



SRI LANKA INSTITUTE OF INFORMATION TECHNOLOGY

Enterprise Standards and Best Practices for IT Infrastructure

4th Year 2nd Semester 2016

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Practical Session: WD Friday

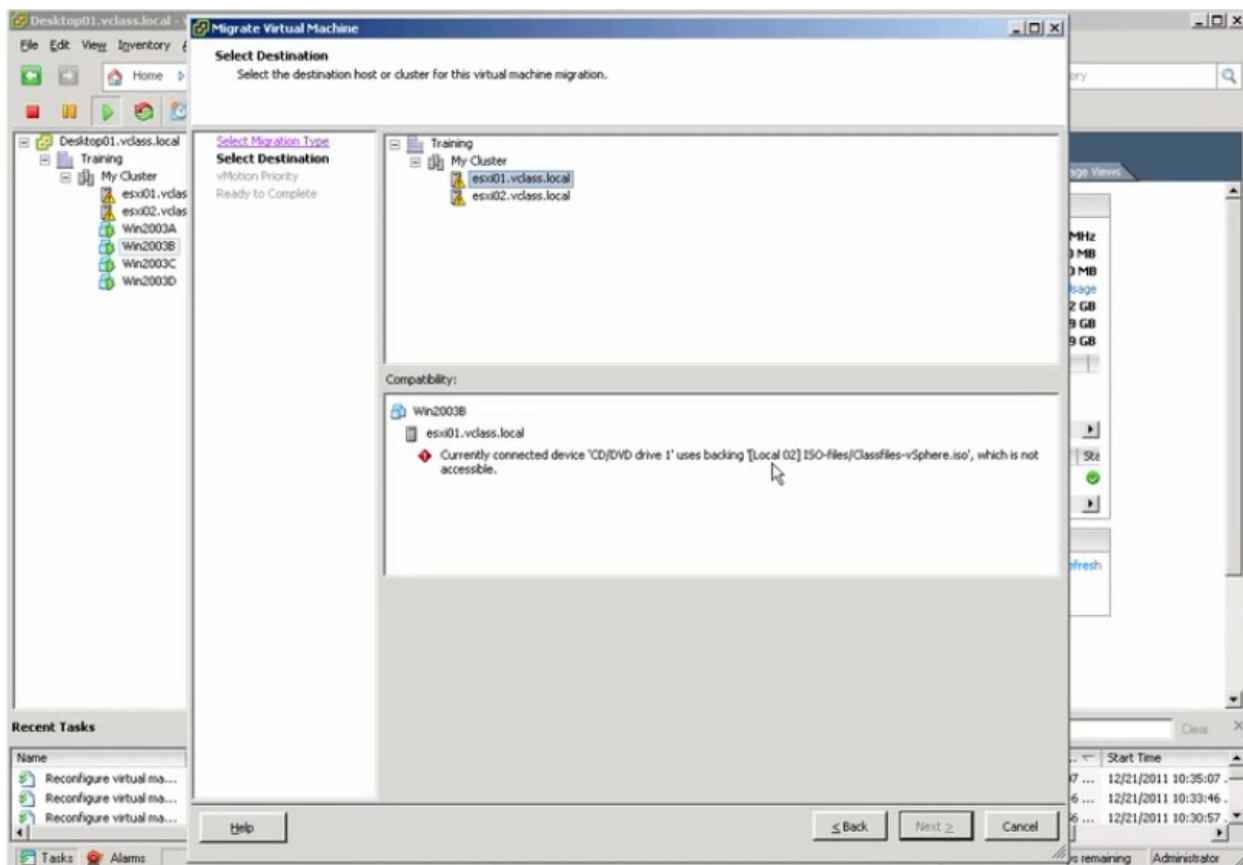
Practical Number: Vmotion Lab

vMotion

virtual machine can move from one physical server to another while it's running without any downtime to end users. (running virtual machine moves from one host to another)

1. vMotion Requirements

- virtual machine must not have a connection to a virtual device such as a CD-ROM with a logical image mounted. if they are connected to a host, that will block the Motion migration. solution- store those devices in a shared data store.
- need to make sure to have storage between ESXi servers- iSCSI, CF, NFS (shared storage) so the both hosts can see the vm files from the shared storage.
- each host must have the Gigabit Ethernet network connection.
- host must be plugged into the same physical network.
- vMotion works with standard switches or distributed virtual switches.
- should have CPU compatibility. otherwise we can't do the migration. following is happen when there is no CPU compatibility. it says that the vMotion is blocking because, there is a CD-ROM is attached to the data store that is not accessible to the host.



```
Random_Init: Using random seed: 2044292605 (0x79d96dfd)
Reporting CPUID for 2 logical CPUs...

All CPUs are identical

Family: 06 Model: 17 Stepping: 6

ID1ECX    ID1EDX    ID01ECX    ID01EDX
0x00002201 0x0febfbff 0x00000001 0x20100000

Vendor      : Intel
Brand String : "Intel(R) Xeon(R) CPU           X5482  @ 3.20GHz"
SSE Support : SSE1, SSE2, SSE3, SSSE3, SSE4.1
Supports NX / XD : Yes
Supports CMPXCHG16B : Yes
Supports RDTSCP : No
Hyperthreading : No
Supports Flex Migration : Yes
Supports 64-bit Longmode : Yes
Supports 64-bit VMware : No
Supported EUC modes : None

PASS: Test 56983: CPUID
Press any key to reboot.
```

One way to identify CPU characteristics is to use the VMware CPU identification utility.

2. Benefits of vMotion.

- Automatically optimize and allocate entire pools of resources.

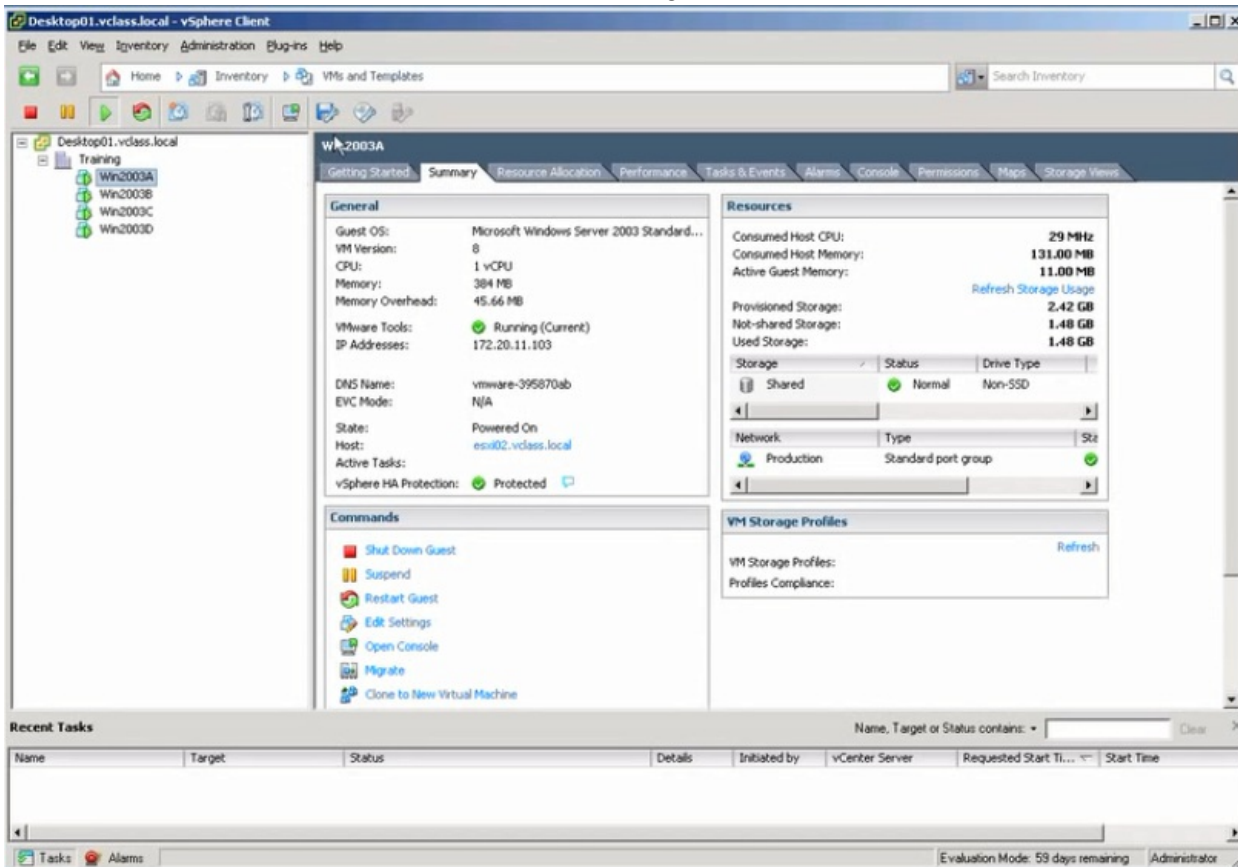
By having all your server and/or desktops virtualized you can move VM's from one physical host to another, which is done rapidly over a high speed network connection, the original host and destination host stay in sync until the transfer is complete leaving the user unaware of the move. This allows network administrators to easily select resource pools to assign to the different VMs.

