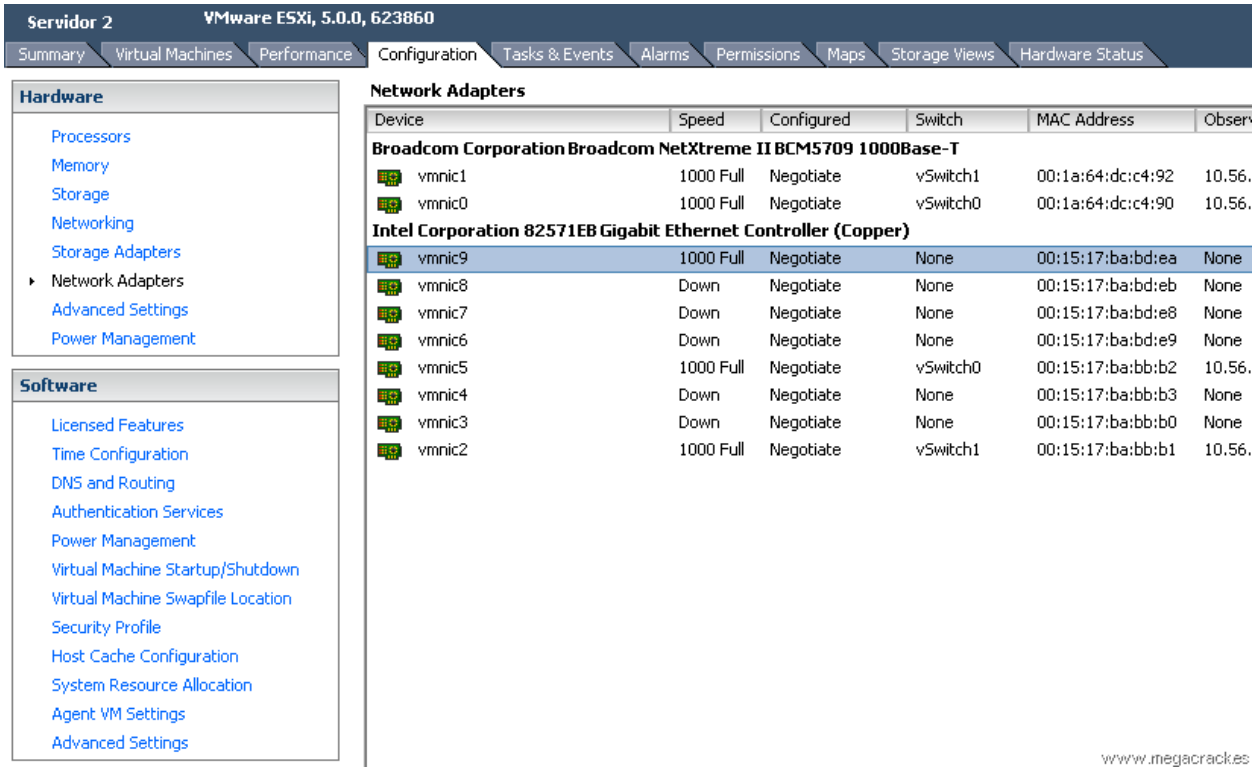


6) Click on **Finish** button.



7) Do the same procedure starting from step1 to step 7 to the exsi02.




