My current MS Failover Clustering testing configuration looks as follow:



First of all we need to be sure that Linux -IO Target (LIO) has been installed. Try executing Linux-IO Target management shell "targetcli" and if it succeeded then we are fine. If not – go and install it.

Next we have to create and configure iSCSI backend. Here is how it looks on my system:

[vrozenfe@jack msfc]\$ targetcli targetcli shell version 2.1.fb42 Copyright 2011-2013 by Datera, Inc and others. For help on commands, type 'help'.

You are not root, disabling privileged commands.

/> ls	
0- /	
o- backstores	[]
o- block	
o- fileio	
o- disk01[/home/vrozenfe/work/images/disk01.ir	mg (10.0GiB) write-back activated]
o- pscsi	[Storage Objects: 0]
o- ramdisk	
0- iscsi	
o- iqn.2016-03.local.server:sas	
o- tpg1	[no-gen-acls, no-auth]
0- acls	
o- iqn.2008-11.org.linux-kvm:5b959a7f-e33f-4229-97b4-da6fe8fb7062	
o- mapped_lun0	[lun0 fileio/disk01 (rw)]
o- iqn.2008-11.org.linux-kvm:4c377bf7-23b1-3413-a3c1-bc9f5b32a344	
o- mapped_lun0	[lun0 fileio/disk01 (rw)]

o- luns	
o- lun0	[fileio/disk01 (/home/vrozenfe/work/images/disk01.img)]
o- portals	
o- 0.0.0.0:32	50
o- loopback	
o- vhost	[Targets: 0]

There are a lot of usefull step-by-step information regarding to building iSCSI target with targetcli utility, one of them can be found here: <u>http://www.server-world.info/en/note?os=CentOS_7&p=iscsi</u>

However there is one thing that probably requires some explanation. When we create ACLs we need to provide correct IQNs like:

iqn.2008-11.org.linux-kvm:5b959a7f-e33f-4229-97b4-da6fe8fb7062 and iqn.2008-11.org.linux-kvm:4c377bf7-23b1-3413-a3c1-bc9f5b32a344

where 'iqn.2008-11.org.linux-kvm:' is a default prefix that QEMU uses if the initiator name has not been specified, and "5b959a7f-e33f-4229-97b4-da6fe8fb7062 " or "5b959a7f-e33f-4229-97b4-da6fe8fb7062 " are the UUIDs associated with the relevant VMs. It is simply how the QEMU iSCSI layer builds INQ names by concatenating two strings.

Next we need to start working on Windows setup.

First of all we need to setup a AD/DNS Server. In my case I used a physical WS2012R2 system for this purpose, but it can be a VM as well. Then I created two WS2012R2 virtual machines. For the reference, please see below the contents of both command files I use for running my two-node failover clustering setup:

[vrozenfe@jack fc]\$ cat fc0.sh #!/bin/sh

IMG='/ws2012r2_fc0.qcow2' QEMU=/home/vrozenfe/work/upstream/qemu/x86_64-softmmu/qemu-system-x86_64 DISC='iscsi://192.168.1.200:3260/iqn.2016-03.local.server:sas/0' VNC='-vnc 0.0.0.0:5'

sudo \$QEMU -cpu qemu64,+x2apic,family=0xf,hv_vapic,hv_spinlocks=0xfff,hv_time -boot c -m
1G -smp 4,maxcpus=4,cores=2,threads=1,sockets=2 -usbdevice tablet -drive
file=/home/vrozenfe/work/images\$IMG,if=none,id=drive-ide0-0-

