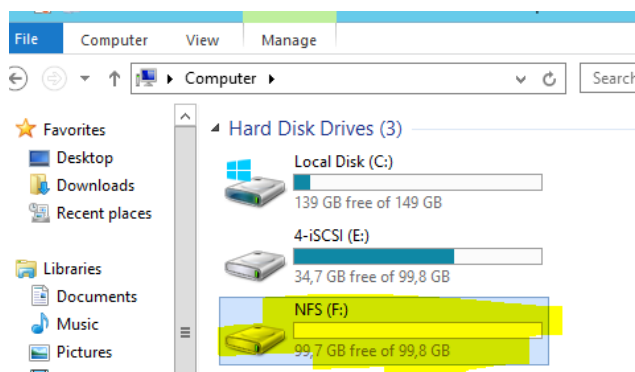
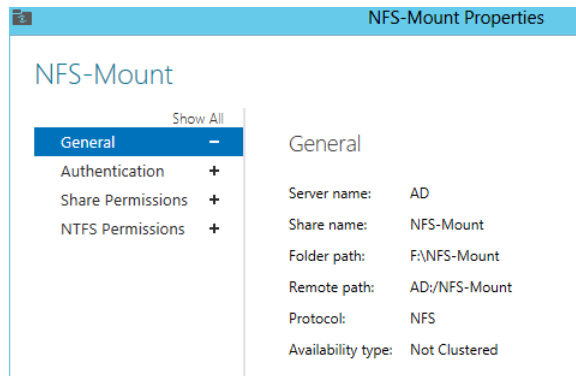


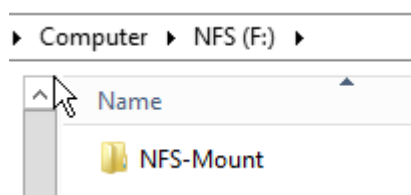
NFS (Network File System)

NFS are networked based datastores that can be used between different hosts to access.

- 1) Create a NFS volume haddisk on Windows Server 2012 under Server Manager
- 2)

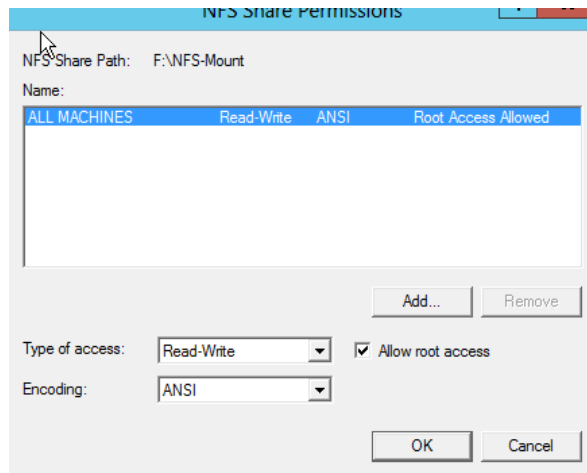
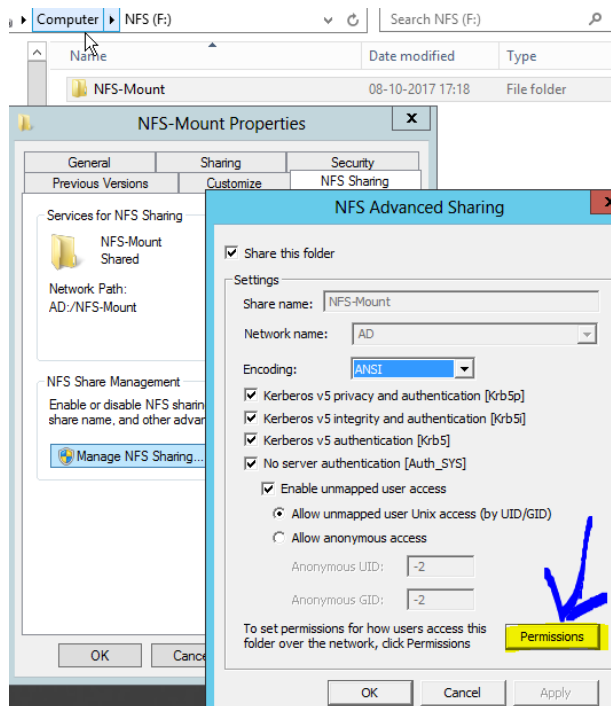


3)



4)

5)



6)

- 7) Now login to your vSphere web client and add/mount a new NFS datastore. Make sure you select the path and choose the correct DNS server (10.1.1.111, depending on which network you are on!)

