

Hyper-V 2.0 Live Migration mit Windows Server 2008 R2

Testumgebung:

Hardware:

Dell Latitude E6400, 2 x 2,8 Ghz, 8 GB RAM, 320 GB HD, 1 x NIC
Noname Midi Tower, 2 x 2,7 Ghz, 8 GB RAM, 160 GB und 250 GB HD, 2 x NIC
Noname Midi Tower, 2 x 3,0 Ghz, 16 GB RAM, 2 x 250 GB HD, 2 x NIC

Software (Hardware Umgebung)

2 x Windows Server 2008 R2 auf den Hyper-V Hosts
1 x Windows Server 2008 mit iSCSI Target von Rocketdivision (v4.1)

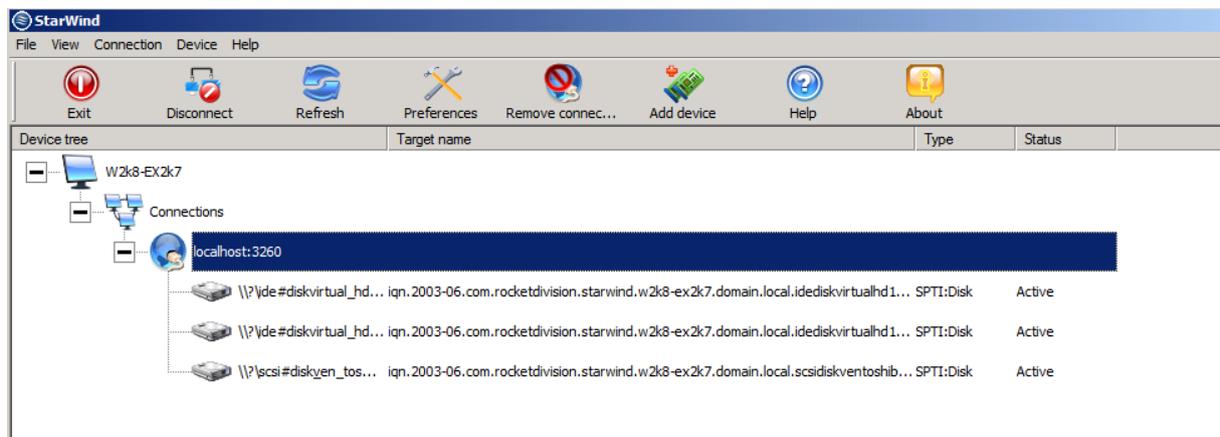
Software (VM Umgebung)

2 x DC Windows Server 2008
2 x Member Server Windows Server 2008 fuer Live Migration Tests

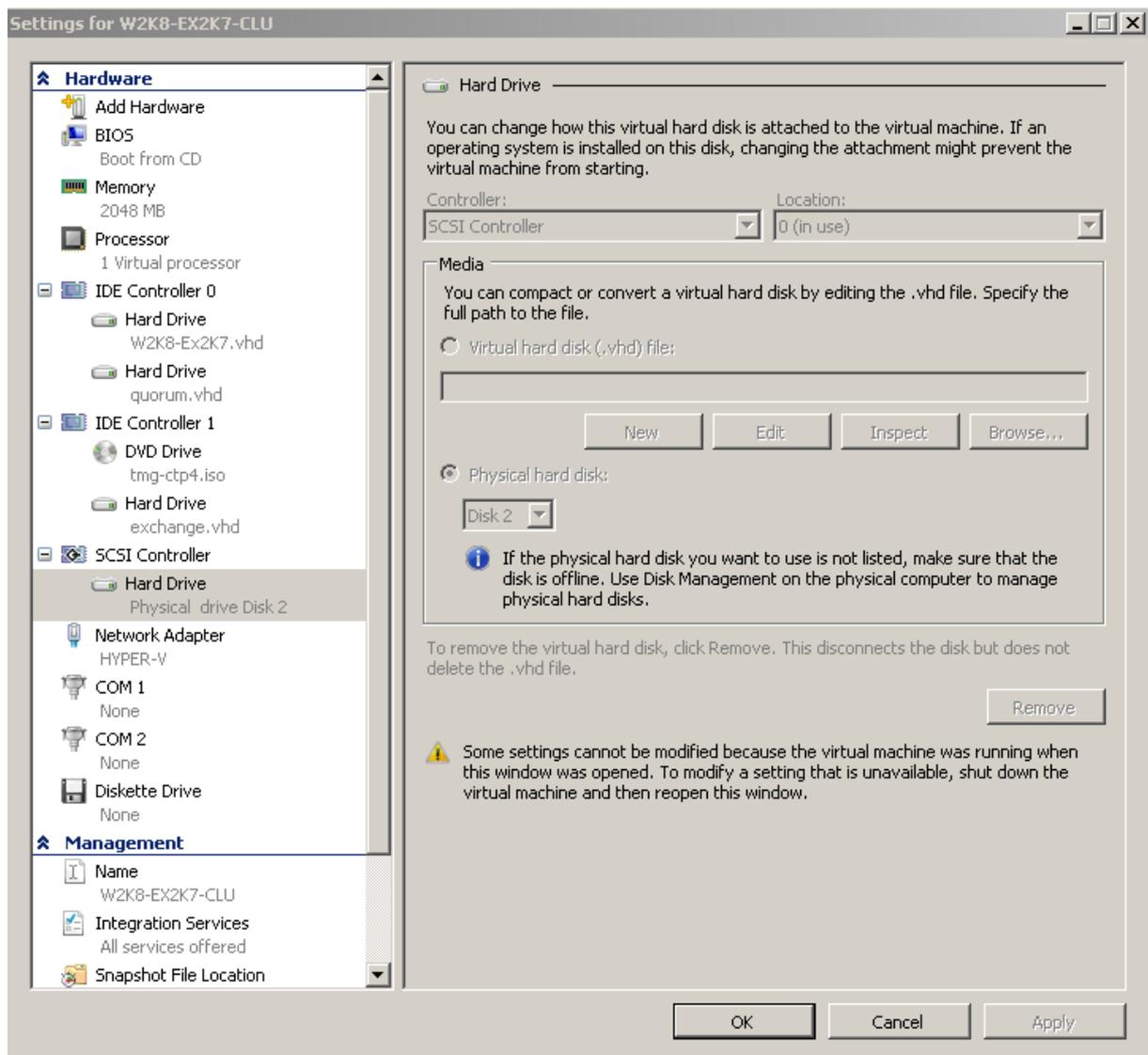
Grober Test-/Installationsablauf

- Installation / Konfiguration der Hardware
- Installation Windows Server 2008 R2 auf die Hyper-V Hosts
- Hyper-V Installation und Konfiguration
- iSCSI Target und iSCSI Initiator Installation
- Windows Server 2008 R2 Failover Cluster Installation
- Installation Cluster Shared Volumes
- Cluster und VM-Konfiguration fuer HA

Starwind installieren und HD als Target zur Verfuegung stellen



Platte im Hyper-V "einbauen". In diesem Fall als Passthrough Disk



iSCSI Initiator auf den W2K8 R2 Clusternodes einrichten und mit iSCSI Target verbinden

iSCSI Initiator Properties

Send Feedback X

Targets | Discovery | Favorite Targets | Volumes and Devices | RADIUS | Configuration

Quick Connect

To discover and log on to a target using a basic connection, type the IP address or DNS name of the target and then click Quick Connect.

Target:

Quick Connect...

Discovered targets

Refresh

	Status
.com.rocketdivision.starwind.w2k8-ex2k7.domain.local.idediskvirtualh...	Inactive
.com.rocketdivision.starwind.w2k8-ex2k7.domain.local.idediskvirtualh...	Inactive
.com.rocketdivision.starwind.w2k8-ex2k7.domain.local.scsidiskventos...	Connected

To connect using advanced options, select a target and then click Connect.

Connect

To completely disconnect a target, select the target and then click Disconnect.

Disconnect

For target properties, including configuration of sessions, select the target and click Properties.

Properties...

For configuration of devices associated with a target, select the target and then click Devices.

Devices...

[More about basic iSCSI connections and targets](#)

OK

Cancel

Apply

iSCSI Initiator Properties

Send Feedback

- Targets
- Discovery
- Favorite Targets
- Volumes and Devices
- RADIUS
- Configuration

Target portals

The system will look for Targets on following portals:

Refresh

Address	Port	Adapter	IP address
192.9.200.14	3260	Default	Default

To add a target portal, click Discover Portal.

Discover Portal...

To remove a target portal, select the address above and then click Remove.

Remove

iSNS servers

The system is registered on the following iSNS servers:

Refresh

Name

To add an iSNS server, click Add Server.

Add Server...

To remove an iSNS server, select the server above and then click Remove.