0,cache=off,werror=stop,rerror=stop -device ide-drive,bus=ide.0,unit=0,drive=drive-ide0-0-0,id=ide0-0-0,bootindex=1 -netdev tap,id=hostnet0 -device

e1000,netdev=hostnet0,mac=26:3A:42:3F:5B:70,id=net0 -boot dc -uuid 5b959a7f-e33f-4229-97b4da6fe8fb7062 -rtc-td-hack -global kvm-pit.lost_tick_policy=discard -monitor stdio -name FC0 -enable-kvm -vga cirrus \$VNC -drive

file=\$DISC,if=none,media=disk,format=raw,rerror=stop,werror=stop,readonly=off,aio=threads,cac he=none,cache.direct=on,id=drive-hotadd,serial=sas-test -device virtio-scsi-pci,id=scsi-hotadd -device scsi-block,drive=drive-hotadd,id=hotadd,bus=scsi-hotadd.0,bootindex=2 [vrozenfe@jack fc]\$ cat fc1.sh #!/bin/sh IMG='/ws2012r2_fc1.qcow2' QEMU=/home/vrozenfe/work/upstream/qemu/x86_64-softmmu/qemu-system-x86_64 DISC='iscsi://192.168.1.200:3260/iqn.2016-03.local.server:sas/0' VNC='-vnc 0.0.0.0:7'

sudo \$QEMU -cpu qemu64,+x2apic,family=0xf,hv_vapic,hv_spinlocks=0xfff,hv_time -boot c -m
1G -smp 4,maxcpus=4,cores=2,threads=1,sockets=2 -usbdevice tablet -drive
file=/home/vrozenfe/work/images\$IMG,if=none,id=drive-ide0-00,cache=off,werror=stop,rerror=stop -device ide-drive,bus=ide.0,unit=0,drive=drive-ide0-00,id=ide0-0-0,bootindex=1 -netdev tap,id=hostnet0 -device
e1000,netdev=hostnet0,mac=26:3A:42:3F:5B:72,id=net0 -boot dc -uuid 4c377bf7-23b1-3413-a3c1bc9f5b32a344 -rtc-td-hack -global kvm-pit.lost_tick_policy=discard -monitor stdio -name FC1
-enable-kvm -vga cirrus \$VNC -drive
file=\$DISC,if=none,media=disk,format=raw,rerror=stop,werror=stop,readonly=off,aio=threads,cac

```
he=none,cache.direct=on,id=drive-hotadd,serial=sas-test -device virtio-scsi-pci,id=scsi-hotadd
-device scsi-block,drive=drive-hotadd,id=hotadd,bus=scsi-hotadd.0,bootindex=2
```

Then we have specify network settings for both VM and add them to domain.

This is how Node0 network configuration looks like:



And finally we have to add Failover Clustering feature on both nodes:



After that stage we should be able to start Faiover Clustering Validation Wizard.

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輼		Failover Cluster Manager			_ 🗆 X
<u>F</u> ile <u>A</u> ction <u>V</u> iew <u>H</u> elp					
📲 Failover Cluster Manager	Failover Cluster Manager			^	Actions
	Create failover clusters, validate hardware for potential failover clusters, and perform configuration changes to your failover clusters.				
	 Overview 				Connect to Cluster
	A failover cluster is a set of independ	ent computers that work together to increase the availa	bility of server roles. The		View
	node begins to provide services. This	s process is known as failover.	ule nodes fails, another		Q Refresh
					Properties
	 Clusters 				? Help
	Name	Role Status	Node Status		
No items found. No items found. Management To begin to use failover clustering, first validate your hardware configuration, and then create a cluster. After these				=	
	steps are complete, you can manage running Windows Server 2012 R2, W	the cluster. Managing a cluster can include copying rol indows Server 2012, or Windows Server 2008 R2.	les to it from a cluster		
	Validate Configuration				
	Create Cluster			н	
	Connect to Cluster				
	 More Information 			~	
This action launches the validation w	izard, which guides you through the	process of testing the hardware configuration for a	cluster.		
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We have to start with "Validate Configuration" option.