- 8) Right click ESXi-1 -> Storage -> New Datastore -> NFS -> NFS 3 ->

New Datastore

1 Type
2 Select NFS version
3 Name and configuration
4 Ready to complete

Name and configuration
Specify name and configuration.

If you plan to configure an existing datastore on new hosts in the datacenter, it is recommended to use the "Mount to add hosts" action instead.

Datastore name: NFS

Folder: /NFS-Mount
E.g: /vols/vol0/datastore-001

Server: 10.1.1.111
E.g: nas, nas.it.com or 192.168.0.1

click Finish

You have now mounted a NFS datastore to your ESXi-1 host

- 9) Go to any virtual machines on your ESXi-1, right click -> Migrate

Xu-02 - Migrate

1 Select the migration type
2 Select storage
3 Ready to complete

Select the migration type
Change the virtual machines' compute resource, storage, or both.

☐ Change compute resource only
Migrate the virtual machines to another host or cluster.

☒ Change storage only
Migrate the virtual machines' storage to a compatible datastore or datastore cluster.

☐ Change both compute resource and storage
Migrate the virtual machines to a specific host or cluster and their storage to a specific datastore or datastore cluster.

☐ Select compute resource first
☐ Select storage first

Xu-02 - Migrate

1 Select the migration type
2 Select storage
3 Ready to complete

Select storage
Select the destination storage for the virtual machine migration.

Select virtual disk format: Thin Provision

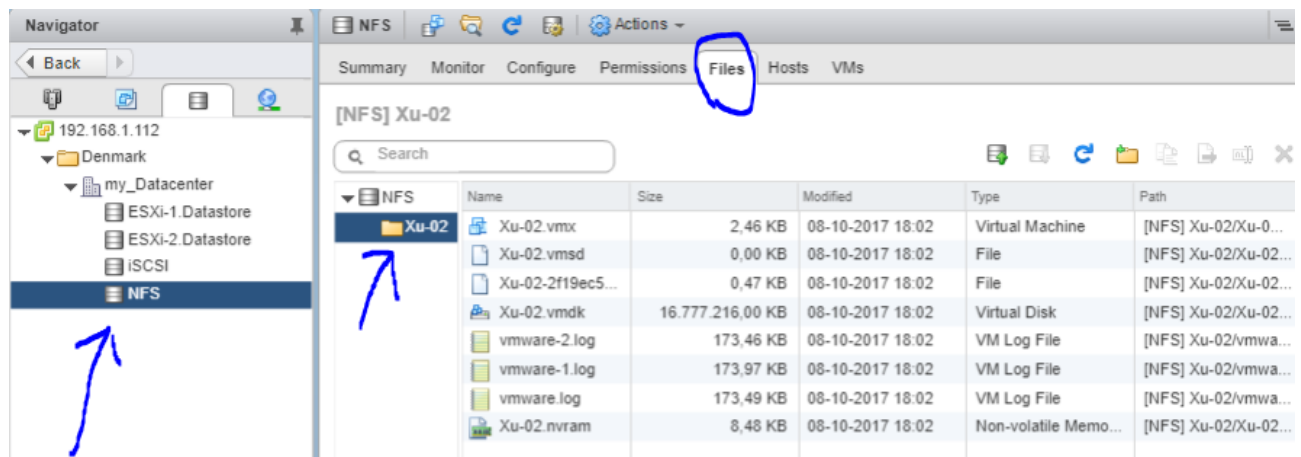
VM storage policy: Keep existing VM storage policies

The following datastores are accessible from the destination resource that you selected. Select the destination datastore for the virtual machine configuration files and all of the virtual disks.