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
Security Profile
Host Cache Configuration
System Resource Allocation
Agent VM Settings
Advanced Settings
Network Adapters
Device
Speed
Configured
Switch
MAC Address
Broadcom Corporation Broadcom NetXtreme II BCM5709 1000Base-T
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.
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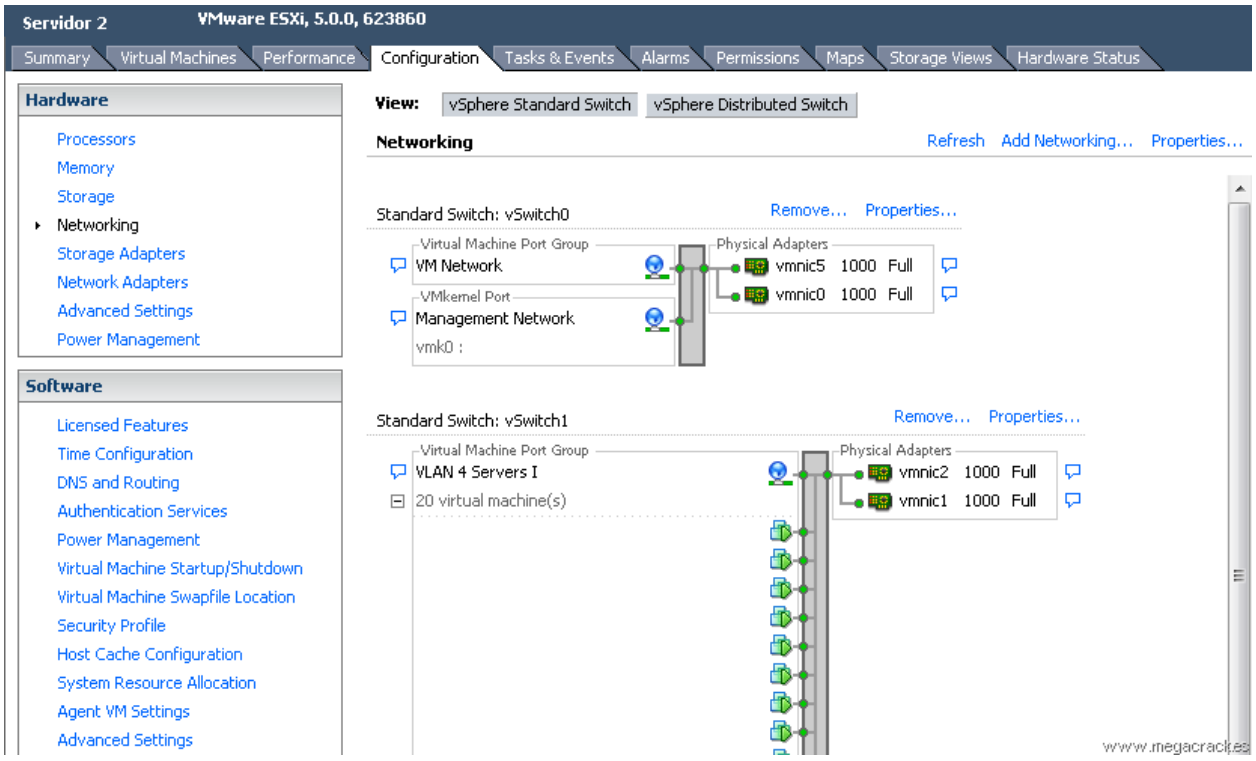
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System Resource Allocation
Agent VM Settings
Advanced Settings
View:
vSphere Standard Switch
vSphere Distributed Switch
Networking
Refresh
Add Networking...
Properties...
Standard Switch: vSwitch0
Remove...
Properties...
