iStorage Server: High-Availability iSCSI SAN for Citrix Xen Server

Monday, Apr 25, 2011



KernSafe Technologies, Inc.

www.kernsafe.com

Copyright © KernSafe Technologies 2006-2011. All right reserved.

Table of Contents

Overview
Install Xen Server
Configuring on Server14
Create Target
Configuring on Server2
Create Target
Creating Application on server1
Creating Application on server2
Configuring Xen Server
Log On to Xen Server
Enable Multipathing
Add iSCSI storage device into Xen Server
Create a virtual machine
Install Operating system
Contact

Overview

iStorage Server is a network based storage virtualization software powered by KernSafe Technologies, Inc. Being a powerful, full-featured and software-only iSCSI Target SAN solution, that can quickly convert existing Windows computer into IP SAN. Storage media of iSCSI Target can include existing storage devices such as the entire hard disks or partitions, CD-RWs, tapes and USB storage devices, as well as disk image file or CD image files including ISO9660(,iso), .bin, .mdf, .cdi, .b5i, .nrg, .ccd, .sub, .img, .raw and other image file formats. Furthermore, iStorage Server also supports a lot of features such as: VHD (Virtual Hard Disk) target, snapshots, STPI, RAID-1 and failover, these features are very important and poplar in storage industry world and make iStorage Server is suitable for any size of business.

Citrix Xen Server[™] is the only enterprise-class, cloud-proven virtualization platform that delivers the critical features of live migration and centralized multi-server management at no cost. Xen Server is an open and powerful server virtualization solution that radically reduces datacenter costs by transforming static and complex datacenter environments into more dynamic, easy to manage IT service delivery centers.

High availability is the implementation of technology so that if a component fails, another can take over for it. By using highly available platforms, the downtime for a system can be reduced, and, in many cases, it can be reduced to a short enough time that the users of the system do not see the failure.

After iStorage Server 2.0, it supports server side mirroring, synchronous replication and failover which allows user to create a high-availability iSCSI SAN for Citrix XenServer.

We need two targets which has the same name and the same size on two servers, in this document, we used server1 192.168.0.195 and server2 192.168.0.111.

Install Xen Server

You need a server running Xen Server. Xen Server must first be installed on to a suitable machine that will be used to create the virtual environment. For how to obtain or install Citrix Xen Server, please contact the Citrix supplier.

Configuring on Server1

Open iStorage Server Management Console.

🍓 iStorage Server Managemer	nt Console		
<u>S</u> torage <u>C</u> lients <u>V</u> iew	<u>T</u> ools <u>H</u> elp		
Create Delete	Start Stop Refresh	Add Remove View Access Settings	
E@ server1	iStorage Server:server		
Applications	General Targets Applications IP Filt	ers Users Groups Logs	
	Storage General Properties		
	General		
	Hostname:	server1 =	
	Bind Address:	All Address	
	Port:	3260	
	Management Method:	Active Directory	
	State:	ок	
	Status		
	Status:	Started	
	License:	Ultimate License	
	•	4	
		SI Connected:server1(Ultimate License)	

Create Target

Launch the **iStorage Server Management Console**, press the **Create** button on the toolbar of iStorage Server management console, the **Create Device Wizard** is shown.

Select a device type

Create iSCSI Target Wizard	×
iSCSI Device Type Select which device type of the iSCSI target you want to create.	
 Hard Disk Create iSCSI target by using physical disk, partition, standard image file or VHD. CD/ DVD Device Create iSCSI target by using physical optical drive or CD / DVD image file. Generic SCSI Create iSCSI target by using generic SCSI device, such as disk, CD-ROM, tape, printer. 	
< Back Next >	Cancel

Choose Hard Disk.

Press the **Next** button to continue.

Select a medium type.

Create iSCSI Target Wizard	×
iSCSI Medium Type Select medium of the iSCSI disk you want to create.	
 Image File Create iSCSI disk by using standard image file or Virtual Hard Disk (.VHD). RAM Space Create iSCSI disk by using memory space. Security Images Create iSCSI disk images for each initiators, any image is individual for each initiator. Disk Partition Create iSCSI target by using a disk partition. Physical Disk Create iSCSI target by using physical disk. 	
< Back Next > Car	icel

Choose Image File in iSCSI Medium Type window.