Name	Capacity	Provisioned	Free	Type	Cluster
Compatible					
NFS	99,87 GB	110,85 MB	99,76 GB	NFS v3	
ESXi-1.Datastore	92,50 GB	75,30 GB	68,00 GB	VMFS 5	
iSCSI	44,75 GB	972,00 MB	43,80 GB	VMFS 5	

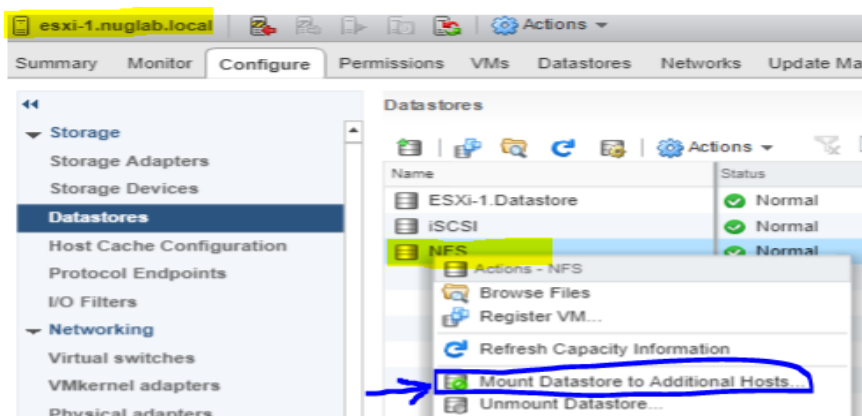
- 10) click next and click Finish

- 11) Your virtual machine (Xu-02 or whatever VM you chose), should now change its data storage to NFS.

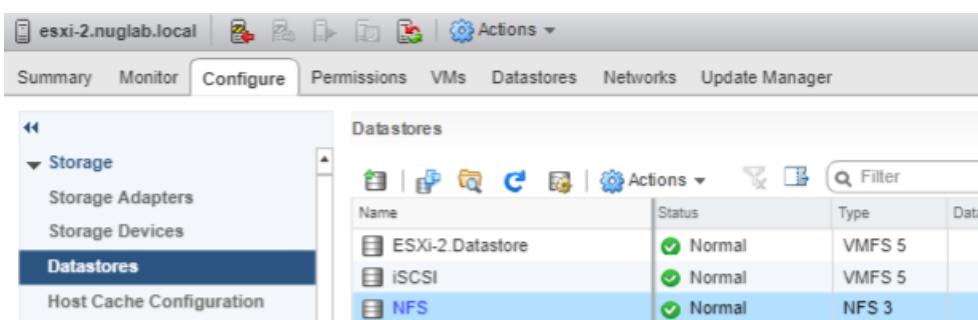


Succesfully changed the datastore of Xu-02 virtual machine!

- 12) We only added the NFS datastore to ESXi-1 host. To add it to ESXi-2 host do the following: click on ESXi-1, go to datastores, right click NFS and click: Mount Datastore to Additional Hosts, select ESXi-2



- 13)



vMotion

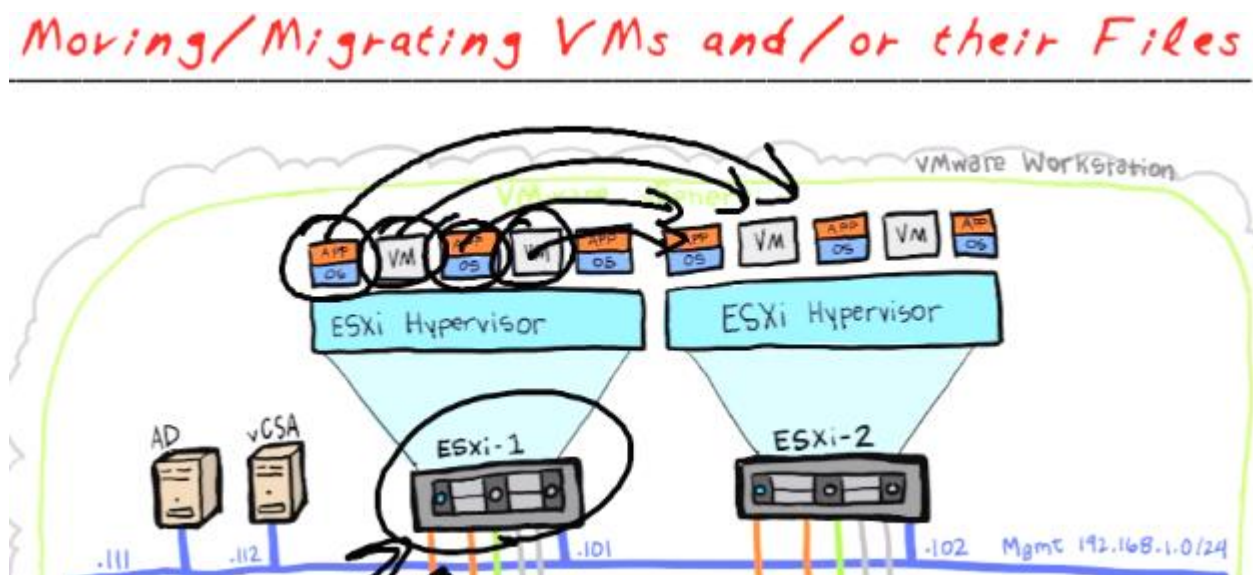
vMotion gives the possibility of moving a virtual machine from one host to another even if they are running.