- minimize the scheduled downtime.

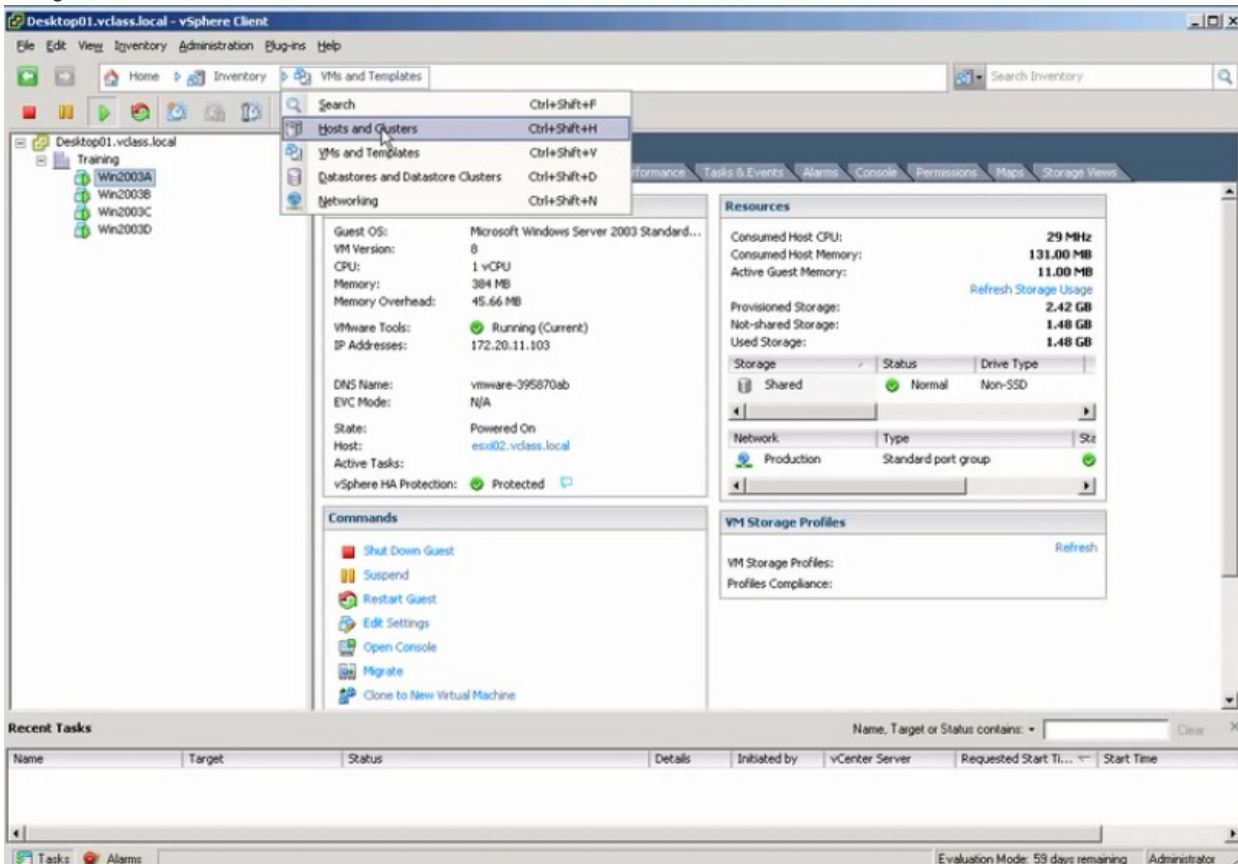
only have to move the VM to another physical host, creating zero downtime for the users and allowing administrators to perform maintenance at any time.

3. How to configure hosts to do the vMotion.

first make sure the virtual machines are residing inside a shared storage.



change VMs to the hosts and clusters.



then create VM kernel port on each host.

select the 1st ESXi host and go to the configuration tab --> networking.

Desktop01.vclass.local - vSphere Client

File Edit View Inventory Administration Plug-ins Help

Home > Inventory > Hosts and Clusters

Search Inventory

Desktop01.vclass.local

My Cluster

- esxi01.vclass.local
- esxi02.vclass.local
- Win2003A
- Win2003B
- Win2003C
- Win2003D

esxi01.vclass.local VMware ESXi, 5.0.0, 469512 | Evaluation (33 days remaining)

Getting Started Summary Virtual Machines Performance Configuration Tasks & Events Alarms Permissions Maps Storage Views Hardware Settings

Configuration Issues

This host currently has no management network redundancy

General

Manufacturer: VMware, Inc.
 Model: VMware Virtual Platform
 CPU Cores: 2 CPUs x 2.933 GHz
 Processor Type: Intel(R) Xeon(R) CPU X5570 @ 2.93GHz
 License: Evaluation Mode -

Processor Sockets: 2
 Cores per Socket: 1
 Logical Processors: 2
 Hyperthreading: Inactive
 Number of NICs: 4
 State: Connected
 Virtual Machines and Templates: 0
 vMotion Enabled: No
 VMware EVC Mode: Disabled

vSphere HA State: ☒ Connected (Slave)
 Host Configured for FT: No

Active Tasks: Host Profile: (Updated) ESXi-5.0.0-4695...

Resources

CPU usage: 79 MHz Capacity: 2 x 2.933 GHz
 Memory usage: 944.00 MB Capacity: 2559.49 MB

Storage

Storage	Status	Drive Type
Datastore A	Normal	Non-SSD
Datastore B	Normal	Non-SSD
Local 01	Normal	Non-SSD
Shared	Normal	Non-SSD

Network

Network	Type	St
Production	Standard port group	<input checked="" type="checkbox"/>
VM Network	Standard port group	<input checked="" type="checkbox"/>
vDS01-DVUplinks...	Uplink port group	<input checked="" type="checkbox"/>
TestDev	Distributed port group	<input checked="" type="checkbox"/>

Fault Tolerance

Fault Tolerance Version: 2.0.1-3.0.0-3.0.0

Recent Tasks

Name Target Status Details Initiated by vCenter Server Requested Start Ti... Start Time

Tasks Alarms

Evaluation Mode: 59 days remaining Administrator

then select **Add networking**.

Desktop01.vclass.local - vSphere Client

File Edit View Inventory Administration Plug-ins Help

Home > Inventory > Hosts and Clusters

Search Inventory

Desktop01.vclass.local

My Cluster

- esxi01.vclass.local
- esxi02.vclass.local
- Win2003A
- Win2003B
- Win2003C
- Win2003D

esxi01.vclass.local VMware ESXi, 5.0.0, 469512 | Evaluation (33 days remaining)

Getting Started Summary Virtual Machines Performance Configuration Tasks & Events Alarms Permissions Maps Storage Views Hardware Settings

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

View: vSphere Standard Switch vSphere Distributed Switch

Networking Refresh Add Networking... Properties...

Standard Switch: vSwitch0 Remove... Properties...