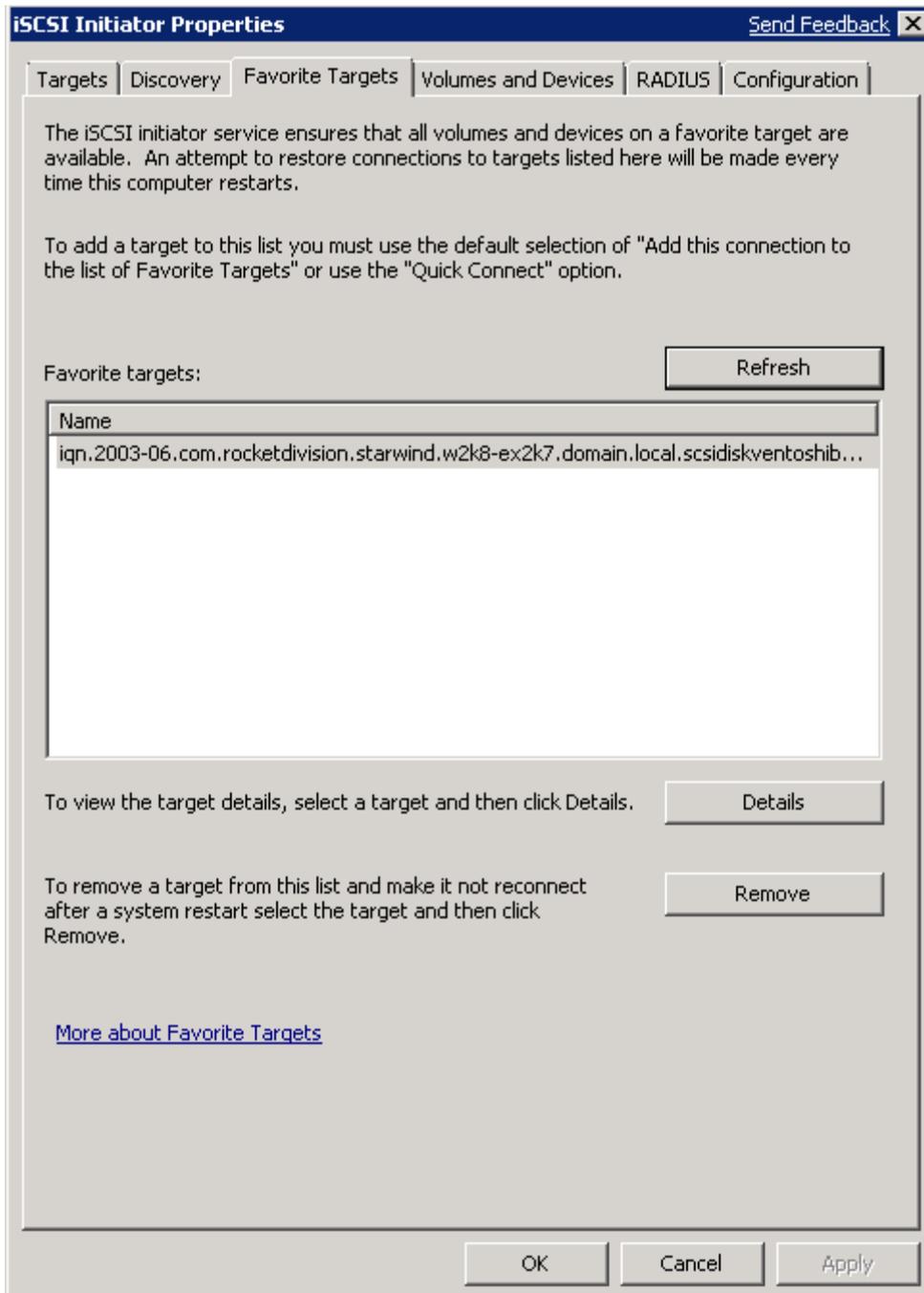
Remove

[More about Discovery and iSNS](#)