Virtual Machine Port Group
VM Network
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
20 virtual machine(s)
Physical Adapters
vmnic2 1000 Full
vmnic1 1000 Full
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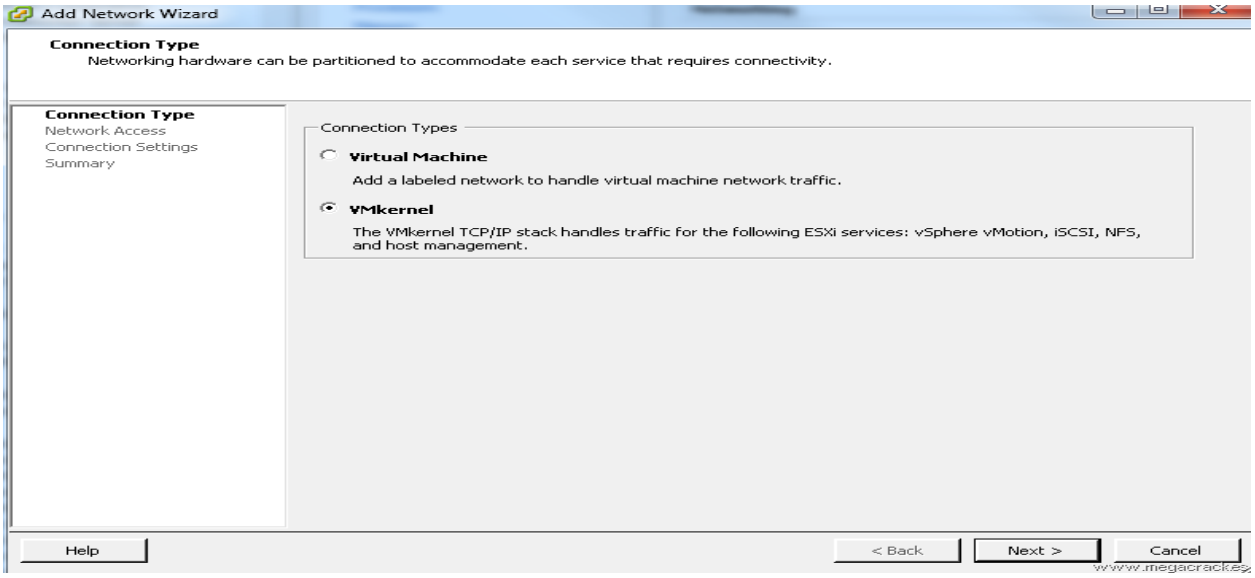
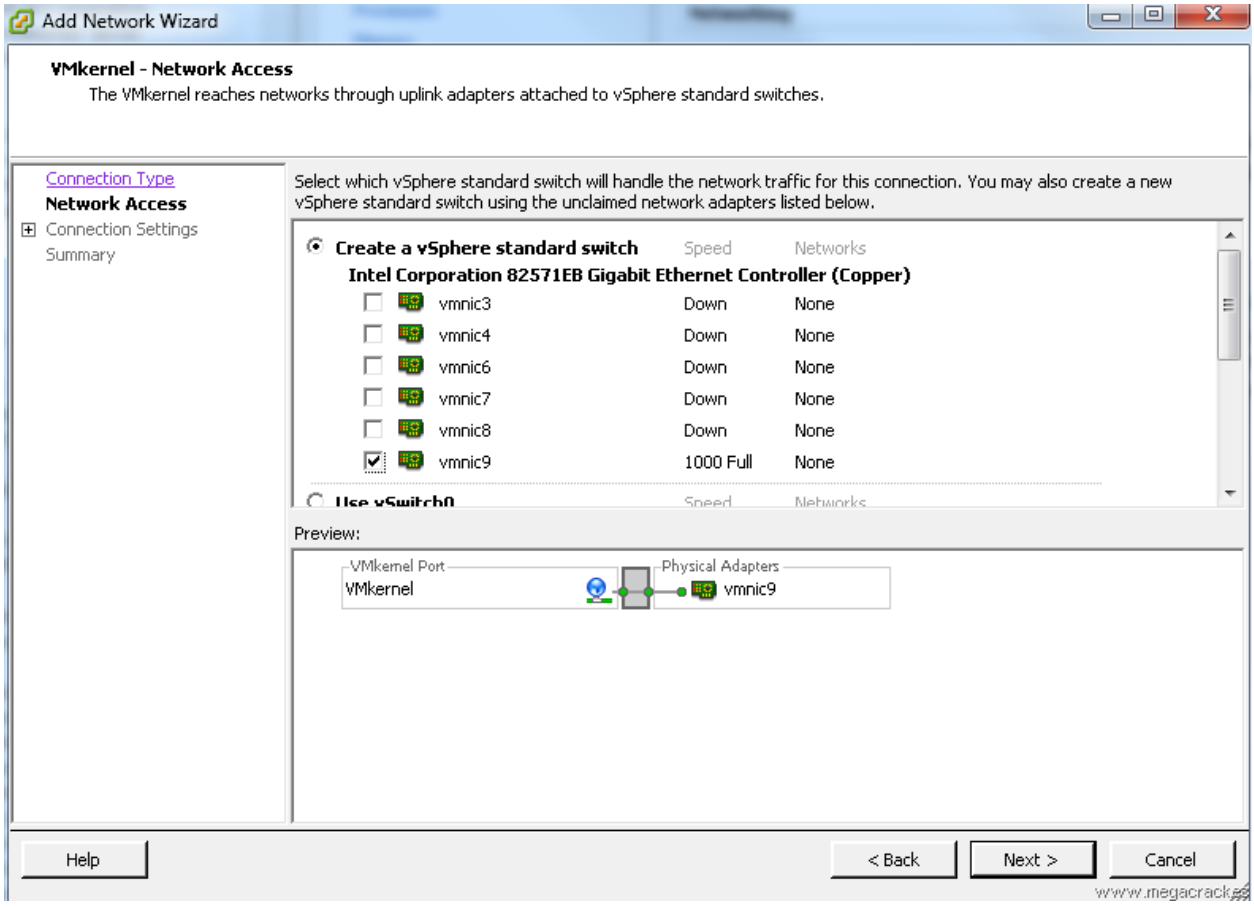
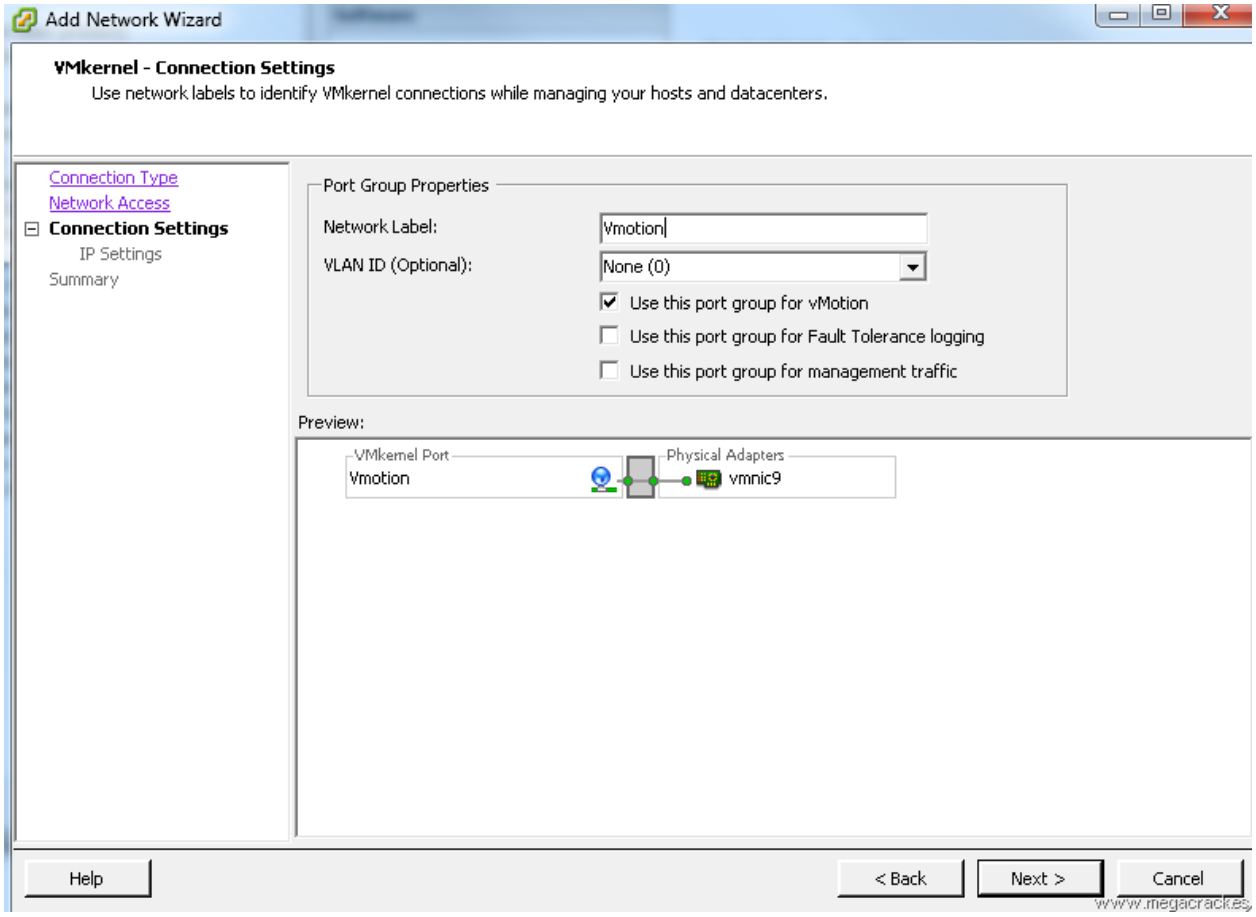