Then press **Next** button to continue.

Select an Image type.

Create iSCSI Target Wizard	×
iSCSI Image Type Select image type of the iSCSI disk you want to create.	
 Standard Image File Create iSCSI disk by using a standard disk image file. Virtual Hard Disk (VHD) Create iSCSI disk by using a Virtual Hard Disk image file. 	
< Back Next > Can	cel

Choose Standard Image File.

Press the **Next** button to continue.

Specify image file path and size.

Create iSCSI Target Wizard	×
Image Disk Configuration You can specify a image file as an iSCSI device.	<u></u>
Device Parameters	
 Use existing image file Oreate a new image file 	
F:\XenData.img Browse	
Device Size in MBs: 10240	
Options	
Use sparse file on NTFS file system	
Note: Using sparse file can save your harddisk space, the size of disk image file only depend on its content used. But we recommentd that using this feature when image file size is less than 1T bytes	
< Back Next >	Cancel

Specify the image file.

Specify the device size.

If you check **Use sparse file on NTFS file system**, the size of disk image file only depend on its content used, it can save your hard disk space.

Press the **Next** button to continue.

Set authorization mode.

Create iSCSI Target Wizard	X
Authorization You can select an authorization mode, Anonymous, CHAP or IP filter.	4
Anonymous Select this option to disable any authorization.	
CHAP Select this option to use CHAP authorization.	
IP Filter Select this option to use IP address authorization.	
Mixed Select this option to use both CHAP and IP address authorization.	
Inherit security roles from global settings.	
< Back Next >	Cancel

Choose Anonymous authorization.

Press the **Next** button to continue.

Finish creating iSCSI Target

Create iSCSI Target Wizard	×
Completing the Create iSCSI Wizard You can specify a target name and other options to complete iSCSI target creating.	4
Basic Target Information	
Enter Target Name:	
iqn.2006-03.com.kemsafe:KemSafe.XenTarget1	
Report as readonly device when initiator can not get write access	
Enable multiple initiators with full access connected (sharing and clustering)	
Note	
By default, only one client has full access right, when the second initiaor log on with full access, it will fail. But this option is usfull for clustering, disk sharing and NAS.	
< Back Finish	Cancel

Type a target name in the Target Name field, we use **KernSafe. XenTarget1** as an example.

Check the Enable multiple initiators with full access connected (sharing and clustering) check box.

Press the **Finish** button to complete create target.

Configuring on Server2

Open iStorage Server Management Console.

🍓 iStorage Server Management	: Console	
<u>S</u> torage <u>C</u> lients <u>V</u> iew <u>T</u> o	ools <u>H</u> elp	
Create Delete	Start Stop Refresh	Add Remove
Server2 Istorage Server:server2 Applications General Targets Applications IP Filters IPFilters Storage General Properties Ions Storage General Properties		
	General	Server2
	Bind Address:	All Address
	Port:	3260
	Management Method:	Active Directory
	State:	ок
	Status	
	Status:	Started
	License:	Ultimate License
	•	4
		🔇 Connected:server2(Ultimate License)

Create Target

Launch the **iStorage Server management consolle**, press the **Create** button on the toolbar of iStorage Server management console, the **Create Device Wizard** is shown.

Select a device type

Create iSCSI Target Wizard	×
iSCSI Device Type Select which device type of the iSCSI target you want to create.	
 Hard Disk Create iSCSI target by using physical disk, partition, standard image file or VHD. CD/ DVD Device Create iSCSI target by using physical optical drive or CD / DVD image file. Generic SCSI Create iSCSI target by using generic SCSI device, such as disk, CD-ROM, tape, printer. 	
< Back Next >	Cancel

Choose Hard Disk.

Press the **Next** button to continue.

Select a medium type.

Create iSCSI Target Wizard	×
iSCSI Medium Type Select medium of the iSCSI disk you want to create.	
 Image File Create iSCSI disk by using standard image file or Virtual Hard Disk (.VHD). RAM Space Create iSCSI disk by using memory space. Security Images Create iSCSI disk images for each initiators, any image is individual for each initiator. Disk Partition Create iSCSI target by using a disk partition. Physical Disk Create iSCSI target by using physical disk. 	
< Back Next > Car	icel

Choose Image File in iSCSI Medium Type window.