OK

Cancel

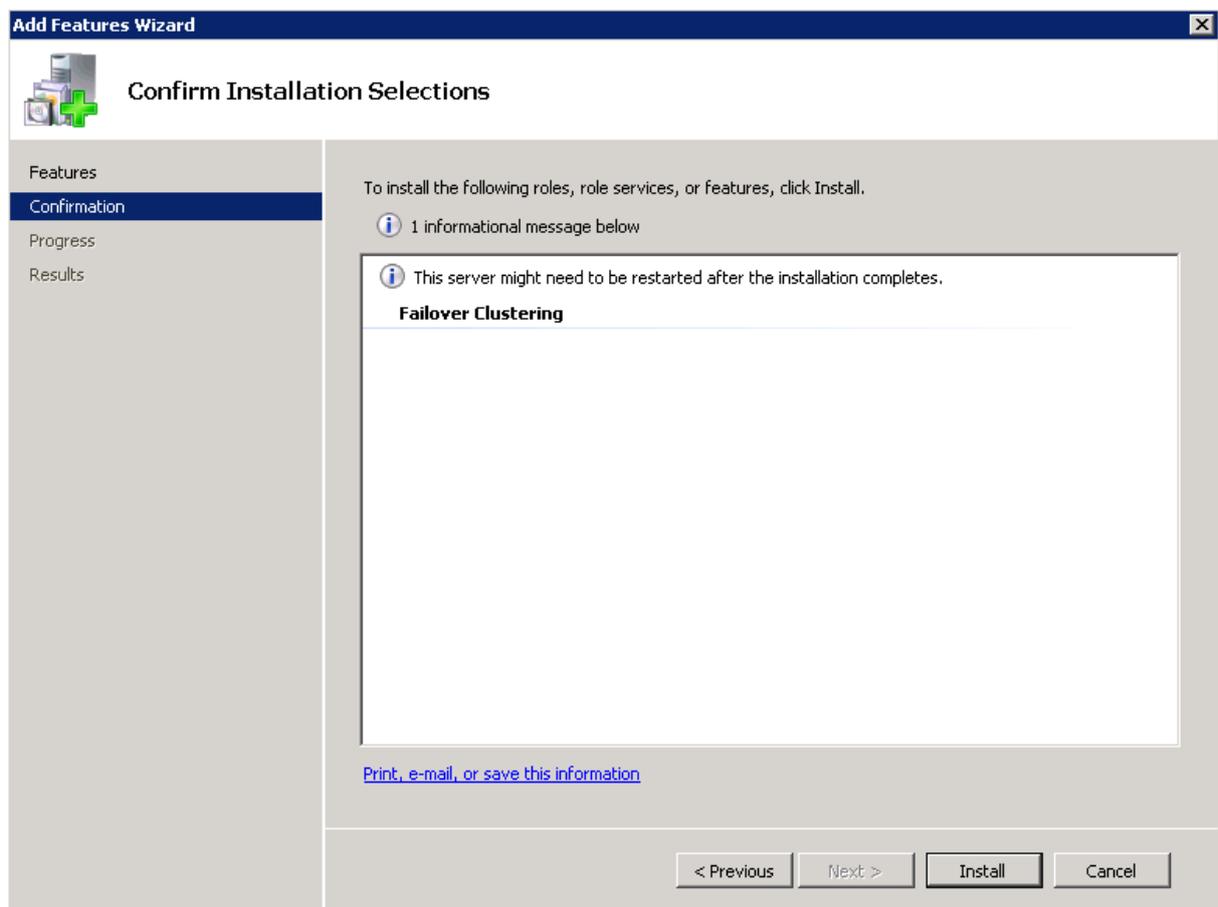
Apply



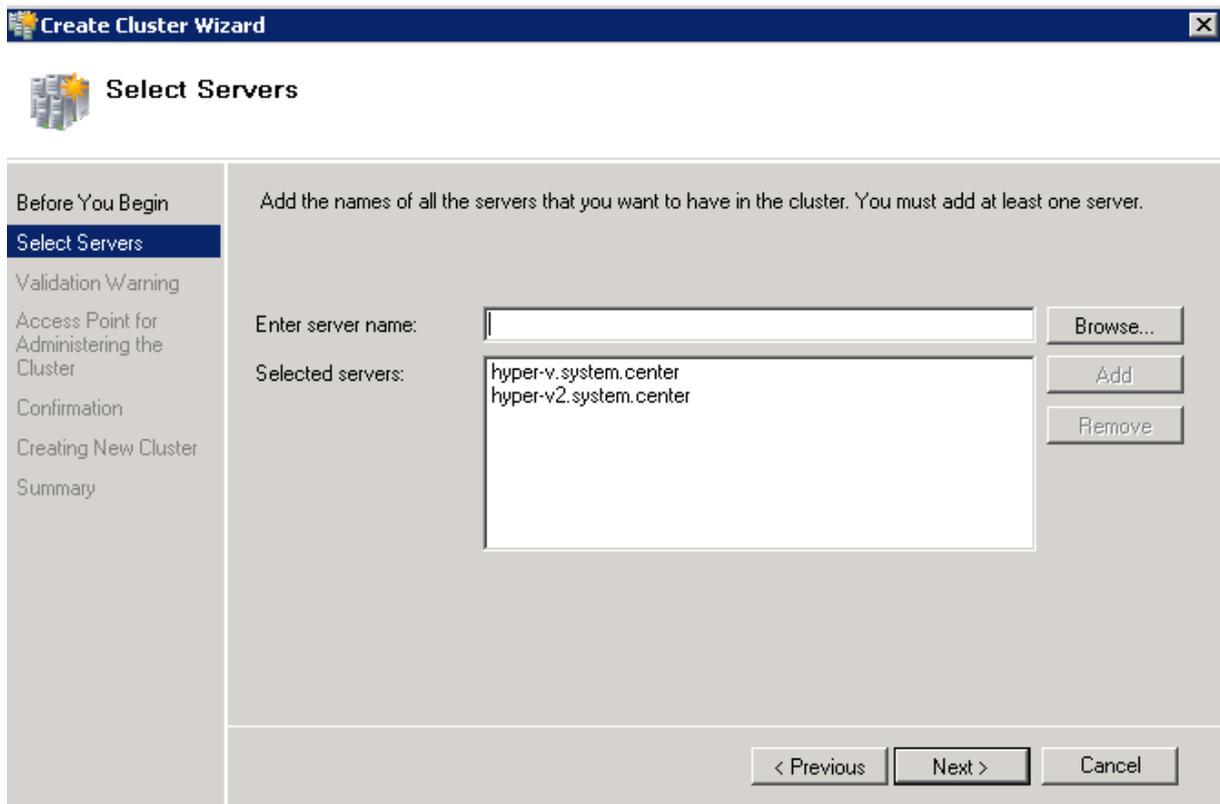
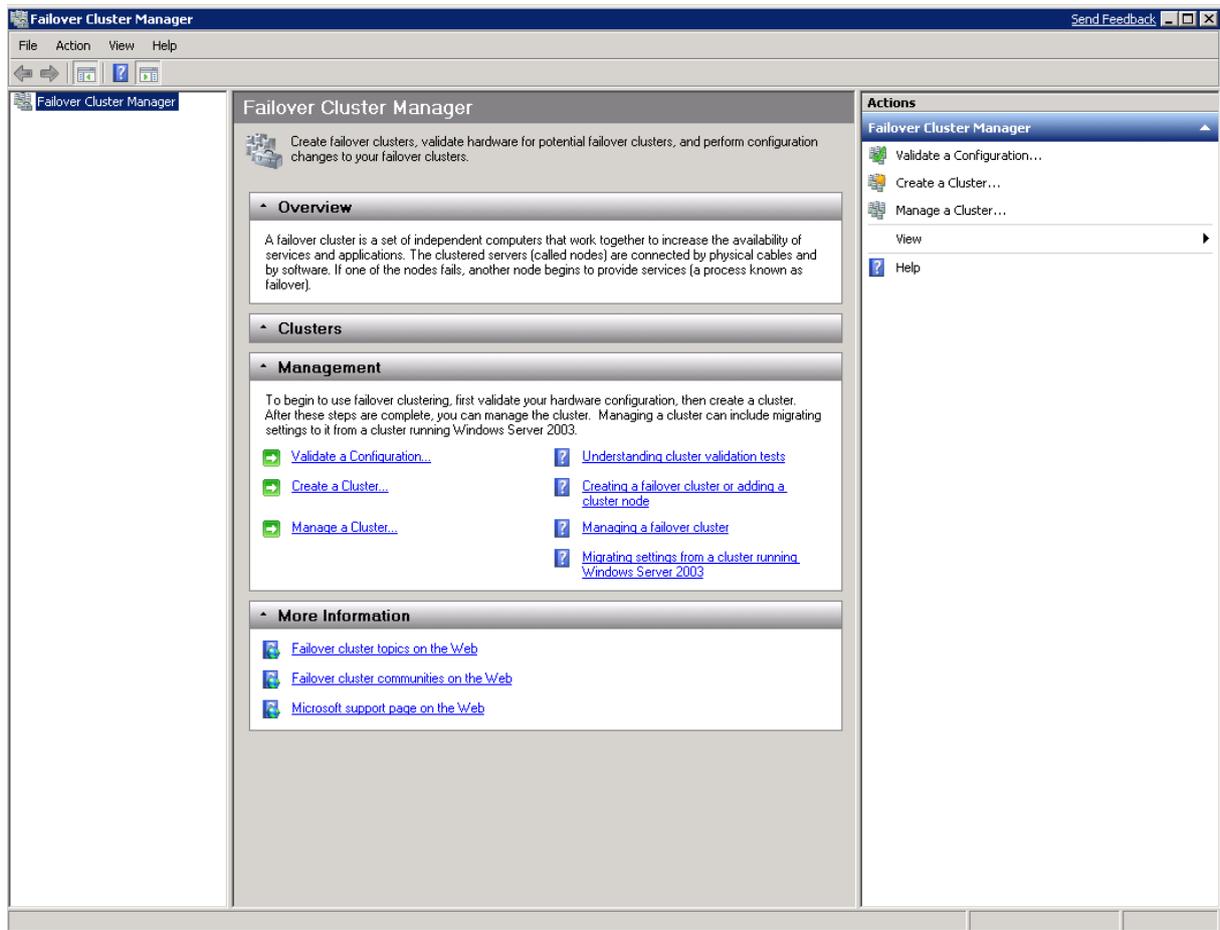
Platten in der HD-Verwaltung "Online" schalten

Disk 0 Basic 232,88 GB Online	200 MB NTFS Healthy (System, Active, Primary Partition)	HYPER-V (E:) 232,69 GB NTFS Healthy (Primary Partit
Disk 1 Basic 149,05 GB Online	(C:) 149,05 GB NTFS Healthy (Boot, Page File, Crash Dump, Primary Partition)	
Disk 2 Basic 74,53 GB Online	TRANSPORTER 74,53 GB NTFS Healthy (Primary Partition)	
CD-ROM 0 DVD (D:)	No Media	

Failover Clustering auf beiden Nodes installieren



Cluster einrichten



Cluster Validation Test durchfuehren

The following validation tests are running. Depending on the test selection, this may take a significant amount of time.

Progress	Test	Result
100%	List BIOS Information	The test passed.
100%	List Environment Variables	The test passed.
100%	List Fibre Channel Host Bus Adapters	The test passed.
100%	List iSCSI Host Bus Adapters	The test passed.
100%	List Memory Information	The test passed.
100%	List Operating System Information	The test passed.
100%	List Plug and Play Devices	Gathering data about node hyper-v2.system.center...
	List Running Processes	Pending...
	List SAS Host Bus Adapters	Pending...

Gathering data about node hyper-v2.system.center...

Cancel

Create a (Kellogs) Cluster

Type the name you want to use when administering the cluster.

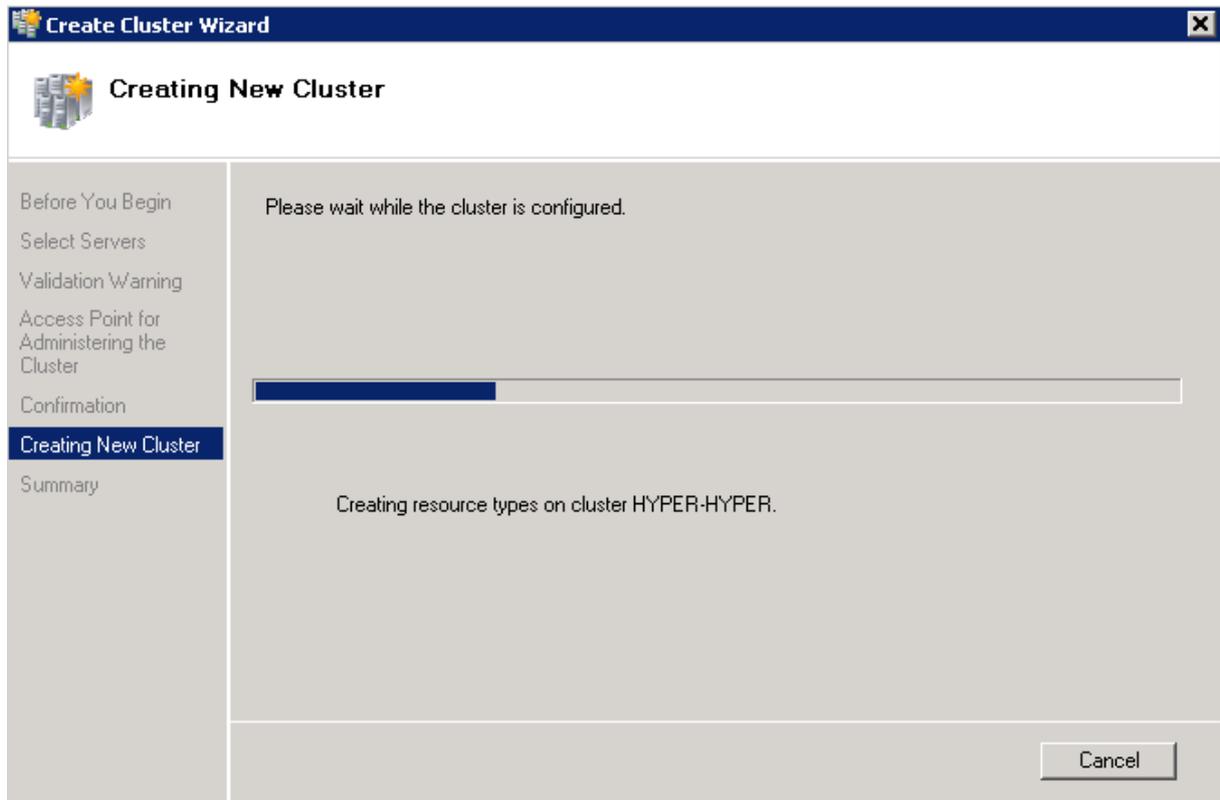
Cluster Name:

One or more IPv4 addresses could not be configured automatically. For each network to be used, make sure the network is selected, and then type an address.