Virtual Machine Port Group: VM Network Physical Adapters: vmnic0 1000 Full

Virtual Machine Port: Management Network vmnic0 : 172.20.10.51

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

Virtual Machine Port Group: Production Physical Adapters: vmnic1 1000 Full

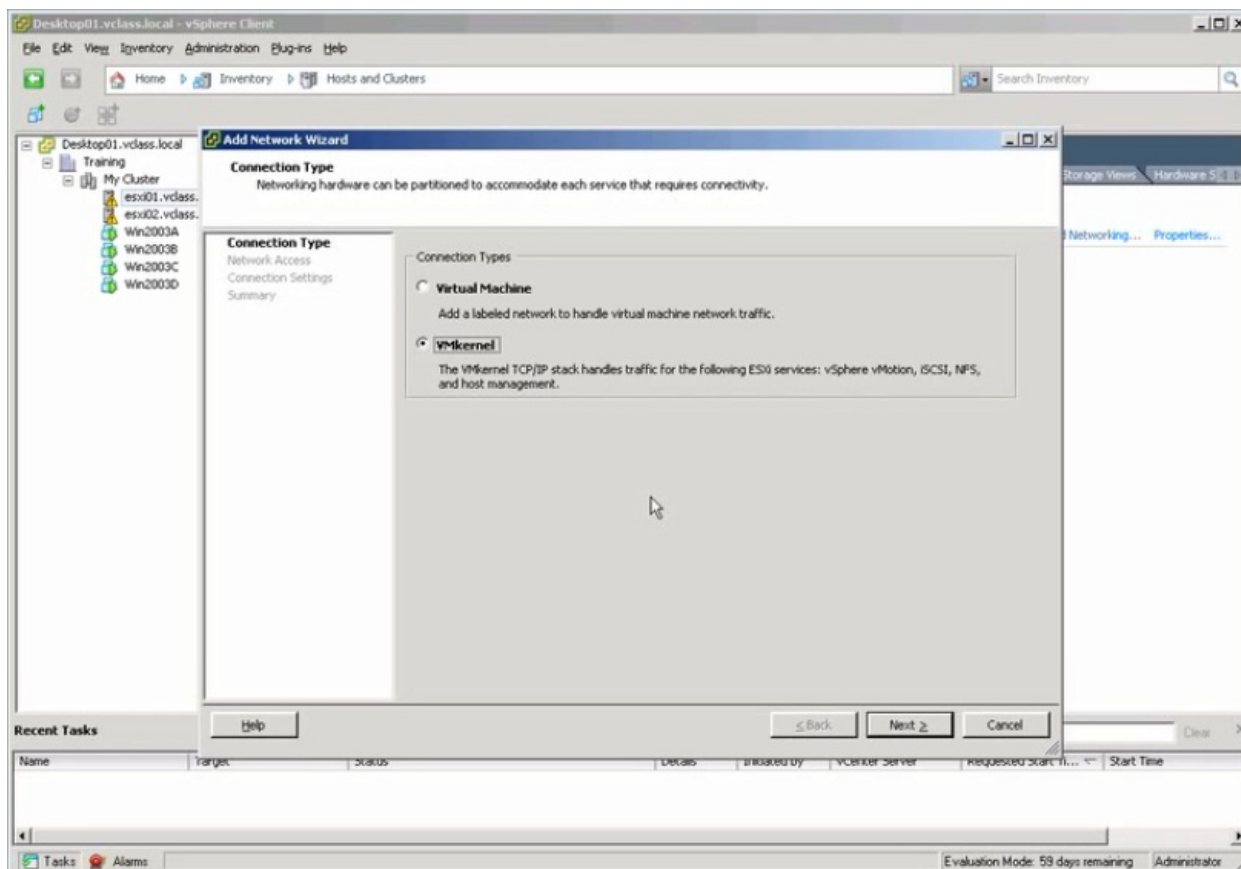
Recent Tasks

Name Target Status Details Initiated by vCenter Server Requested Start Ti... Start Time

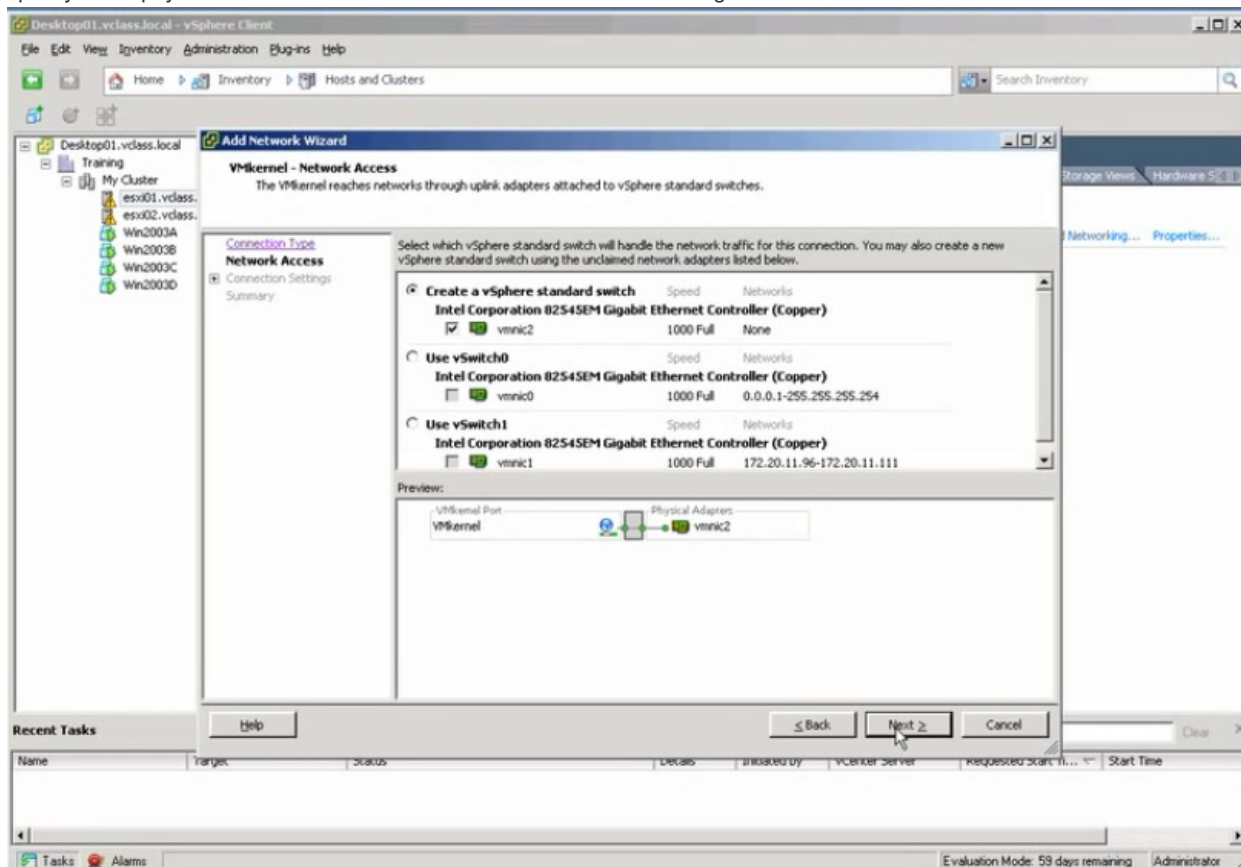
Tasks Alarms

Evaluation Mode: 59 days remaining Administrator

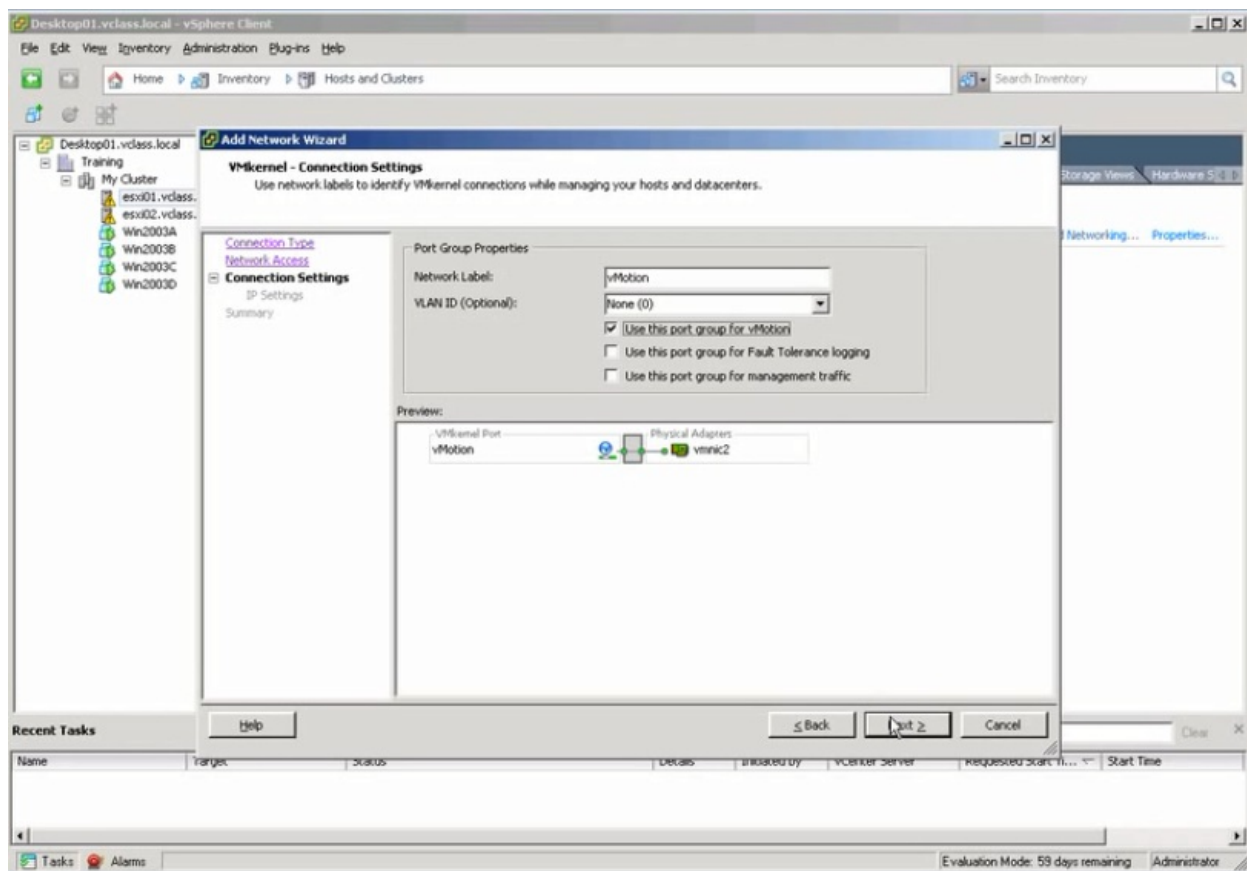
select the **VMkernel** and go next.