For example, if ESXi-1 has a virtual machine on it, we can move that virtual machine onto ESXi-2. This process is called “**Migrate**”.

Terms: **Migrate** is when you move a machine that is **NOT** running
vMotion is when you move a machine that is already running

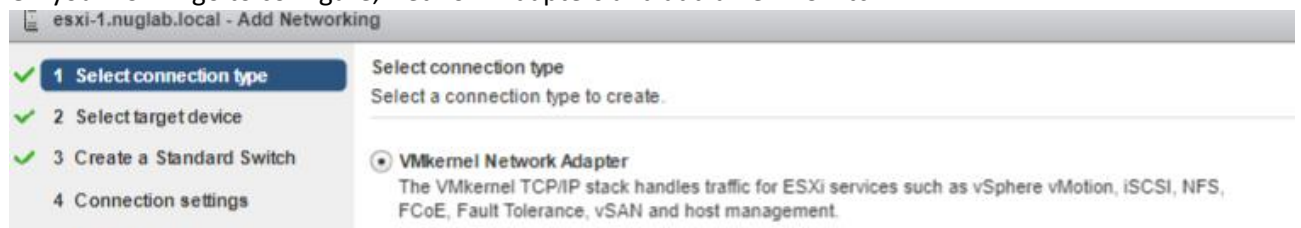
It is also possible to migrate datastores. It will take a lot of bandwidth to move hard disks that are many GBs big!

Example of vMotion:

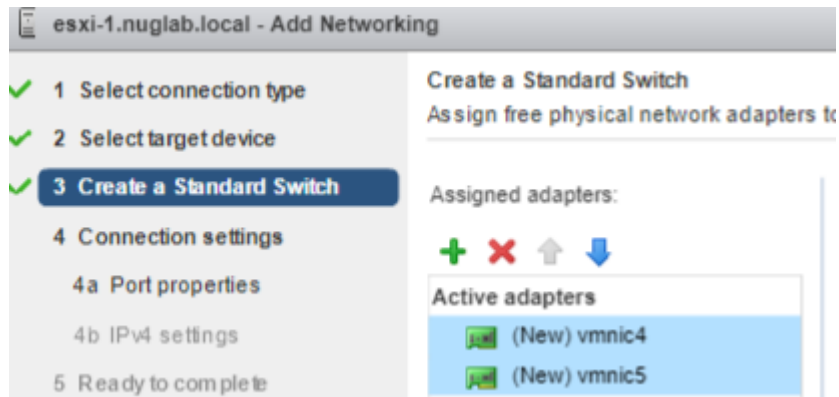


To start off, vMotion must have its own network path. This is done by creating a vSwitch on the vSphere web client.

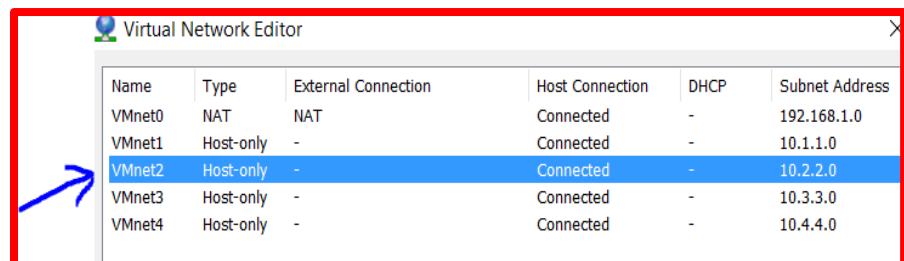
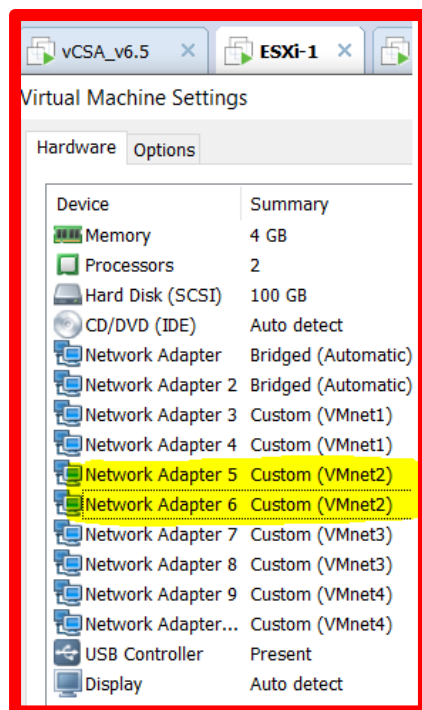
- 1) On your ESXi-1 go to configure, Network Adapters and add a new vSwitch.