8) Making a network card or cards that have connected from one server to another (in our case **vmnic9**) And click on **Next.**



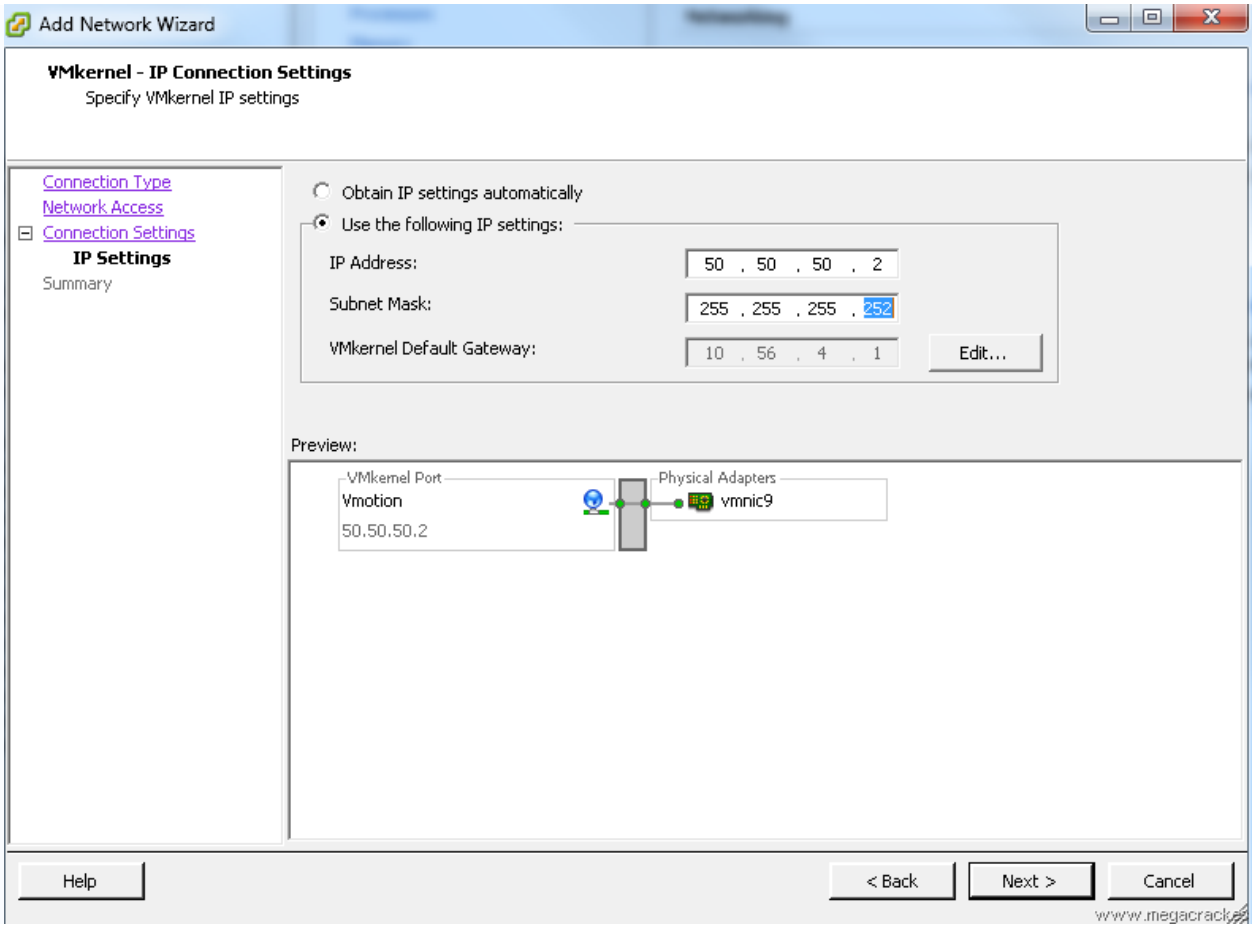


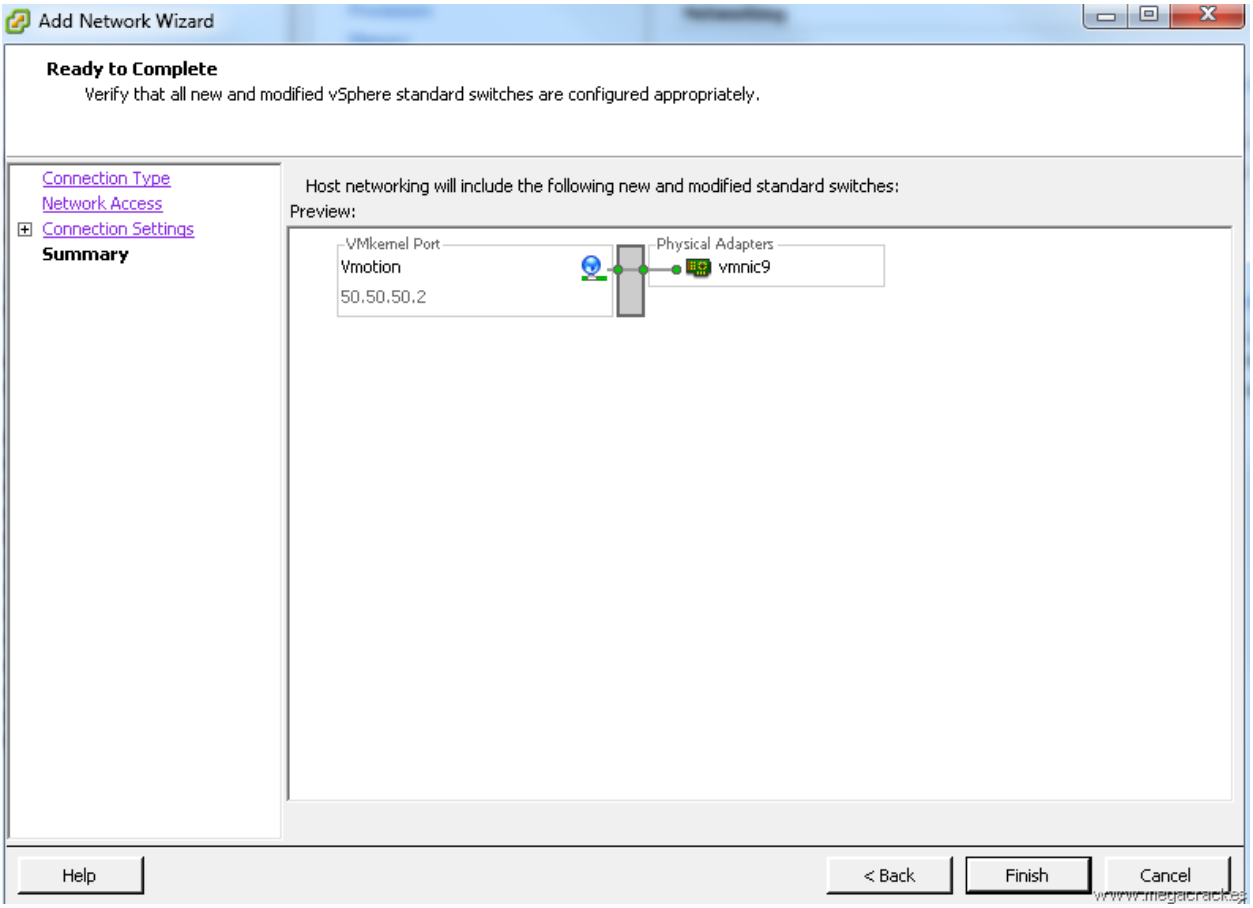
9) We set **Use the following IP settings:**