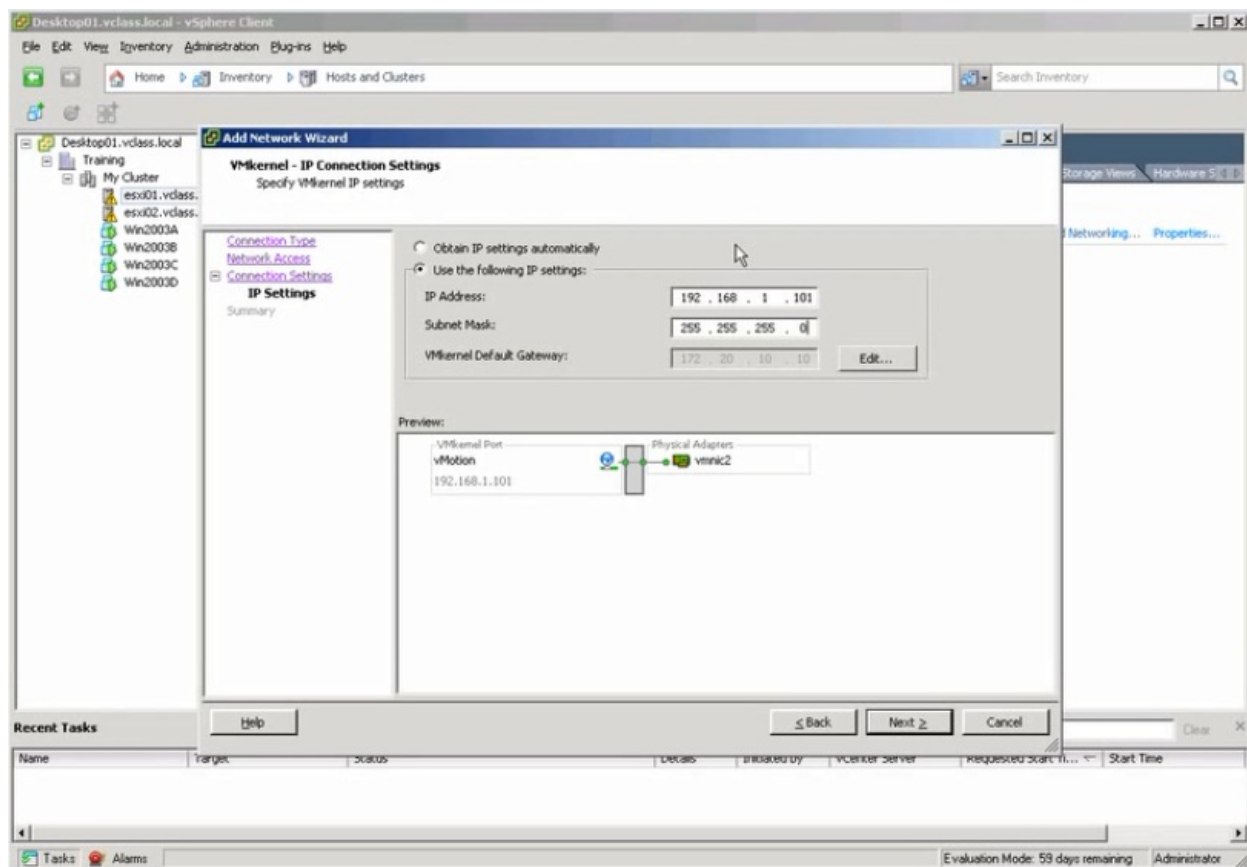
specify which physical network the vMotion traffic will be transmitted through.



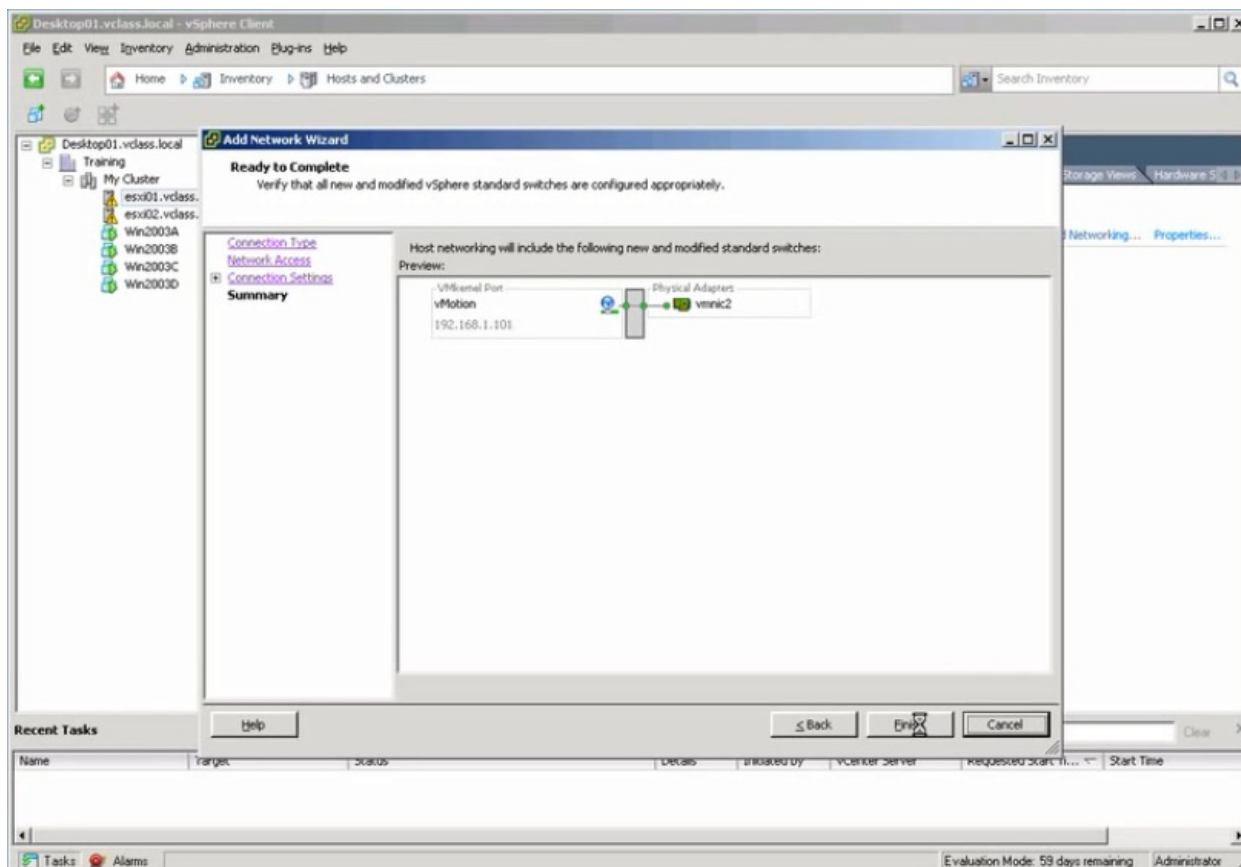
Then click **next**.



tick the use the port group for vMotion and click next.