- 2) Choose a new Standard Switch
- 3)



 #####
 #####
 #####
 vmnic4 and vmnic5 are the network adapters in VMware that will be used specifically for vMotion!
 Note that vmnic4 and 5 are equal to Network Adapter 5 and 6!!!



 #####
 #####

4)

esxi-1.nuglab.local - Add Networking

1 Select connection type
2 Select target device
3 Create a Standard Switch
4 Connection settings
4a Port properties
4b IPv4 settings
5 Ready to complete

Port properties
Specify VMkernel port settings.

VMkernel port settings

Network label: vMotion-VMK

VLAN ID: None (0)

TCP/IP stack: vMotion

Available services

Enabled services:

- ☒ vMotion
- ☐ Provisioning
- ☐ Fault Tolerance logging
- ☐ Management
- ☐ vSphere Replication
- ☐ vSphere Replication NFC
- ☐ vSAN

5)

IPv4 settings
Specify VMkernel IPv4 settings.

☐ Obtain IPv4 settings automatically
☒ Use static IPv4 settings

IPv4 address: 10 . 2 . 2 . 101

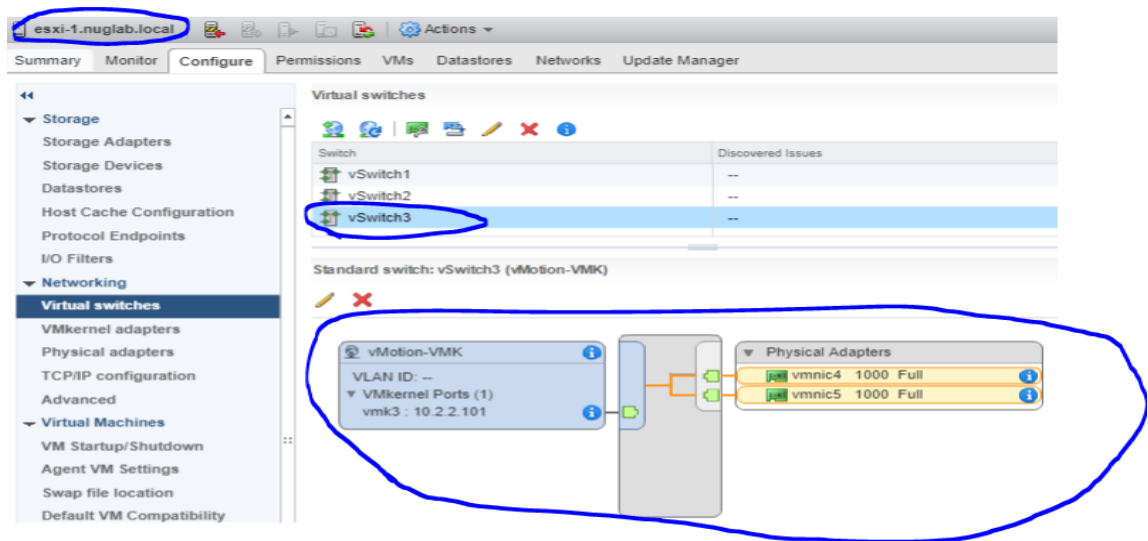
Subnet mask: 255 . 255 . 255 . 0

Default gateway:

DNS server addresses:

Click Next, Click Finish

6)



- 7) Do the same for ESXi-2. Add a new vSwitch with VMKernel. Enter following and finish the process

esxi-2.nuglab.local - Add Networking

- ✓ 1 Select connection type
- ✓ 2 Select target device
- ✓ 3 Create a Standard Switch
- 4 Connection settings
- ✓ 4a Port properties
- 4b IPv4 settings**
- 5 Ready to complete

IPv4 settings
Specify VMkernel IPv4 settings.