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

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

Click on **Next.**

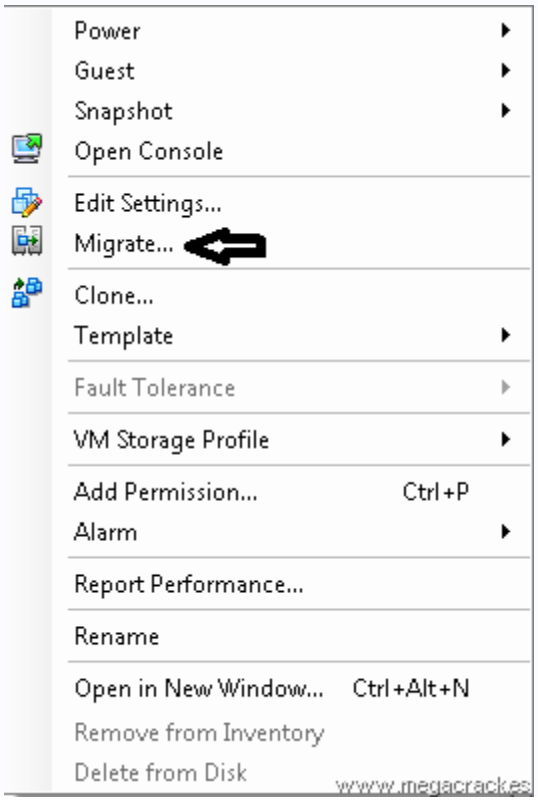




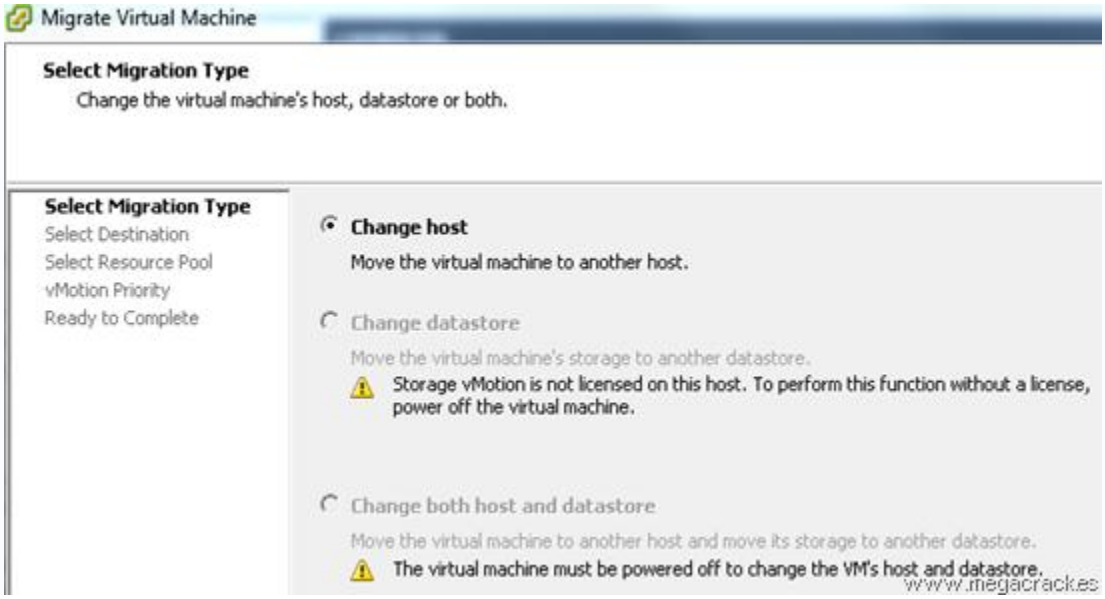
Click on **Finish**.

10) To ensure that the entire system is working properly migrate a VM from one ESXi to the other using Vmotion functionality you just configured.

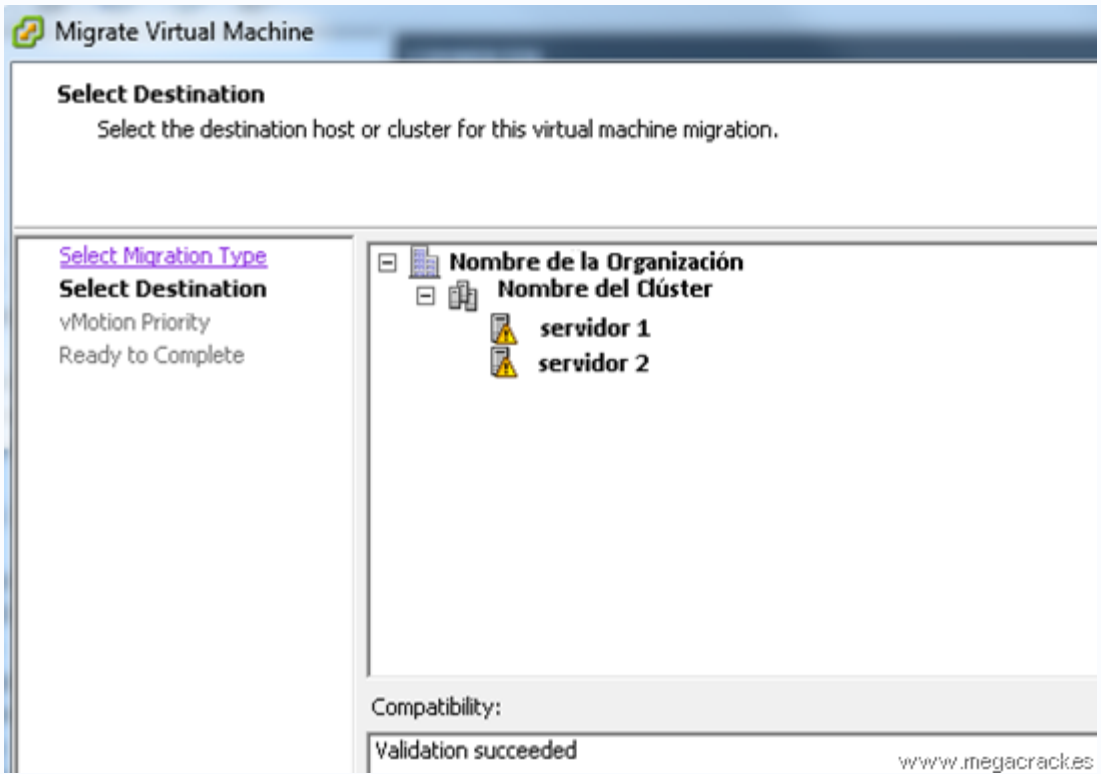
Press the right mouse button on a virtual machine