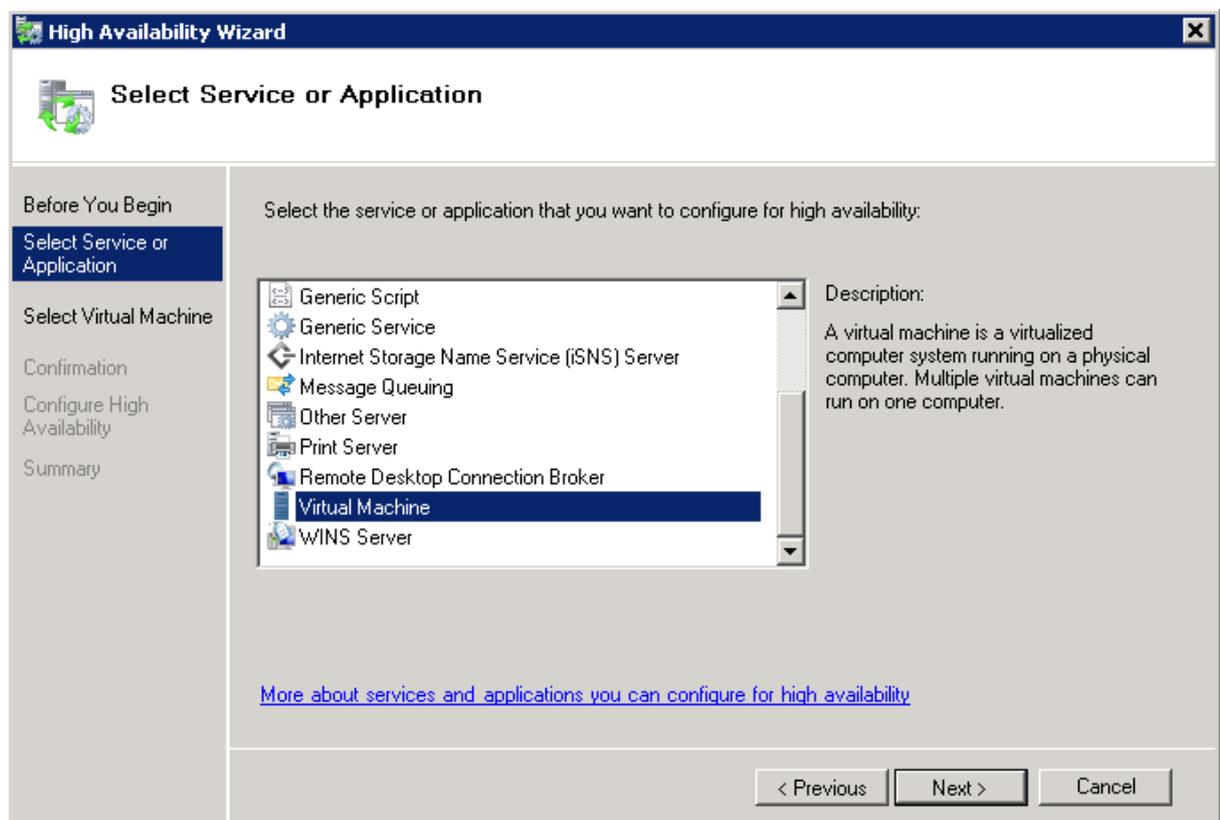
	Networks	Address
<input checked="" type="checkbox"/>	192.9.200.0/24	192 . 9 . 200 . 222

[More about the administrative Access Point for a cluster](#)