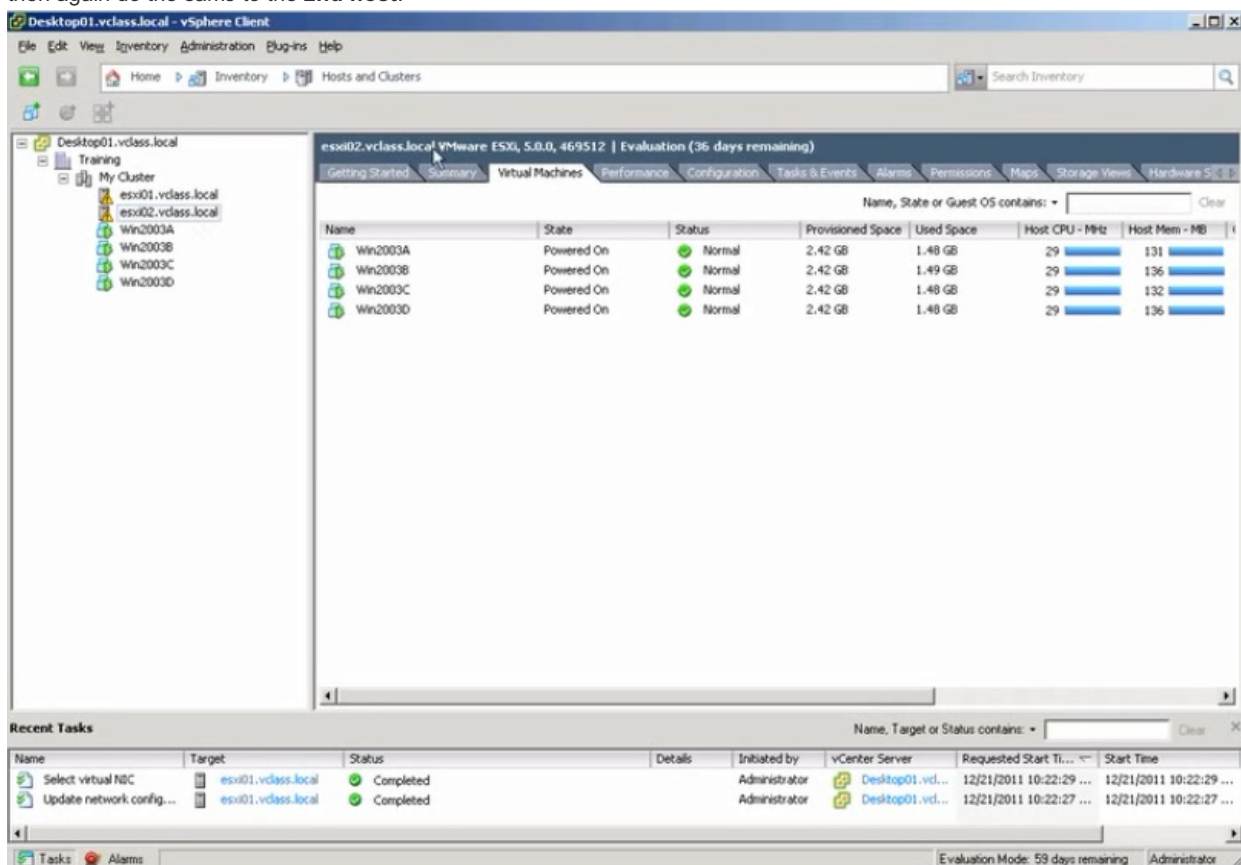


specify the ip address (198.168.1.101)and the subnet mask. and then click next.

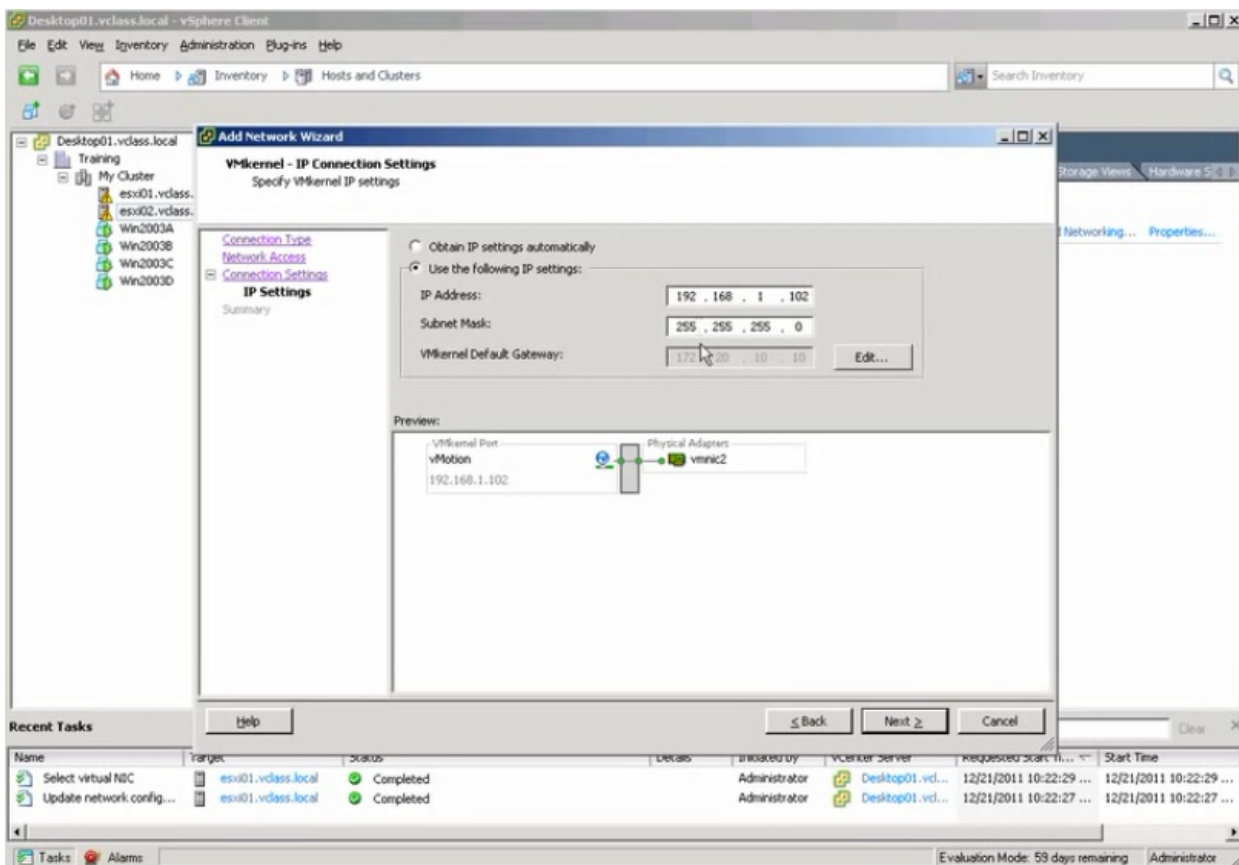


then click finish.