☐ Obtain IPv4 settings automatically

☒ Use static IPv4 settings

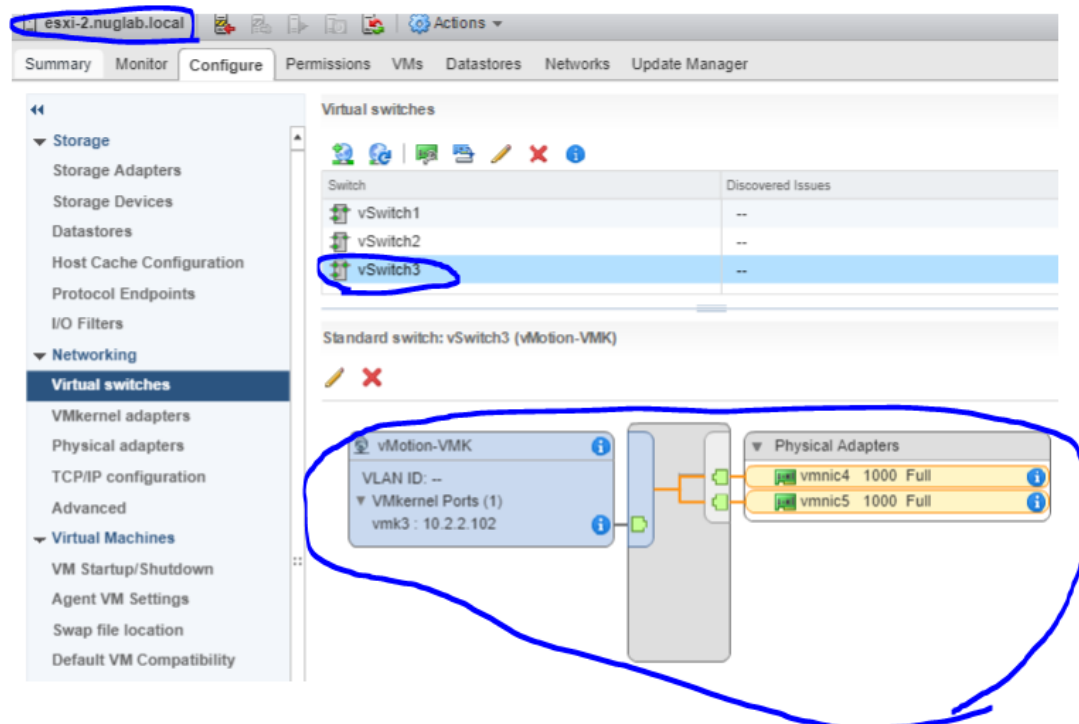
IPv4 address: 10 . 2 . 2 . 102

Subnet mask: 255 . 255 . 255 . 0

Default gateway:

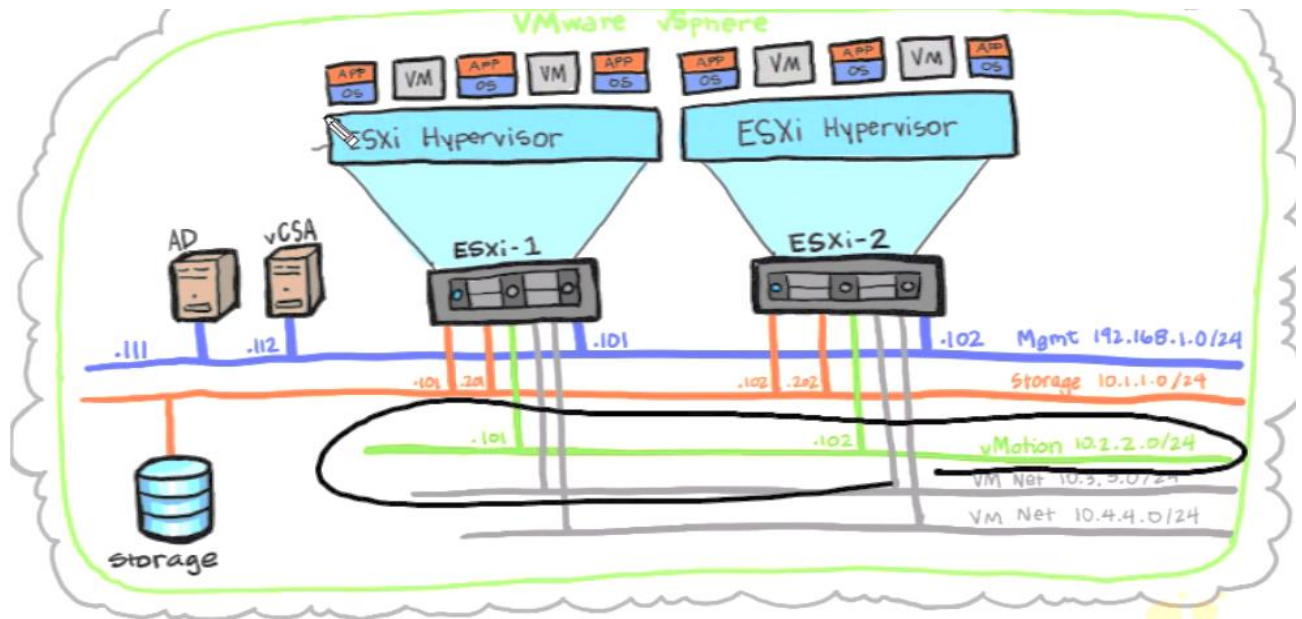
DNS server addresses:

- 8) Verify



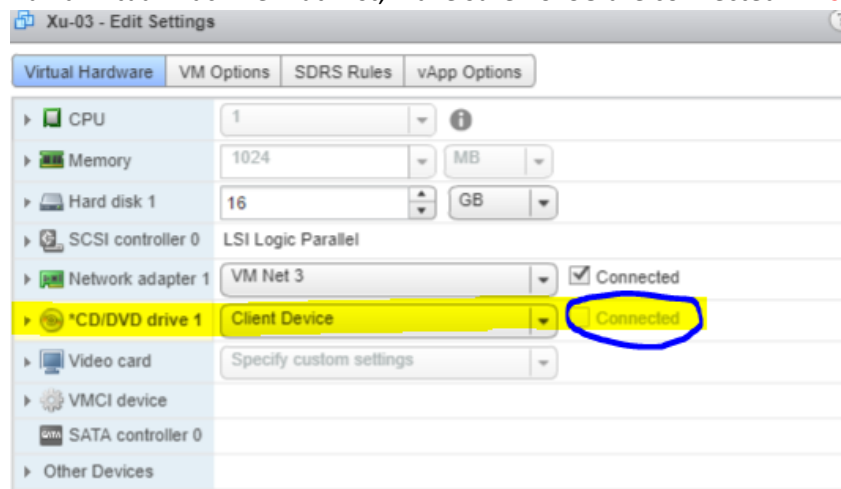
For both ESXi-1 and ESXi-2 we have vSwitch3 created with VMKernel "vMotion-VMK". And the vMotion-VMK ports are associated with the uplink vmnic4 and 5. Process is now done and we continue

Now that we have our vMotion network setup. We can move virtual machines between ESXi-1 and ESXi-2



9)

Run a virtual machine. But first, make sure no ISO are connected. **This is important to uncheck!**



10) Right click Xu-03 and click “Migrate”

Xu-03 - Migrate

1 Select the migration type

2 Select a compute resource

3 Select storage

4 Select networks

5 Select vMotion priority

6 Ready to complete

Select the migration type
Change the virtual machines' compute resource, storage, or both.

☐ Change compute resource only
Migrate the virtual machines to another host or cluster.

☐ Change storage only
Migrate the virtual machines' storage to a compatible datastore or datastore cluster.

☒ Change both compute resource and storage
Migrate the virtual machines to a specific host or cluster and their storage to a specific datastore or datastore cluster.

☒ Select compute resource first

☐ Select storage first

11) Since Xu-03 is running on ESXi-1, choose ESXi-2 to move it over to

Select a compute resource

Select the destination compute resource for the virtual machine migration.

Search

192.168.1.112

Denmark

my_Datacenter

Cluster-1

esxi-1.nuglab.local

esxi-2.nuglab.local

12) Move it to the storage you want and choose Thin Provision

Select storage

Select the destination storage for the virtual machine migration.

Select virtual disk format: **Thin Provision**

VM storage policy: **Keep existing VM storage policies**

The following datastores are accessible from the destination resource that you selected. Select the destination datastore for machine configuration files and all of the virtual disks.