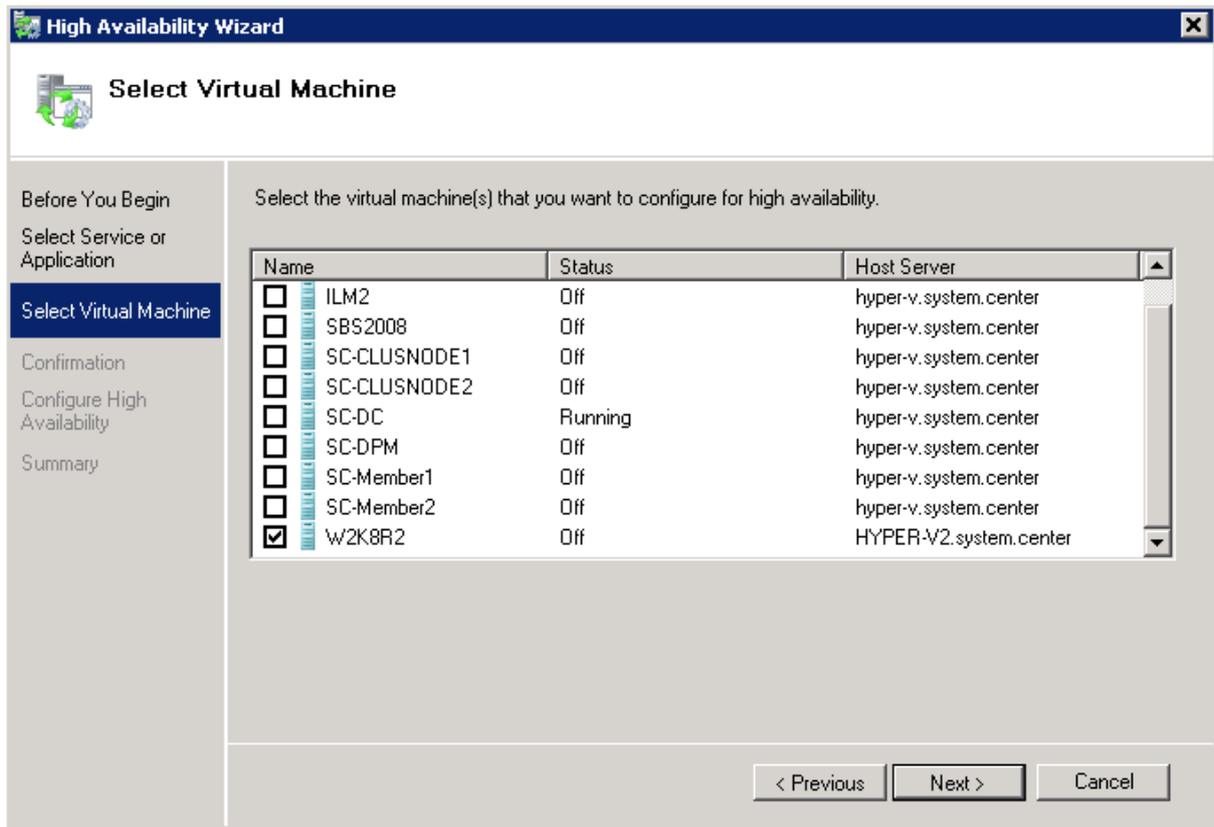
< Previous Next > Cancel



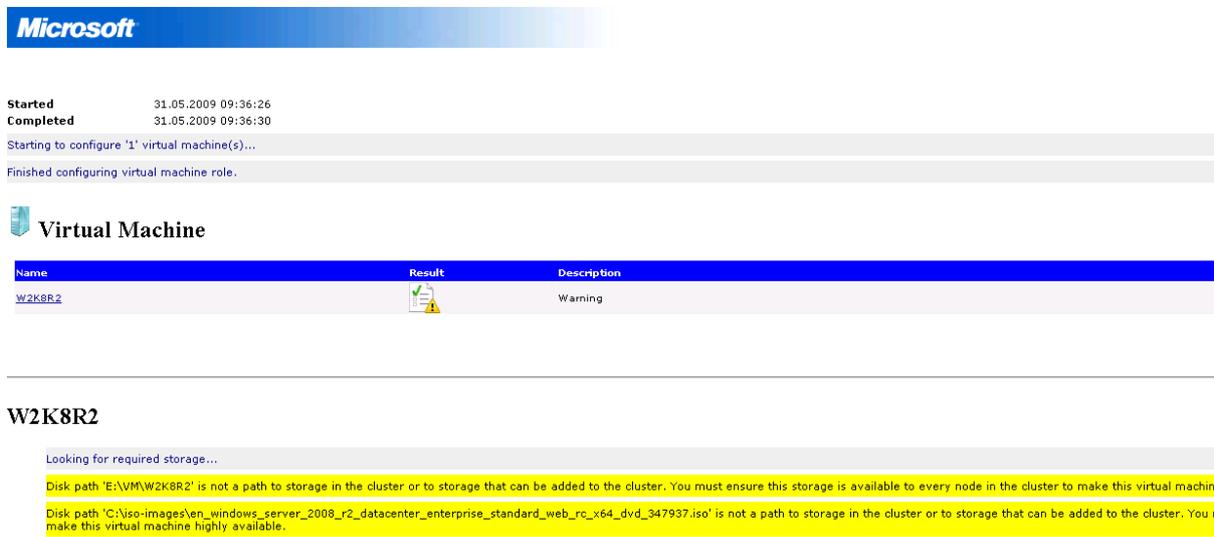
Hochverfügbarkeit ohne CSV



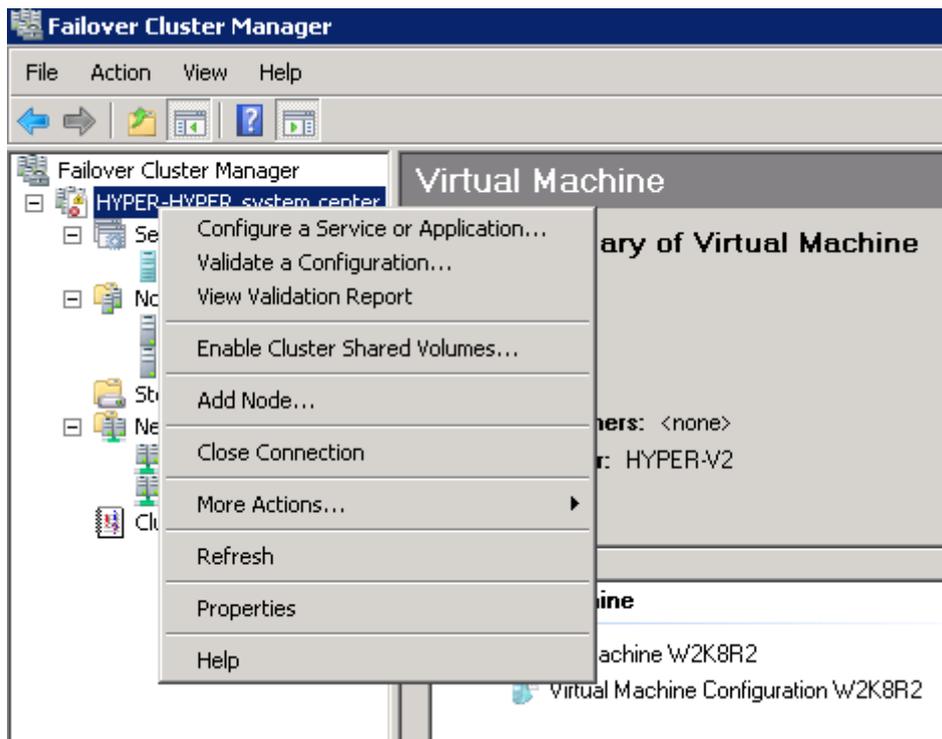
Auflisten aller VM aller Server



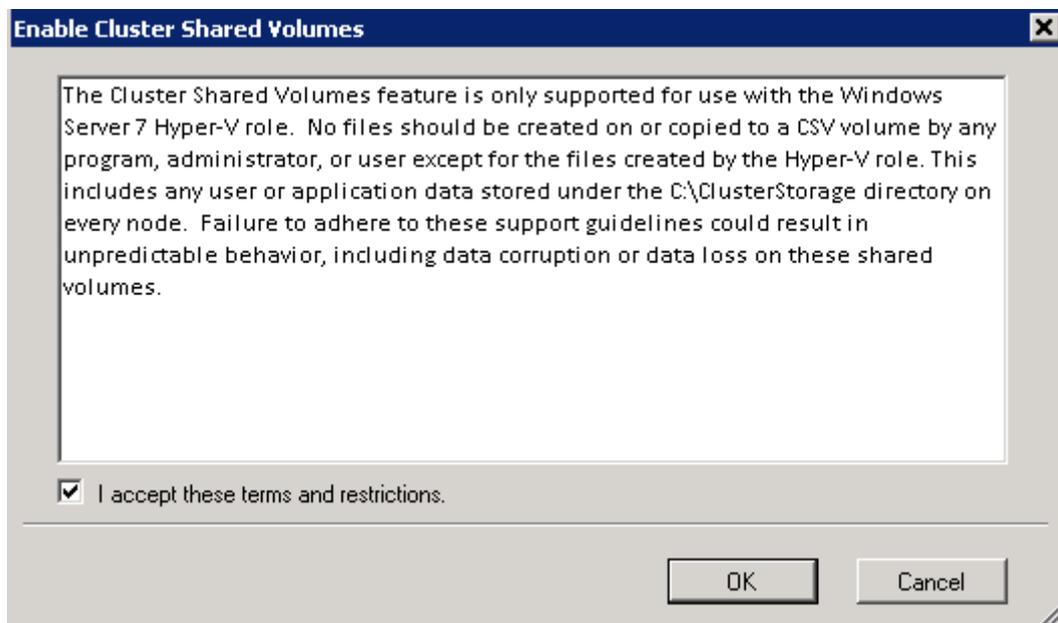
kein SAN, kein Failover



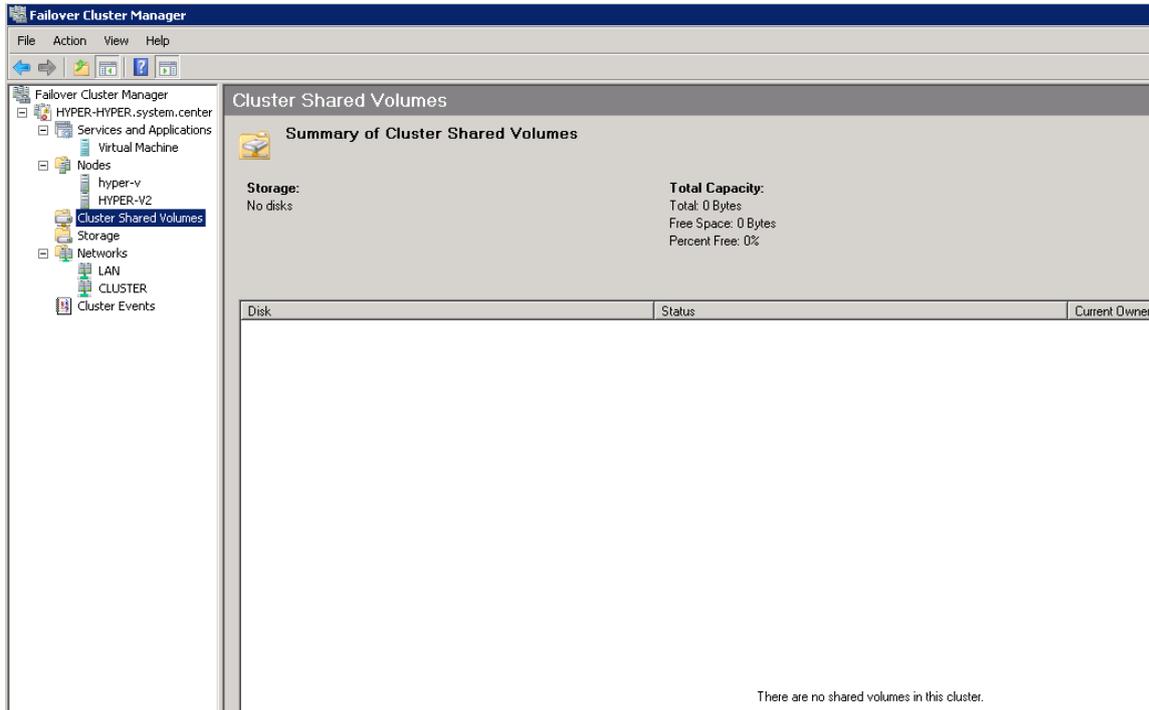
OK, also erstmal CSV aktivieren



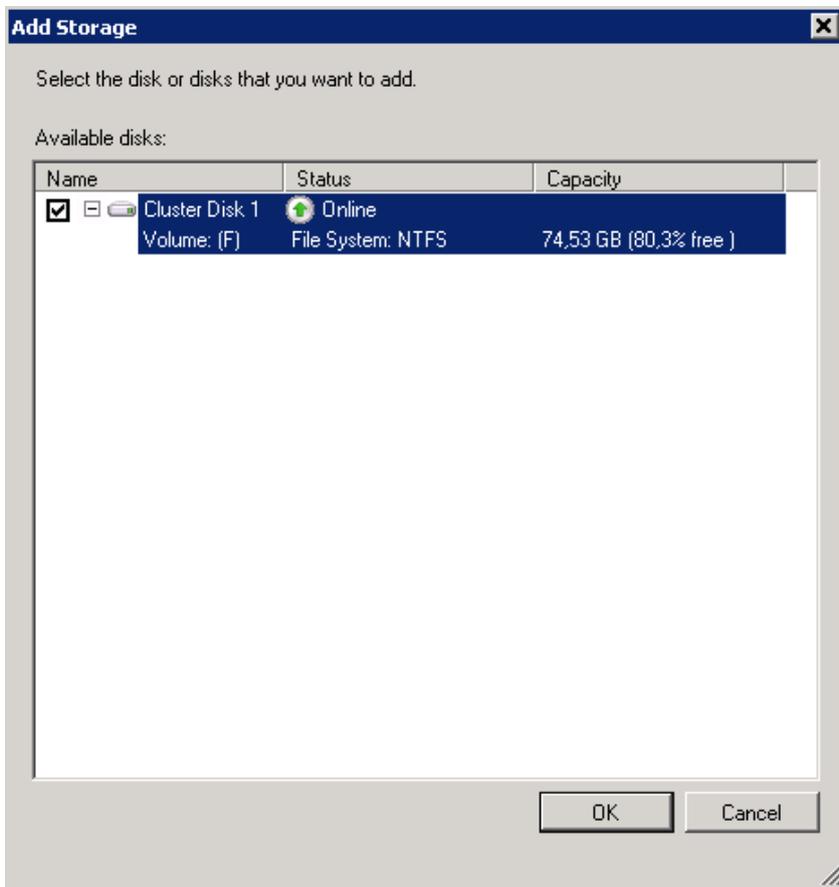
Jawoll, verstanden!



Nix Speicher da:



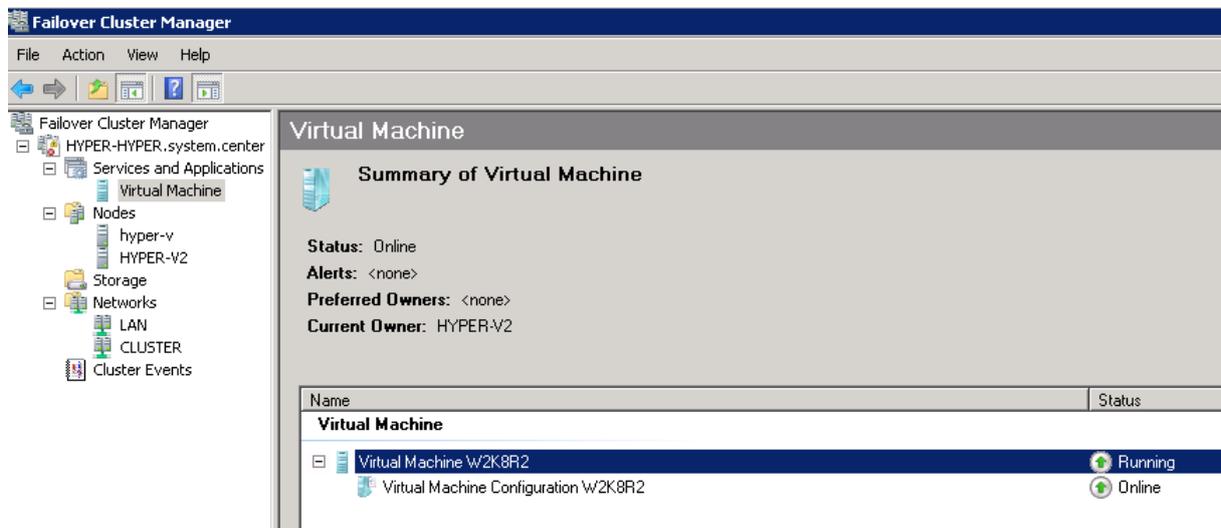
Dann mal was hinzufuegen



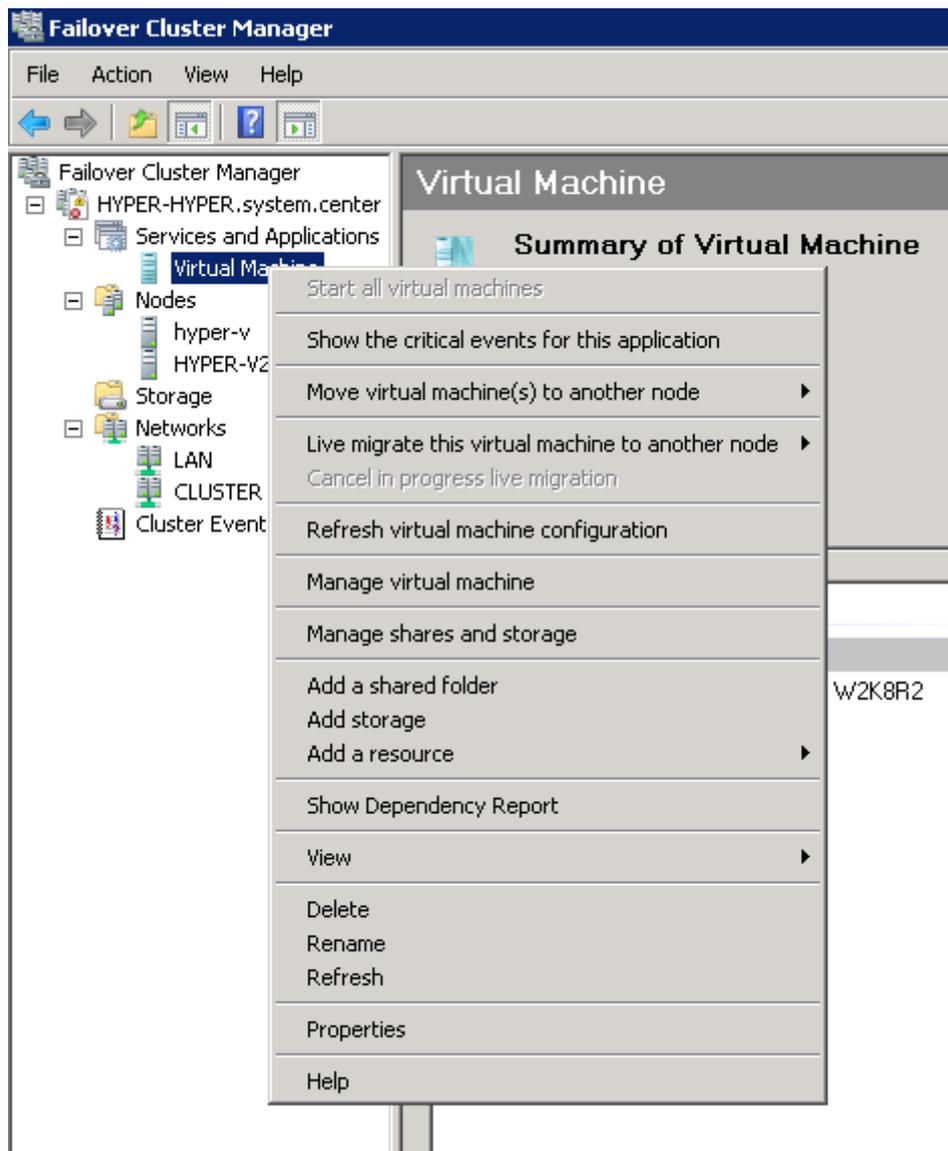
OK, Online!



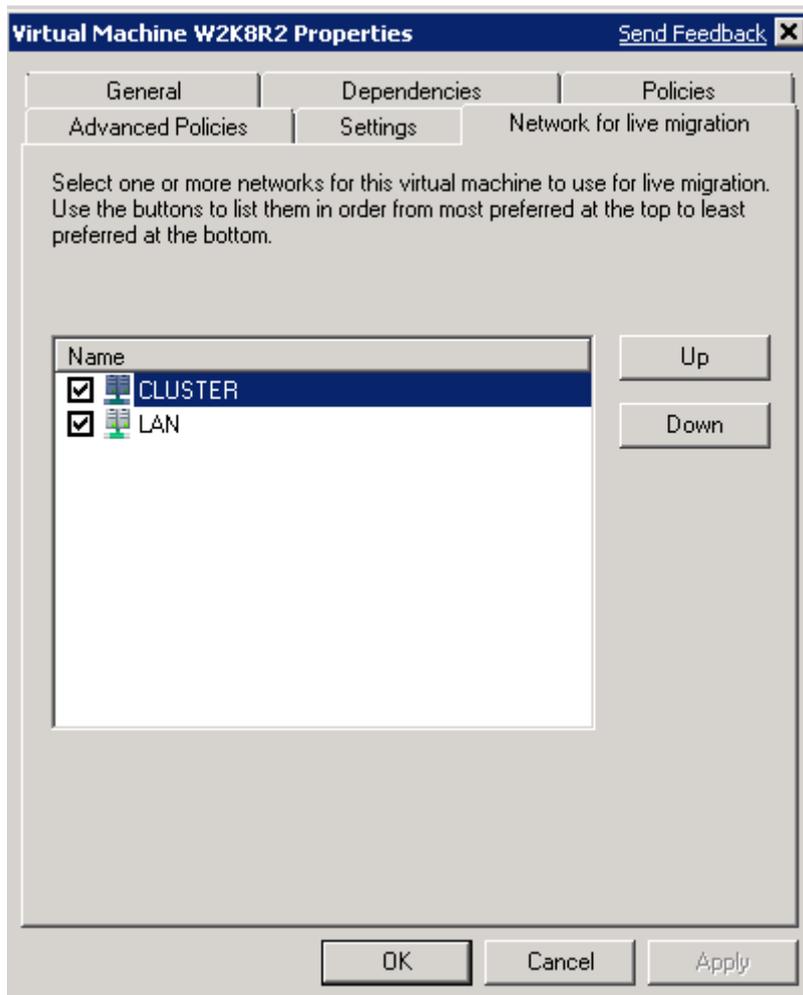
VM Cluster Verwaltung



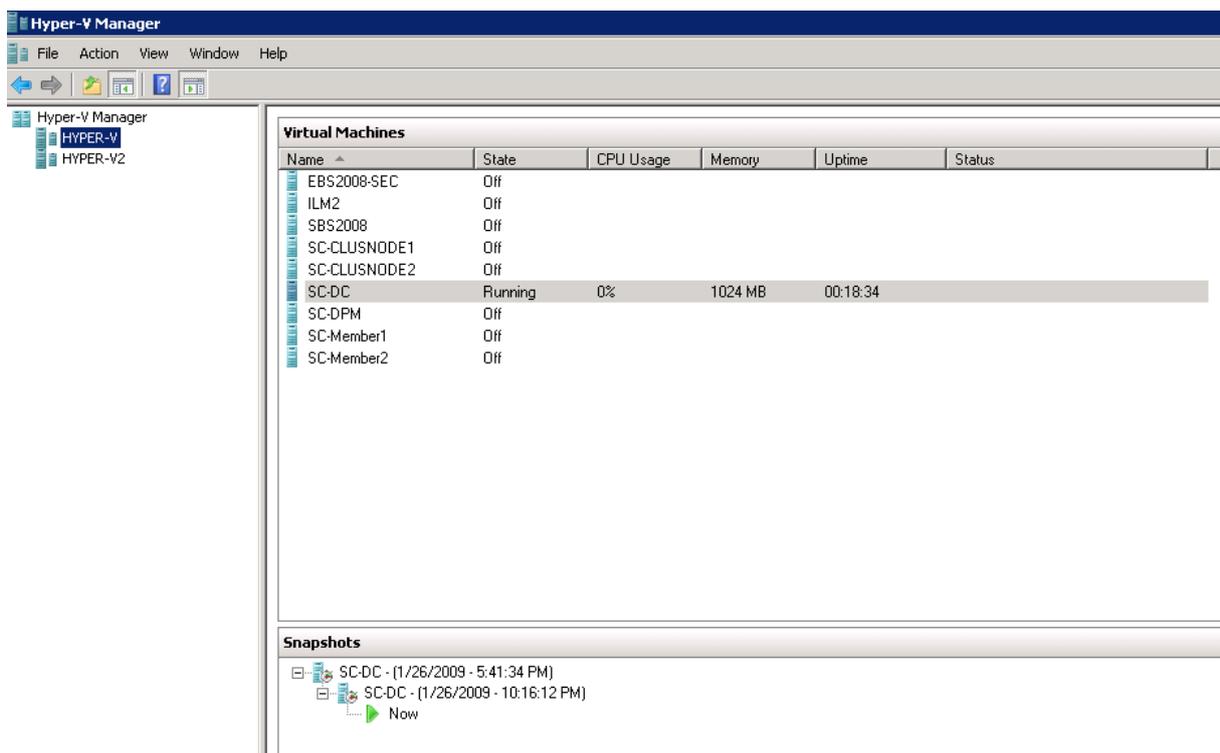
Live is Live



Netzwerk fuer Live Migration



Verwalten der VM ueber den Hyper-V Manager



Neue VM einrichten und auf CSV legen

The screenshot shows the 'New Virtual Machine Wizard' window, specifically the 'Connect Virtual Hard Disk' step. The window title is 'New Virtual Machine Wizard' and the subtitle is 'Connect Virtual Hard Disk'. On the left, there is a navigation pane with the following steps: 'Before You Begin', 'Specify Name and Location', 'Assign Memory', 'Configure Networking', 'Connect Virtual Hard Disk' (which is highlighted), 'Installation Options', and 'Summary'. The main area contains the following text: 'A virtual machine requires storage so that you can install an operating system. You can specify the storage now or configure it later by modifying the virtual machine's properties.' There are three radio button options: 'Create a virtual hard disk' (selected), 'Use an existing virtual hard disk', and 'Attach a virtual hard disk later'. Under 'Create a virtual hard disk', there are three input fields: 'Name' with the value 'CSV-test.vhd', 'Location' with the value 'C:\ClusterStorage\Volume1\CSV-test\' and a 'Browse...' button, and 'Size' with a spinner set to '127' and the text 'GB (Maximum: 2040 GB)'. Under 'Use an existing virtual hard disk', there is one input field: 'Location' with the value 'D:\vm\sc-dpm\' and a 'Browse...' button. At the bottom right, there are four buttons: '< Previous', 'Next >', 'Finish', and 'Cancel'.