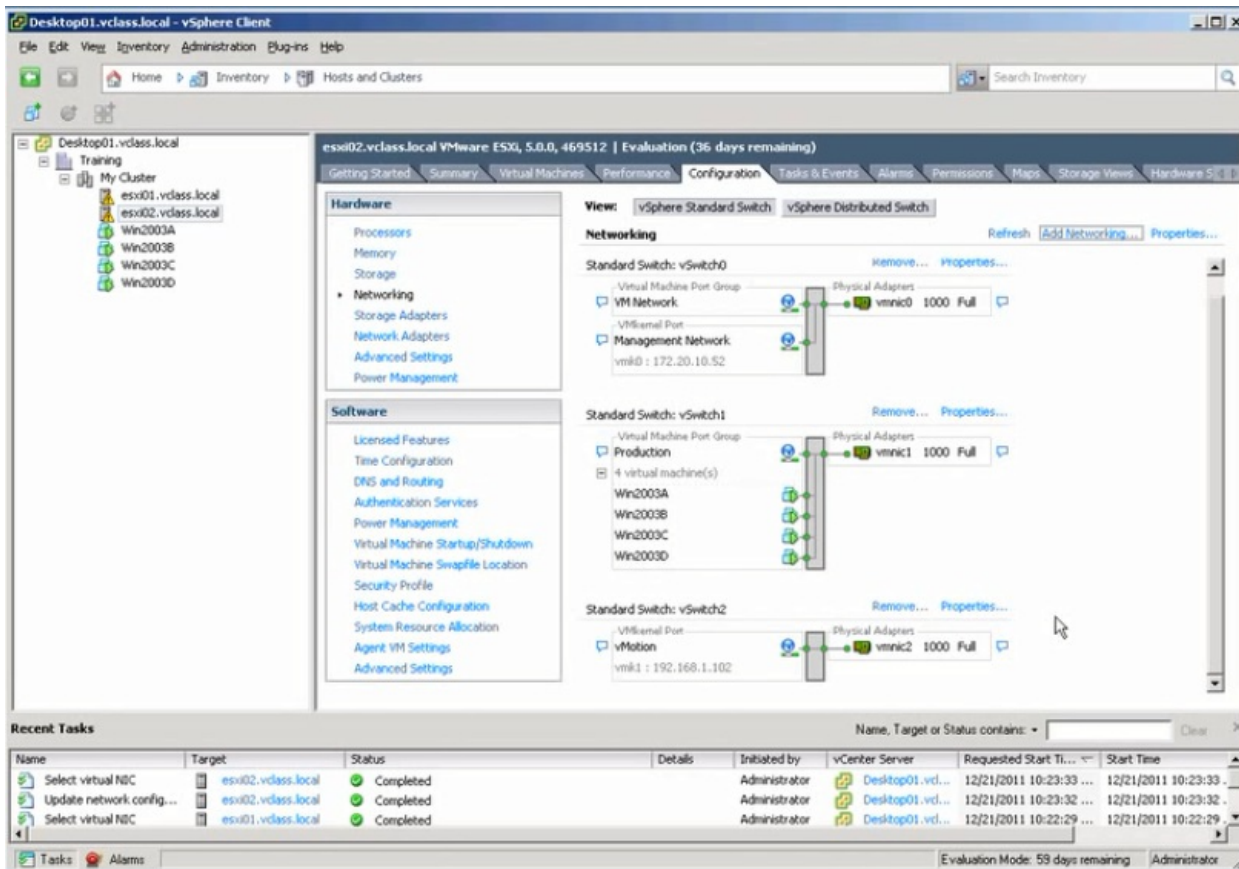
then again do the same to the 2nd host.



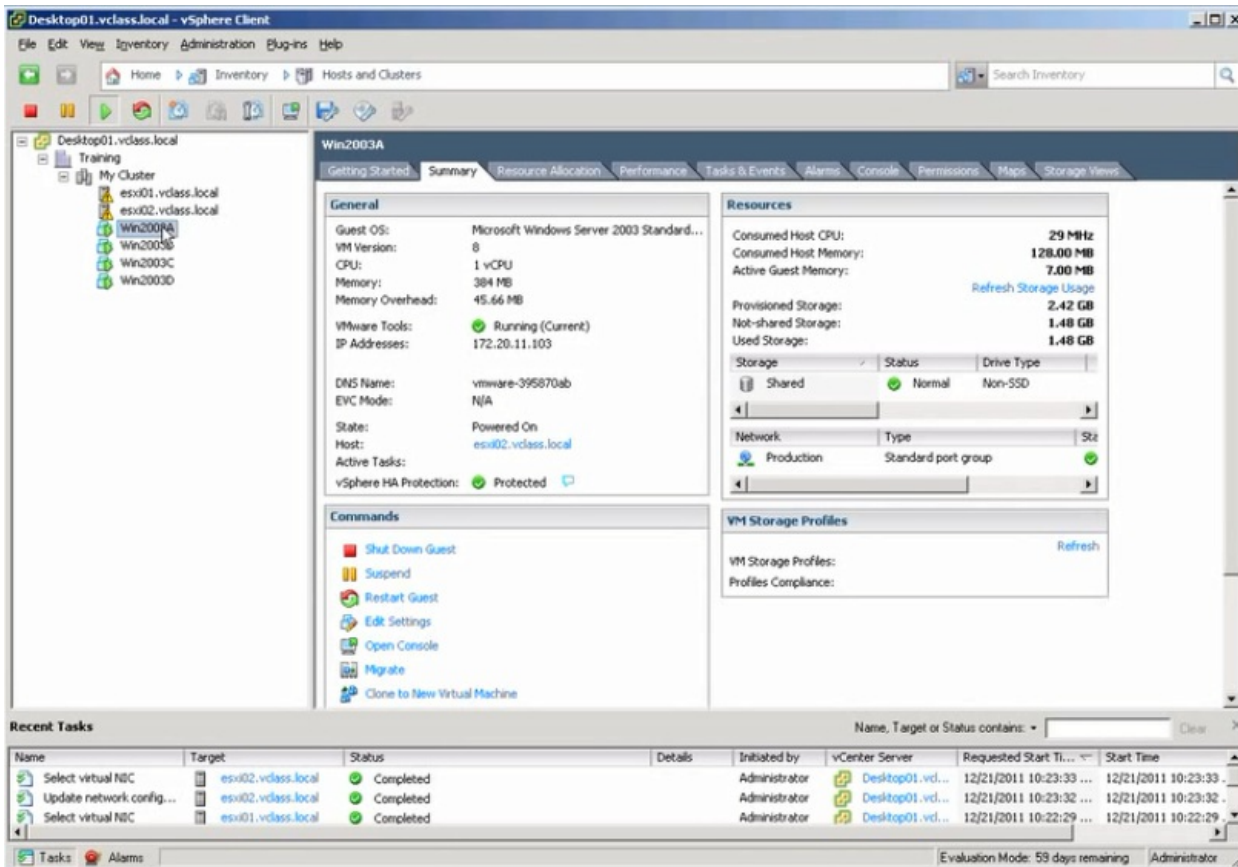
give the ip as 198.168.1.102



the created virtual switch below for the 2nd host.