Press "Next"

		QEMU (FCO) – TigerVNC	×
B2		Failover Cluster Manager	_ 🗆 X
File Action View Help			
📲 Failover Cluster Manager	Failover Cluster	Manager 🔷 🗛	ctions
	Kille Create failo	ver clusters, validate hardware for potential failover clusters, and perform configuration changes to F	ailover Cluster Mana 🔺
		Validate a Configuration Wizard	Validate Configuration
	Select Ser	vers or a Cluster	Create Cluster Connect to Cluster
			View 🕨
Befo	ore You Begin	To validate a set of servers, add the names of all the servers.	Refresh
Selection	ect Servers or a ster	to test an existing cluster, add the name of the cluster of one of its hodes.	Properties
Test Conf Valid Sum	ting Options firmation dating nmary	Enter name: Selected servers: Add Remove	Help
	Connect to Cl	iormation	
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Go to "Browser".

	QEMU (FCO) – TigerVNC	×
<u>u</u>	Failover Cluster Manager	_ 🗆 X
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📲 Failover Cluster Manager	Failover Cluster Manager	ctions
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	Validate a Configuration Wizard	Validate Configuration
	Select Computers	Create Cluster
	Select this object type:	View
	Computers Qbject Types	Refresh
	From this location:	Properties
		Help
	Enter the object names to select (examples): Browse Browse	
	Add	
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This action launches the validat	tion wizard, which guides you through the process of testing the hardware configuration for a cluster.	
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"Advanced".

	QEMU (FCO) – TigerVNC	×	
	Failover Cluster Manager		
File Action View Help			
Failover Cluster Manager Failover Cluster Manager		Actions	
Create failover clusters, validat	e hardware for potential failover clusters, and perform configuration char	nges to Failover Cluster Mana 🔺	
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		Create Cluster	
Select this object type:	Object Types	Connect to Cluster	
From this location:		View P	
corp.vrozenfe.com	Locations	Retresh	
Common Queries		Help	
Name:	Columns	Browse	
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Description: Starts with V	- Find 200	Remove	
	Stop	Neniove	
Non expiring password	~~ I		
Days since last logon: 🗸 🗸	+		
	OK Cancel		
Search res <u>u</u> ts:			
Ivane in Folder			
		Cancel	
This action launches the validatio			
		9-28 PM	
		▲ 13 12 10 100 100 100 100 100 100 100 100 1	

Let the Wizard to find the relevant candidates.

QEMU (FCO) – TigerVNC ×				
Bailover Cluster Manager	_ D X			
File Action View Help				
Bailover Cluster Manager	Actions			
Create failover clusters, validate hardware for potential failover clusters, and	d perform configuration changes to Failover Cluster Mana A			
Select Computers	Validate Configuration			
Select this object tops:	Create Cluster			
Computers Qbject	Types			
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corp.vrozenfe.com	tions Properties			
Common Queries	Help			
Name: Starts with ✓	Columns Browse			
Description: Starts with V	Find Now Add			
	Stop			
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Name In Folder				
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WIN-SAS-FC0 corp.vrozenfe.c				
WIN-SAS-FC1 corp.vrozente.c				
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And choose our two nodes.

	QEMU (FCO) – TigerVNC	×	
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	Validate a Configuration Wizard	Validate Configuration	
	Select Computers	Connect to Cluster	
	Select this object type:	View •	
	Computers Qbject Types	Refresh	
	From this location: corp.vrozenfe.com	Properties	
	Enter the object names to select (examples):	Help	
	WIN-SAS-FC1 Qheck Names		
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L			
	Connect to Cluster		
	More Information		
This action launches the validation wizard, which guides you through the process of testing the hardware configuration for a cluster.			
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		Validate a Configuration Wizard		
	Select Servers or a Cluster			
			View	
	Before You Begin To va Select Servers or a	lidate a set of servers, add the names of all the servers. st an existing cluster, add the name of the cluster or one of its nodes.	Properties	
	Cluster Testing Options Entern Confirmation Select Validating Select Summary	name:	Help	
	Connect to Cluster More Informa	tion		
This action launches the valida	ion wizard, which guides you th	rough the process of testing the hardware configuration for a cluster.	0.20 PM	
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Run only selected tests this time.



Disable all options except for "Storage".



Run the test.





And get results.