Then press **Next** button to continue.

Select an Image type.

Create iSCSI Target Wizard	×
iSCSI Image Type Select image type of the iSCSI disk you want to create.	
 Standard Image File Create iSCSI disk by using a standard disk image file. Virtual Hard Disk (VHD) Create iSCSI disk by using a Virtual Hard Disk image file. 	
< Back Next > Can	cel

Choose Standard Image File.

Press the **Next** button to continue.

Specify image file path and size.

Create iSCSI Target Wizard	×
Image Disk Configuration You can specify a image file as an iSCSI device.	<u></u>
Device Parameters	00000000
 Use existing image file Oreate a new image file 	
i:'Ven Data.img Browse	
Device Size in MBs: 10240	
Options Use sparse file on NTFS file system Note: Using sparse file can save your harddisk space, the size of disk image file only depend on its content used. But we recommentd that using this feature when image file size is less than 1T bytes	
< Back Next >	Cancel

Specify the image file.

Specify the device size.

If you check **Use sparse file on NTFS file system**, the size of disk image file only depend on its content used, it can save your hard disk space.

Press the **Next** button to continue.

Set authorization mode.

Create iSCSI Target Wizard	×
Authorization You can select an authorization mode, Anonymous, CHAP or IP filter.	1
Anonymous Select this option to disable any authorization.	
CHAP Select this option to use CHAP authorization.	
IP Filter Select this option to use IP address authorization.	
Mixed Select this option to use both CHAP and IP address authorization.	
Inherit security roles from global settings.	
< Back Next > C	Cancel

Choose **Anonymous** Authorization.

Press the **Next** button to continue.

Finish creating iSCSI Target

Create iSCSI Target Wizard	×
Completing the Create iSCSI Wizard You can specify a target name and other options to complete iSCSI target creating.	4
Basic Target Information	
Enter Target Name:	
iqn.2006-03.com.kemsafe:KemSafe.XenTarget2	
Report as readonly device when initiator can not get write access	
Enable multiple initiators with full access connected (sharing and clustering)	
Note	
By default, only one client has full access right, when the second initiaor log on with full access, it will fail.	
But this option is usfull for clustering, disk sharing and NAS.	
< Back Finish (Cancel

Type a target name in the Target Name field, the target name must be the same as the target on server1.

Check the Enable multiple initiators with full access connected (sharing and clustering) check box.

Press the **Finish** button to complete create target.

Creating Application on server1

On Server1, right click **Applications** on the left tree of the main interface, choose **Create Application** on the pop-up menu, the **Create Application Wizard** widow will be shown.

Create Application Wizard	×
Application Type Select which type of application you want to create.	4
 Mirror Application Attach to a local iSCSI target and a remote iSCSI target to create a mirror device (RAID-1). Failover iSCSI SAN Node Create an high-availability failover iSCSI SAN node by using two or more iSCSI targets 	
< Back Next > Ca	ancel

Choose Failover iSCSI SAN Node.

Then press Next to continue.

ase Target		
Target Name	Device Type	
☑ iqn.2006-03.com.kemsafe:KemSafe.XenTarget1	Disk	
lirror Target	Ed	lit

Check the KernSafe.XenTarget1 storage and click Edit to find the mirror target.

Select iSCSI Tar	get		 X
- iSCSI Sourc	e		
Host Name:	192.168.0.111	Port:	3260
CHAP	Use CHAP to logon		
User Name:			
Secret:			
— Target ——			
Target:	iqn.2006-03.com.kernsafe:KernSafe.Xer	nTarget	2 🔻
	DiscoveryOK		Cancel

Input the IP and port of server2 in **iSCSI Source** tab, and then click **Discovery** on the bottom of the window to find the mirror target, choose the **KernSafe.XenTarget2** in the down-list.

Press **OK** button to continue.

Note: If the target needs CHAP authorization, you should provide User name and secret to logon.