Name	Capacity	Provisioned	Free	Type
Compatible				
ESXi-2.Datastore	92,50 GB	973,00 MB	91,55 GB	VMFS 5
NFS	99,87 GB	17,27 GB	83,76 GB	NFS v3
ISCSI	44,75 GB	972,00 MB	43,80 GB	VMFS 5

13) Xu-03 on ESXi-1 was running on VMNet3. We want to keep it that way, so on ESXi-2. We choose the virtual machine to still use VMNet3

Select networks

Select destination networks for the virtual machine migration.

Migrate VM networking by selecting a new destination network for all VM network adapters attached to the same source network.

Source Network	Used By	Destination Network
VM Net 3	1 VMs / 1 Network adapters	VM Net 3

14) If you want to use vMotion now, select the first. If later, select the 2nd.

Select vMotion priority

Protect the performance of your running virtual machines by prioritizing the allocation of CPU resources.

☒ Schedule vMotion with high priority (recommended)

vMotion receives higher CPU scheduling preference relative to normal priority migrations. vMotion might complete more quickly.

☐ Schedule regular vMotion

vMotion receives lower CPU scheduling preference relative to high priority migrations. You can extend vMotion duration.

15)

Task Console							
Task Name	Target	Status	Initiator	Queued For	Start Time	Completion Time	Server
Relocate virtual machine	Xu-03	13 %	VSPHERE.LOCAL\...	5 ms	08-10-2017 19:30:25		192.168.1.112

Migration is now in progress of finishing. When this is done, we can go to ESXi-2, and verify that it exists.

16)

Task Console							
Task Name	Target	Status	Initiator	Queued For	Start Time	Completion Time	Server
Relocate virtual machine	Xu-03	✓ Completed	VSPHERE.LOCAL\...	5 ms	08-10-2017 19:30:25	08-10-2017 19:39:03	192.168.1.112

Now that it is completed. Lets verify

17)

The screenshot shows the vSphere Web Client interface. In the top left, the 'Navigator' pane shows a tree view with 'Cluster-1' expanded, showing two ESXi hosts: 'esxi-1.nuglab.local' and 'esxi-2.nuglab.local'. The 'esxi-2.nuglab.local' host is selected. The main pane shows a table of 'Virtual Machines'. The VM 'Xu-03' is listed with a status of 'Powered On'. The 'State' column shows a green checkmark, and the 'Status' column shows 'Normal'. The 'Provisioned Space' is 17.16 GB, 'Used Space' is 5.62 GB, 'Host CPU' is 0 MHz, and 'Host Mem' is 613 MB. Below the table, the 'Summary' tab for VM 'Xu-03' is displayed. It shows the Guest OS as 'Ubuntu Linux (32-bit)', Compatibility as 'ESXi 6.0 and later (VM version 11)', and VMware Tools as 'Running, version:2147483647 (Guest Managed)'. The DNS Name is 'dsk-virtual-machine' and the IP Address is '10.3.3.3'. The Host is 'esxi-2.nuglab.local'. Below the summary, there are several expandable sections: 'VM Hardware', 'Advanced Configuration', 'Custom Attributes' (empty), 'Related Objects' (showing Cluster-1, Host: esxi-2.nuglab.local, Networks: VM Net 3, Storage: iSCSI), 'Update Manager Compliance' (Status: --), 'VM Storage Policies' (VM Storage Policies: --, VM Storage Policy Compliance: --, Last Checked Date: --, Check Compliance button), 'Tags', 'Notes', and 'vApp Details'.

Name	State	Status	Provisioned Space	Used Space	Host CPU	Host Mem
Xu-03	Powered On	Normal	17.16 GB	5.62 GB	0 MHz	613 MB

Summary for Xu-03

- Guest OS: Ubuntu Linux (32-bit)
- Compatibility: ESXi 6.0 and later (VM version 11)
- VMware Tools: Running, version:2147483647 (Guest Managed)
- DNS Name: dsk-virtual-machine
- IP Addresses: 10.3.3.3
- Host: esxi-2.nuglab.local

Related Objects

- Cluster: Cluster-1
- Host: esxi-2.nuglab.local
- Networks: VM Net 3
- Storage: iSCSI

Update Manager Compliance

Status
--

VM Storage Policies

VM Storage Policies	VM Storage Policy Compliance	Last Checked Date
--	--	--

Check Compliance

Note that we successfully migrated Xu-03 even though it is running! It no longer exists on ESXi-1, but is moved to ESXi-2.

This process is called “Migration”.

To do vMotion, do the exact same with a virtual machine that is NOT running.