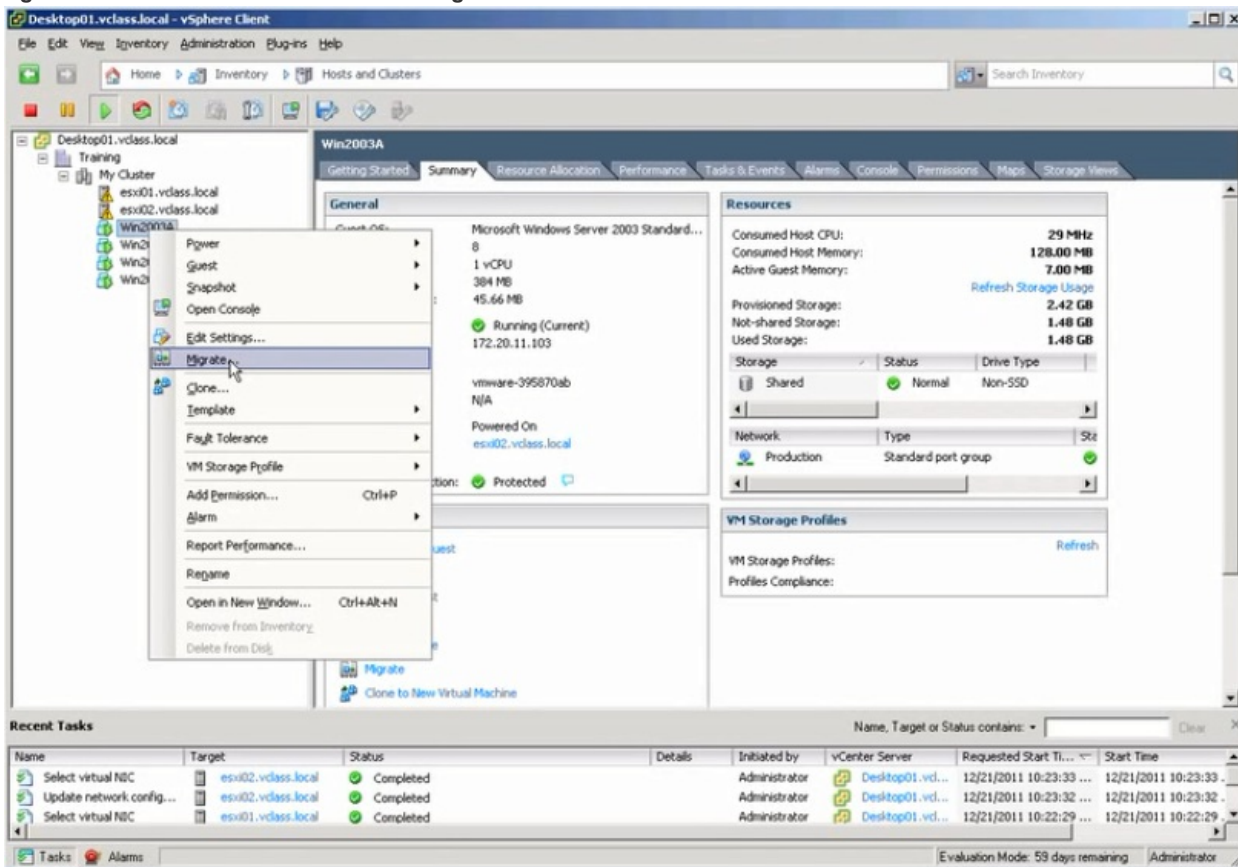


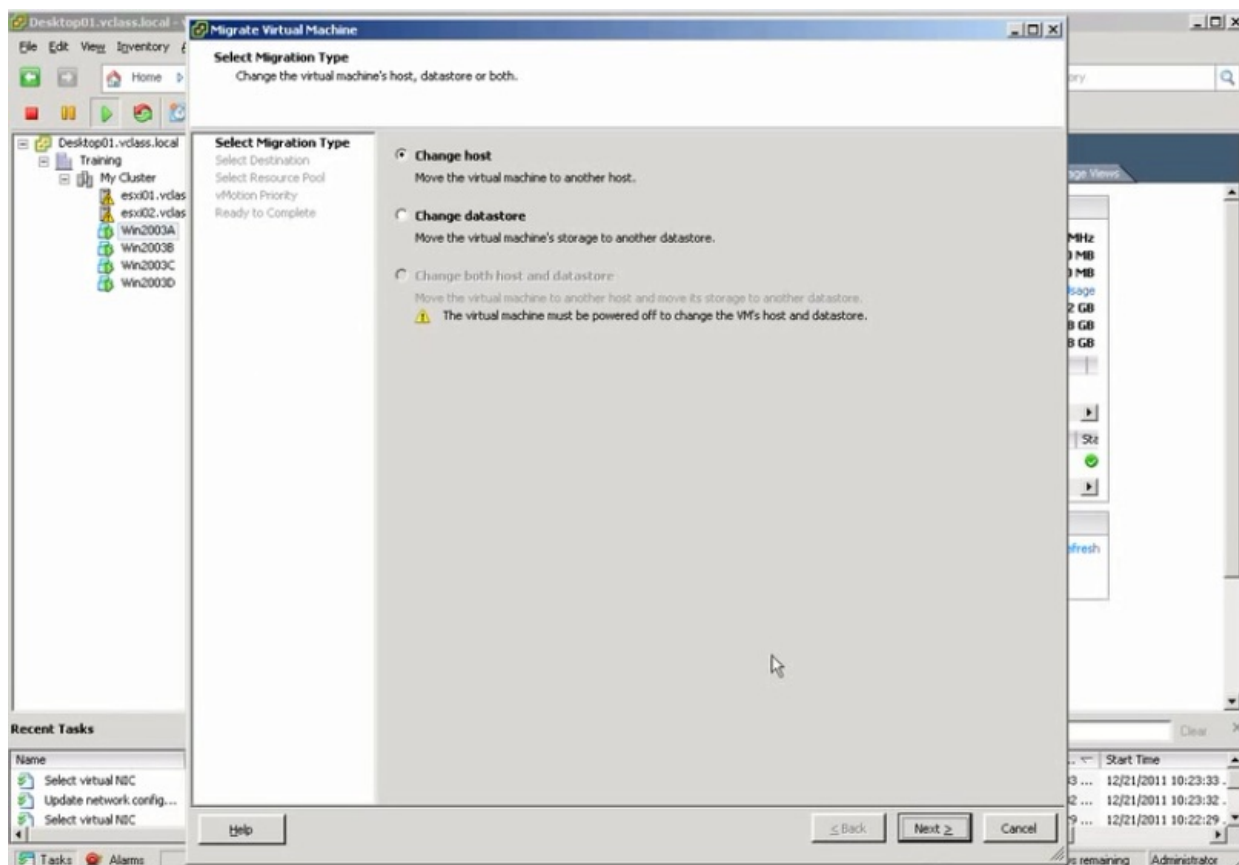
after configuring the 2 hosts we can migrate one virtual machine to another. first pick a virtual machine, which wants to migrate.



this particular virtual machine is currently running on the host 2. and migrate this virtual machine to host 1.

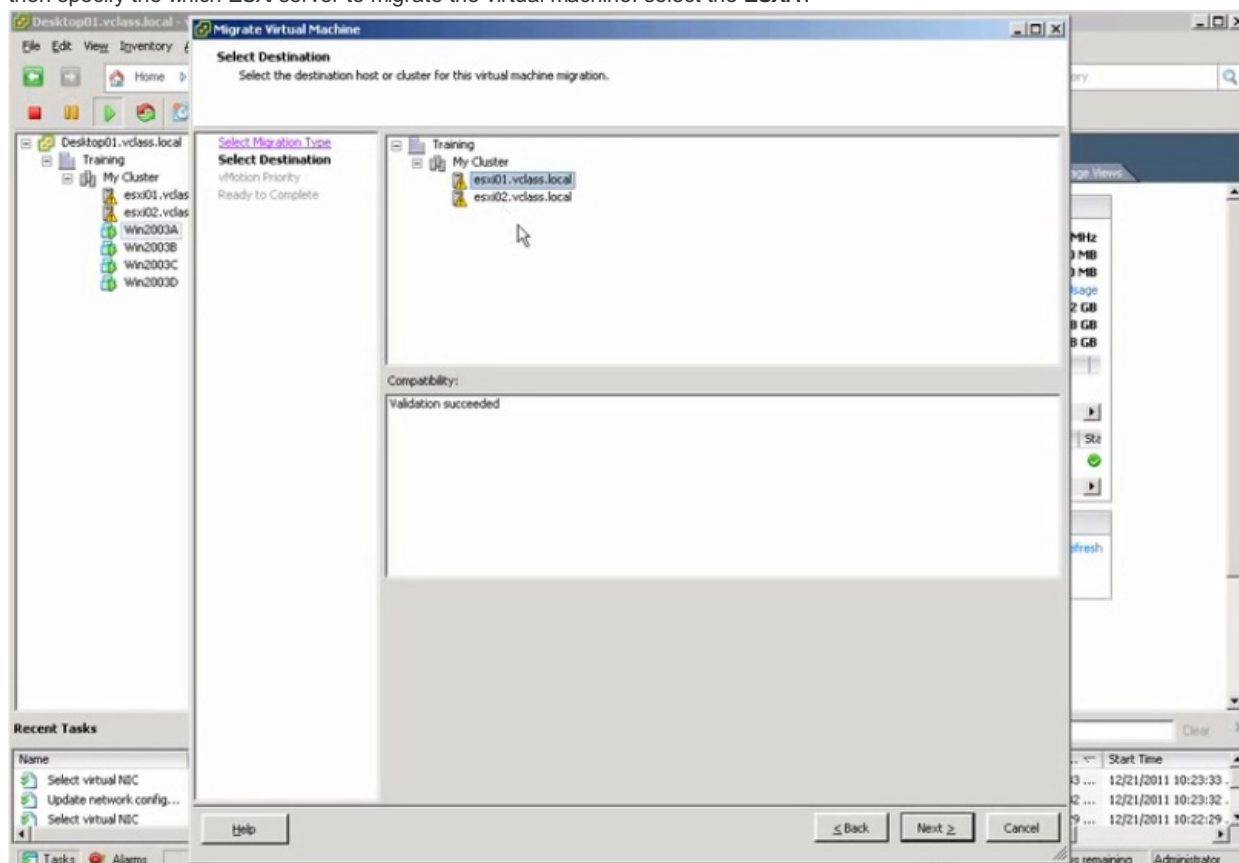
right click on the virtual machine and click migrate.