New Virtual Machine Wizard

Connect Virtual Hard Disk

Before You Begin
Specify Name and Location
Assign Memory
Configure Networking
Connect Virtual Hard Disk
Installation Options
Summary

A virtual machine requires storage so that you can install an operating system. You can specify the storage now or configure it later by modifying the virtual machine's properties.

Create a virtual hard disk

Name:

Location:

Size: GB (Maximum: 2040 GB)

Use an existing virtual hard disk

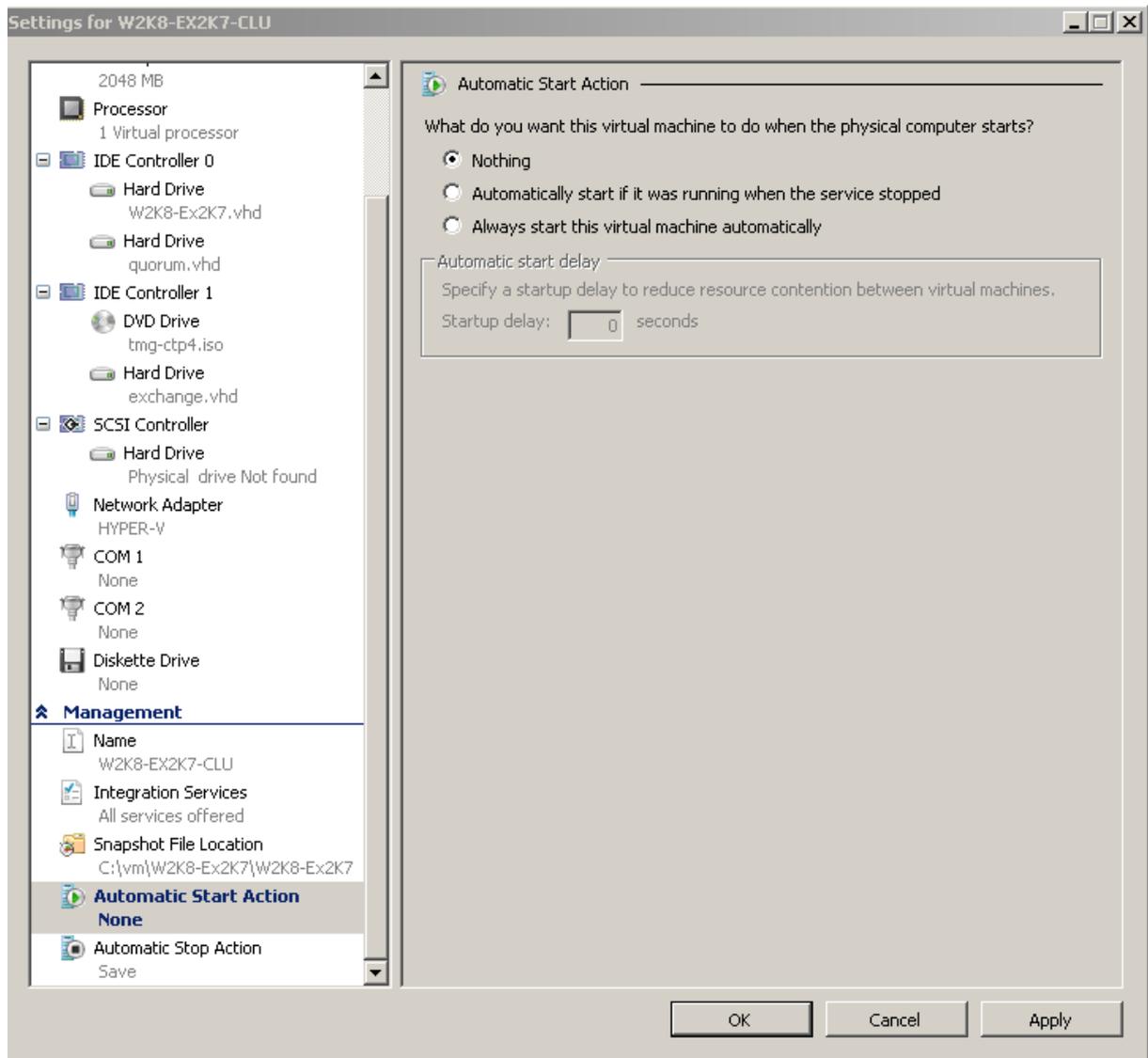
Location:

Attach a virtual hard disk later

< Previous Next > Finish Cancel

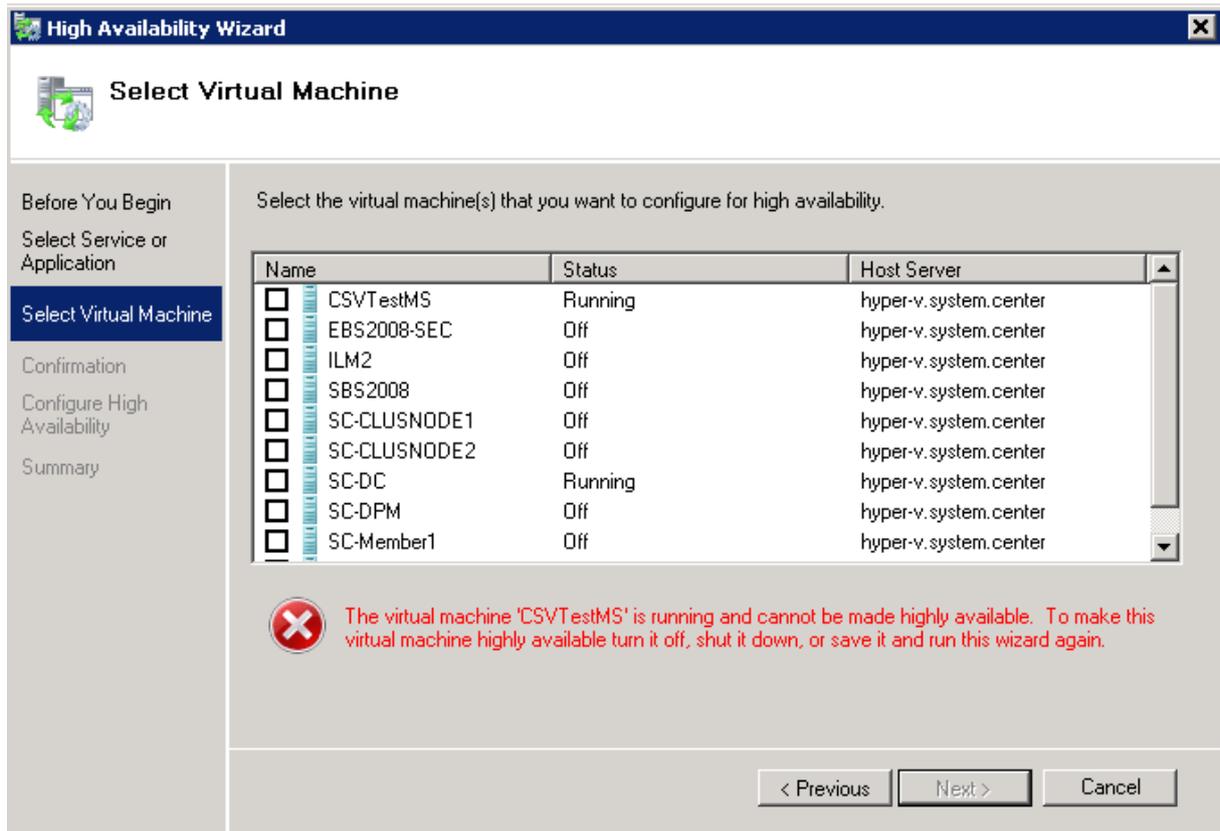
Maschine installieren.