Create Application Wizard	— X-		
Fail Over Configuration You can specify two servers to fail over each other.	4		
Base Target			
Target Name	Device Type		
Iqn.2006-03.com.kemsafe:KemSafe.XenTarget1	Disk		
Mirror Target iqn.2006-03.com.kemsafe:KemSafe.XenTarget2	Edit		
	Back Next > Cancel		

The mirror target will be added to the window, then click **Next** button to continue.

Mirror Synchronization		
Synchronization Type		
Create mirror device with full synchronization from base iSCSI target		
 Create mirror device without synchronization (Manual Initialization) 		
Synchronization Progress		
Warning: all data on the mirror device will be destroyed after synchronization.		

Now, the mirror target should be synchronized to the base target, if the two targets are both the new one and do not be initialized, we can choose **Create mirror device without synchronization (Manual Initialization)**, otherwise, we must choose **Create mirror device with full synchronization from base iSCSI target**.

Press **OK** button to continue.



Click **Finish** button to complete the application creation.

Creating Application on server2

On Server2, right click **Applications** on the left tree of the main interface, choose **Create Application** on the pop-up menu, the **Create Application Wizard** widow will be shown.

Create Application Wizard	×
Application Type Select which type of application you want to create.	4
 Mirror Application Attach to a local iSCSI target and a remote iSCSI target to create a mirror device (RAID-1). Failover iSCSI SAN Node Create an high-availability failover iSCSI SAN node by using two or more iSCSI targets 	
< Back Next > Ca	ancel

Choose Failover iSCSI SAN Node.

Then press Next to continue.

Target Name Device Type	
-	
✓ iqn.2006-03.com.kemsafe:KemSafe.XenTarget2 Disk	
Airror Target	

Check the KernSafe.XenTarget2 storage and click Edit to find the mirror target.

Select iSCSI Tar	get		×
- iSCSI Sourc	e.—		
Host Name:	192.168.0.195	Port:	3260
CHAP	Use CHAP to logon		
User Name:			
Secret:			
- Target			
Target:	iqn.2006-03.com.kernsafe:KernSafe.Xe	enTarget	1 🔹
	DiscoveryOK		Cancel

Input the IP and port of server1 in **iSCSI Source** tab, and then click **Discovery** on the bottom of the window to find the mirror target, choose the **KernSafe.XenTarget1** in the down-list.

Press **OK** button to continue.

Note: If the target needs CHAP authorization, you should provide User name and secret to logon.

Create Application Wizard	— X—		
Fail Over Configuration You can specify two servers to fail over each other.	4		
Base Target			
Target Name	Device Type		
Iqn.2006-03.com.kemsafe:KemSafe.XenTarget2	Disk		
Mirror Target iqn.2006-03.com.kemsafe:KemSafe.XenTarget1 Edit			
	Back Next > Cancel		

The mirror target will be added to the window, then click **Next** button to continue.

Mirror Synchronization
Synchronization Type
Create mirror device with full synchronization from base iSCSI target
Oreate mirror device without synchronization (Manual Initialization)
Synchronization Progress
Warning: all data on the mirror device will be destroyed after synchronization.

Now, the mirror target should be synchronized to the base target, if the two targets are both the new one and do not be initialized, we can choose **Create mirror device without synchronization (Manual Initialization)**, otherwise, we must choose **Create mirror device with full synchronization from base iSCSI target**.

Press **OK** button to continue.



Click **Finish** button to complete the application creation.

Configuring Xen Server

Log On to Xen Server

Open Xen Server console.

XenCenter						
File View Pool Server VM Sto	rage Templates Tools \ ew Server provide New Pool	Window Help	🕑 Shut Down 🛛 🖌 No System Alerts 👳			
Show: Server view 2	Home Search Tags Lo	anc -				
B 192.168.0.149	Citrix XenServer Enterprise-class. Cloud-proven. Free.					
	LEARN	ADD	GET			
	about using XenCenter	a server	Essentials for XenServer			
	Community Support Partners					
	Network with other XenServer users					
	Visit the Citrix Knowledge Center					
	Learn more about partner offerings					
	L		.:			

Click Add New Server in the tool bar.

Add New Server dialog is shown.

🔀 Add New Se	erver ? X						
Enter the host name or IP address of the server you want to add and your user login credentials for that server.							
Server:	192.168.0.149 👻						
User login c	User login credentials						
User name:	root						
Password:	•••••						
	Add Cancel						

Input IP address / Name with which running Xen Server, User name and password.