11) Click on **Migrate**

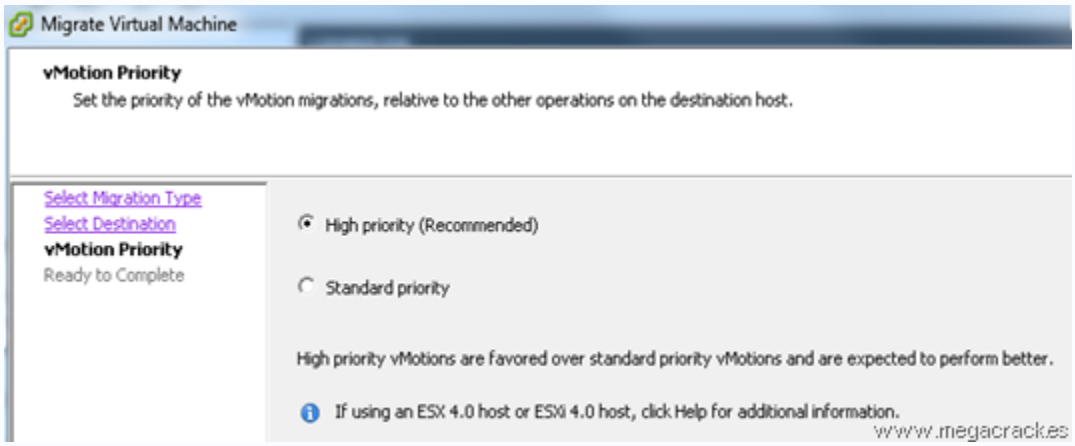


Click on **Next**

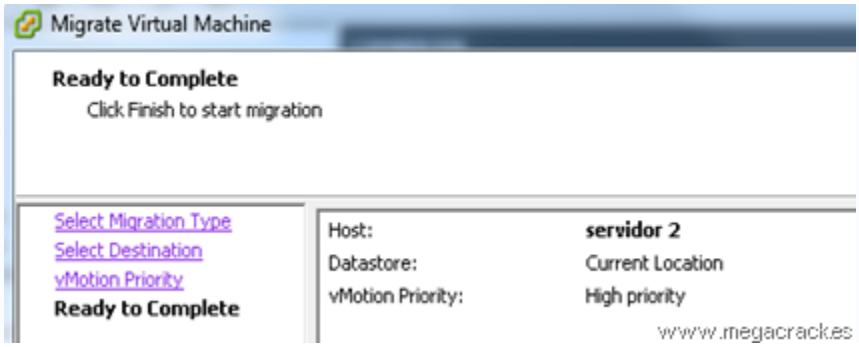


12) Select the target server where we will move the virtual machine.

Click on **Next**



Click on **Next**



13) Click on **Finish** to start the migration

Requirements vMotion Migration.

Hardware Requirements vMotion Migration.

- Virtual machine must have a connection to a virtual device (such as a CD ROM or floppy drive) with a local image mounted.
- Virtual machine must not have a connection to an internal vSwitch (vSwitch with zero upload adapters)
- A virtual machine must not have CPU affinity configured.

Host Requirements for vMotion Migration.

Source and destination host must have

- Visibility to all storage(fiber channel,iSSCI or NAS) used by the virtual machine.
- At least a Gigabit Ethernet network,
    1. Four concurrent vMotion migrations on a 1 Gbps network.
    2. Eight concurrent vMotion Migrations on a 10 Gbps network.
- Access on the same physical network compatible CPU.
- The hosts must be licensed for vMotion.
- The hosts must be running ESXi 5.1 or later.
- The hosts must meet the networking requirement for vMotion.
- The host on which the virtual machine is running must have a license that includes Storage vMotion.

Software Requirements for vMotion Migration.

- Server requires a 64-bit operating system, and the 64-bit system DSN is required for vCenter Server to connect to its database.
- vCenter Server requires the Microsoft .NET 3.5 SP1 Framework. If it is not installed on your system, the vCenter Server installer installs it.
- The .NET 3.5 SP1 installation might require Internet connectivity to download more files.

Storage Requirements for vMotion Migration

- Virtual machines with snapshots cannot be migrated using Storage vMotion.
- Virtual machine disks must be in persistent mode or be raw device mappings (RDMs).
- Migration of virtual machines during VMware Tools installation is not supported.
- The host on which the virtual machine is running must have a license that includes Storage vMotion.
- The host on which the virtual machine is running must have access to both the source and target data stores.

Methods for addressing CPU Compatibility Requirements

There are several methods which can be used to address vMotion CPU Compatibility requirements.

1. Procure CPU with identical CPU.
2. Compatibility masking in the VSphere client.
3. Enhanced the vMotion compatibility.