Danach die Starteinstellungen der Maschine auf "keine Aktion" stellen

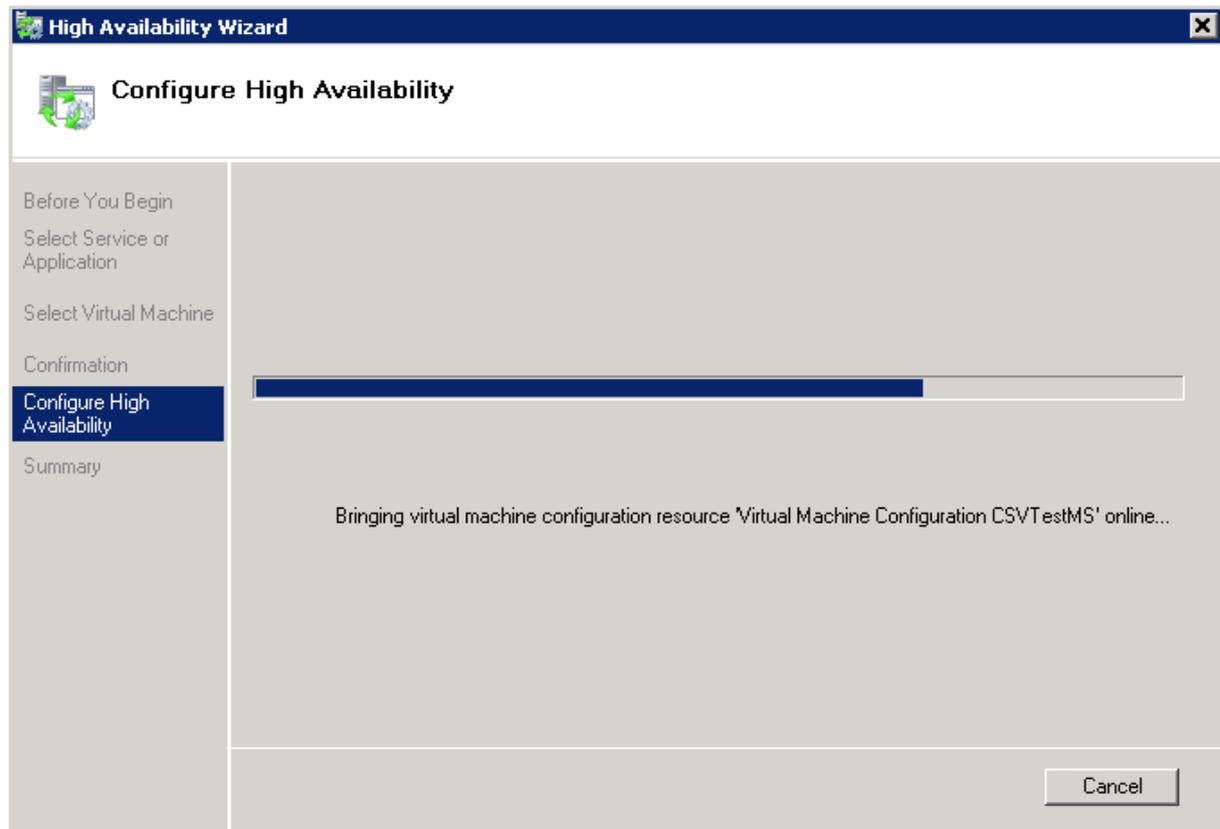


Danach kann die VM in der Failover Verwaltungskonsole hochverfuegbar gemacht werden.

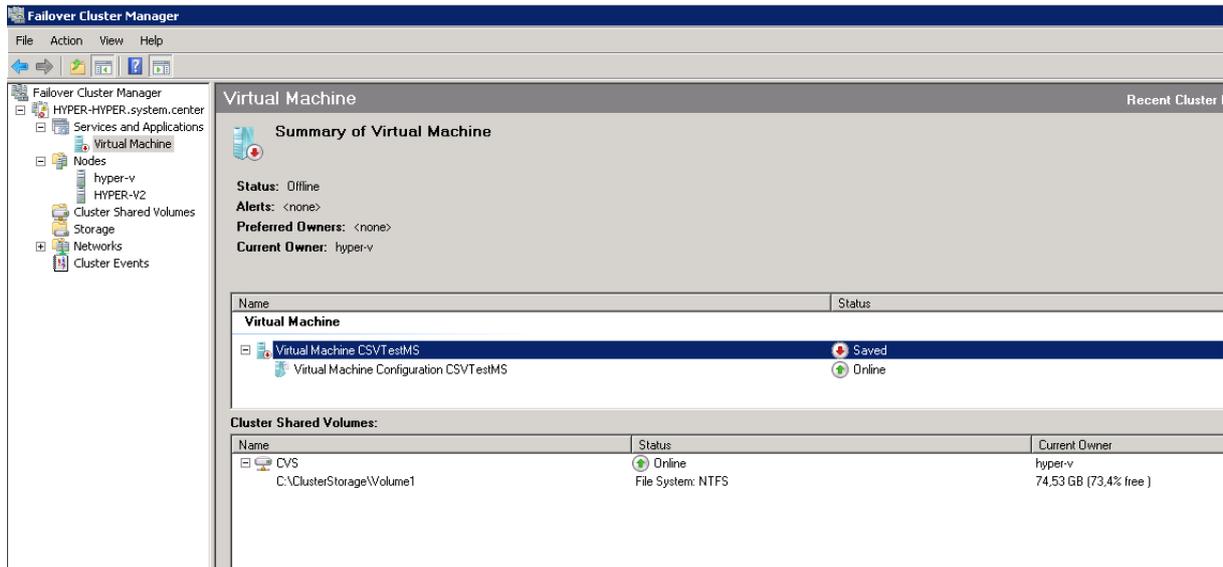
VM muss ausgeschaltet sein



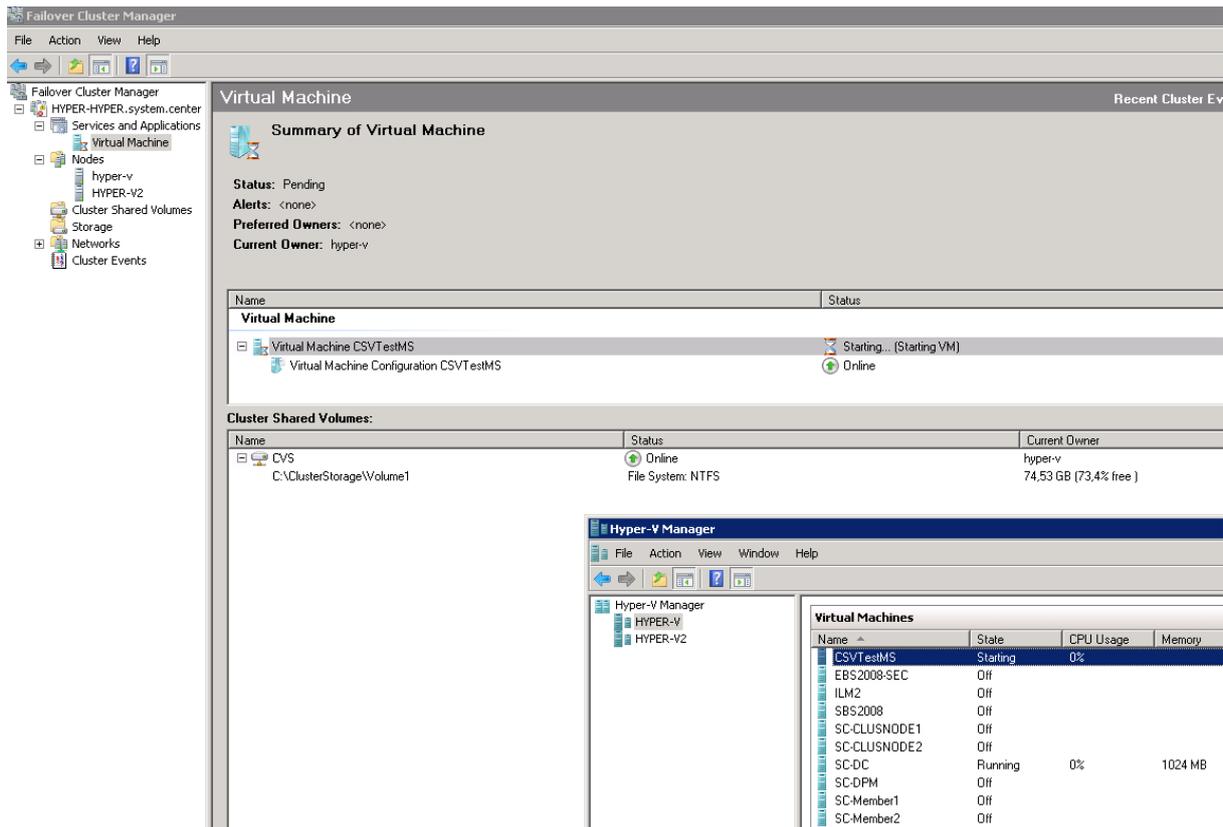
Ab geht's



VM im Failover Cluster Manager



VM wird gestartet



Laeuft

Name	Status
Virtual Machine	
Virtual Machine CSVTestMS	Running
Virtual Machine Configuration CSVTestMS	Online

Cluster Shared Volumes:		
Name	Status	Current Owner
CVS C:\ClusterStorage\Volume1	Online File System: NTFS	hyper-v 74,53 GB (73,4% free)

Jetzt mal live migrieren

The screenshot shows the Failover Cluster Manager interface. A context menu is open over the 'Virtual Machine' section, with the option 'Live migrate this virtual machine to another node' selected. A sub-menu item '1 - Live migrate to node HYPER-V2' is visible. The background shows the 'Summary of Virtual Machine' for 'Virtual Machine CSVTestMS', with status indicators for 'Running' and 'Online'.

Name	Status
Virtual Machine	
Virtual Machine CSVTestMS	Running (Migrating, 0% completed)
Virtual Machine Configuration CSVTestMS	Online

Cluster Shared Volumes:		
Name	Status	Current Owner
CVS C:\ClusterStorage\Volume1	Online File System: NTFS	hyper-v 74,53 GB (73,4% free)

Dauert etwas, aber alles geht weiter (nicht wundern, ich installierte zu dem Zeitpunkt der Live Migration gerade ein Betriebssystem in der VM)

The screenshot displays the Hyper-V management console. At the top, a table lists virtual machines:

Name	Status
Virtual Machine	
Virtual Machine CSVTestMS	Running (Migrating, 31% completed)
Virtual Machine Configuration CSVTestMS	Online

Below this, the 'Cluster Shared Volumes' section shows a table:

Name	Status	Current Owner
CVS	Online	hyper-v
C:\ClusterStorage\Volume1	File System: NTFS	74,53 GB (73,4% free)

An inset window titled 'CSVTestMS on localhost - Virtual Machine Connection' is overlaid on the console. It shows the 'Windows Server 2003, Enterprise Edition Setup' screen with a blue background. At the bottom of the window, the text 'Restarting computer...' is visible.

In meiner Testumgebung hat das ganze eine Weile gedauert, durch die Konstellation iSCSI Target in einer VM auf meinem Notebook welche mit einer USB Passthrough Disk bedient wurde, ist die Performance natuerlich nicht so super!