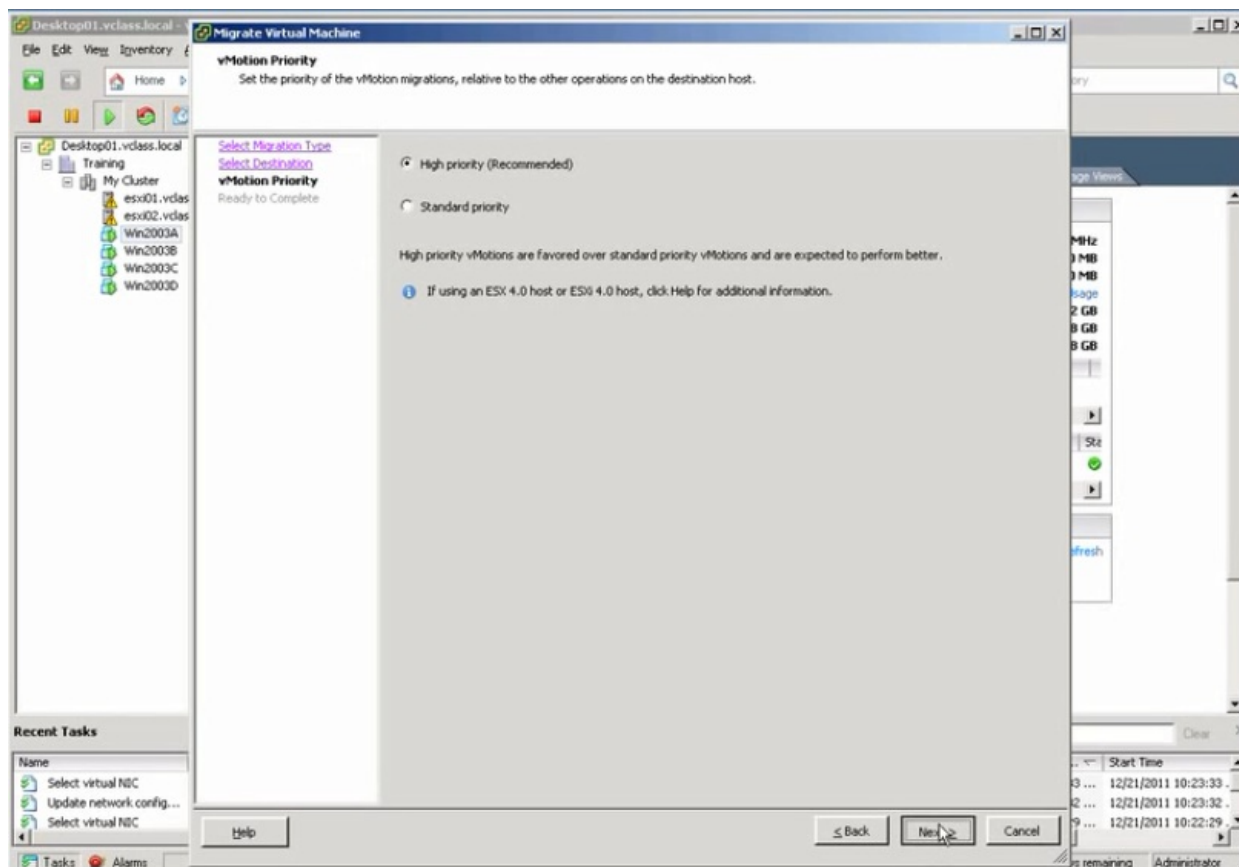


click next.

then specify the which ESXi server to migrate the virtual machine. select the **ESXi1**.

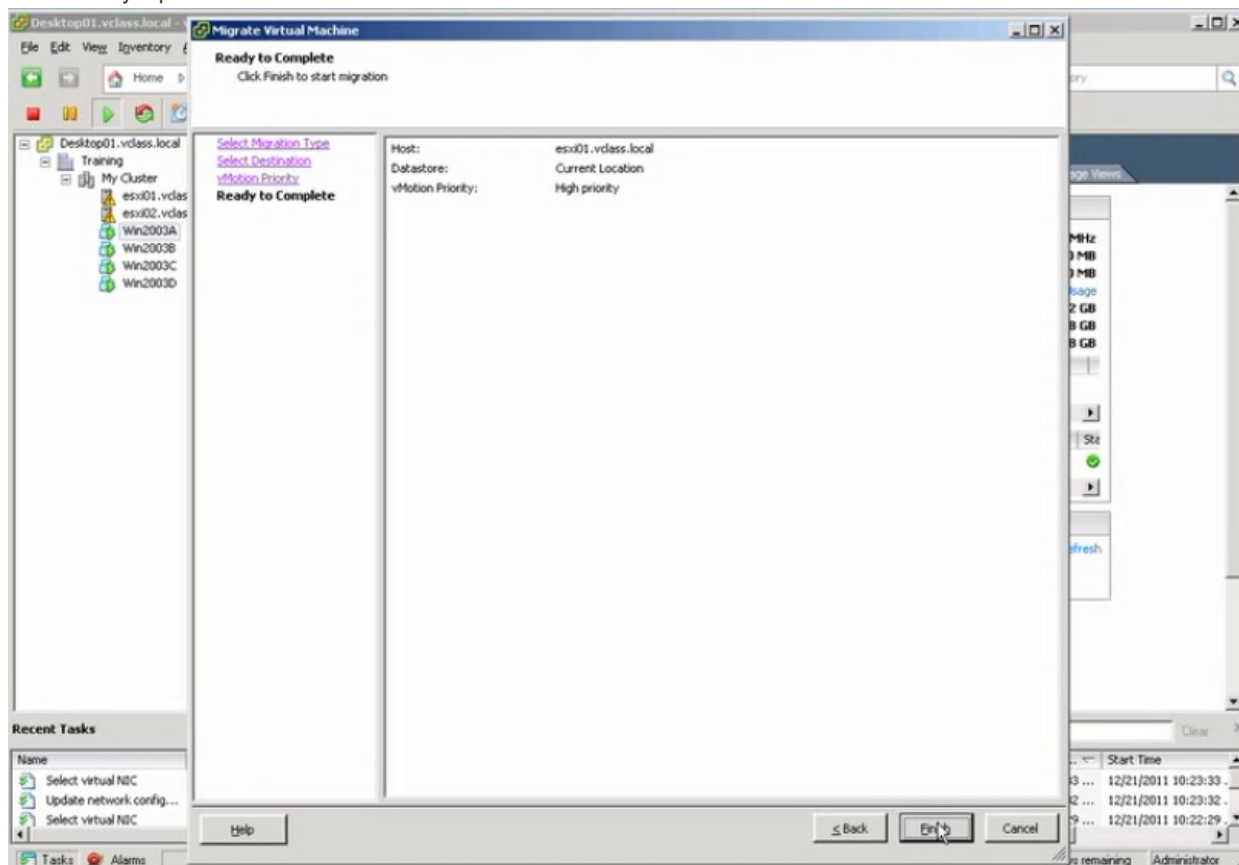


in compatibility there are no issues at the moment. and then click next.



tick the **high priority**. and click **next**.

the summary report.



then click **finish**.

after that the **migration** begin as the following.

Recent Tasks						
Name	Target	Status	Details	Initiated by	vCenter Server	Requested Start Time
Migrate virtual machine	Win2003A	66%	Migrating t...	Administrator	Desktop01.vd...	12/21/2011 10:25:31 ...
Select virtual NIC	esxi02.vclass.local	Completed		Administrator	Desktop01.vd...	12/21/2011 10:23:33 ...
Update network config...	esxi02.vclass.local	Completed		Administrator	Desktop01.vd...	12/21/2011 10:23:32 ...

when we look at the **summary** tab, the virtual machine is now running on the **ESXi2** server.

Desktop01.vclass.local - vSphere Client

File Edit View Inventory Administration Plug-ins Help

Home Inventory Hosts and Clusters

Search Inventory

Desktop01.vclass.local

Training

My Cluster

esxi01.vclass.local

esxi02.vclass.local

Win2003A

Win2003B

Win2003C

Win2003D

Win2003A

Getting Started Summary Resource Allocation Performance Tasks & Events Alarms Console Permissions Maps Storage View

General

Guest OS: 8

VM Version: 1 vCPU

Memory: 384 MB

Memory Overhead: 36.18 MB

VMware Tools: Running (Current)

IP Addresses: 172.20.11.103

DNS Name: N/A

EVC Mode: N/A

State: Powered On

Host: esxi01.vclass.local

Active Tasks:

vSphere HA Protection: Protected

Commands

Shut Down Guest

Suspend

Restart Guest

Edit Settings

Open Console

Migrate

Clone to New Virtual Machine

Resources

Consumed Host CPU: 29 MHz

Consumed Host Memory: 128.00 MB

Active Guest Memory: 7.00 MB

Provisioned Storage: 2.42 GB

Not-shared Storage: 1.48 GB

Used Storage: 1.48 GB

Storage

Shared

Normal

Non-SSD

Network

Production

Standard port group

VM Storage Profiles

VM Storage Profiles:

Profiles Compliance:

Recent Tasks

Name

Target

Status

Details

Initiated by

vCenter Server

Requested Start Time

Migrate virtual machine

Win2003A

Completed

Administrator

Desktop01.vd...

12/21/2011 10:25:31 ...

Select virtual NIC

esxi02.vclass.local

Completed

Administrator

Desktop01.vd...

12/21/2011 10:23:33 ...

Update network config...

esxi02.vclass.local

Completed

Administrator

Desktop01.vd...

12/21/2011 10:23:32 ...