Press the **Connect** button to continue.

The XenCenter which is connected to Xen Server is shown.

XenCenter						. 🗆 🗙
File View Pool Server VM	M Storage Templates Tool	s Window Help				
Sack 🔹 🛞 Forward 🕞 📑 Add New Server 💼 New Pool 🔐 New Storage 💼 New VM 🕘 Shut Down 🎇 Reboot 🕕 Suspend 🖌 No System Alerts						
Show: Server View 🔎 💌	🌡 localhost.localdomain			Logged	l in as: Loca	root account
🗆 😣 XenCenter	Search General Storage Netw	vork NICs Console Perform	ance Logs			
Iocalhost.localdomain IOCalhost.localdomain IOVD drives	Storage Repositories					
🖉 Local storage						
📓 Removable storage	Name	Description	Type Shared	Usage	Size	Virtual allo
	Removable storage		udev No	0% (0 B used)	0 B	0 B
	🖉 Local storage		LVM No	0% (4 MB used)	29.6 GB	0 B
	DVD drives	Physical DVD drives	udev No	100% (1024 MB used)	1024 MB	1024 MB
	٢		11			•
	PL					

Enable Multipathing

Before to add storage, we must ensure that the Xen Server have enabled multipathing, we should to this by entering maintenance mode and change this property, click **Server->Enter Maintenance mode**, the following window is shown.

	Ente	r Maintenance Mode -localhost.localdomain	? ×	
		This operation will migrate all running VMs from this server and transition it maintenance mode.	into	
L	Virtu	al machines on this server:		
		Enter Maintenance	Cancel	

Click **Enter Maintenance** button, the server will enter maintenance mode.

Click **Server->properties**, click **Multipathing** on the left panel of the pop-up window, the following window is shown.



Check **Enable multipathing on this server** and press **OK** button to exit, this server have now enabled multipathing.

After enabling multipath on server you need to add a KernSafe device to multipath configuration file.

You can do it by switching to server console and starting typing fallowing commands:

cd etc vi multipath.conf



After you will start editing (by pressing i) that document, go to devices and add fallowing KernSafe device:

device {

vendor "KernSafe" product "*" path_checker tur path_grouping_policy failover failback 30

}

	noth chockon tun
	path_checker tur
	failback immediate
	no path retry 12
3	
device	{
	uendon "DataCone"
	product "SHN*"
	path_checker tur
	path grouping policy failover
	failback 30
2	Turibuck So
3	
device	ł.
	Jendor "KernSafe"
	moduct "*"
	path_checker tur
	path_grouping_policy failover
	failback 30
3	
doutoo	<i>t</i>
aevice	
	vendor "IBM"
	product "1723*"
	nrio callout "/shin/mnath nrio rdac /deu//n"
	path grouping policy group hypric
	here droubing hours droub pd huit
INSERT	

Save the document by pressing **ESC** and **ZZ**.

Next step is to restart multipath service by typing:

chkconfig multipathd reset

[root@localhost [root@localhost	~]# ~]#	chkconf ig	multipathd	reset		

In the next step we need to discover and connect to our iSCSI targets.

We can discover targets using this command:

iscsiadm -m discovery -t sendtargets --portal 192.168.0.111

[root@localhost	~]#	iscsiadm -m	discovery -t	sendtargetsp	ortal	192.168.0.111

Do the fallowing for second portal as well.

After you will successfully discover two targets you can log into then using this command:

iscsi -m node -T iqn.2006-03.com.kernsafe:KernSafe.XenTarget1 -p 192.168.0.111 --op update -n node.startup -v automatic

It will also connect automatically to iSCSI target upon boot.



Do the fallowing for second target as well.

After connecting to those two targets, you can check if multipath feature is turned ON using:

multipath -II



We have now successfully enabled multipath on our targets.

Other useful commands:

chkconfig open-iscsi restart - Restart open-iscsi service:

iscsiadm -m node -T iqn.2006-03.com.kernsafe:KernSafe.XenTarget1 -p 192.168.0.111 -u - Log off
the target

For more information, please visit <u>http://support.citrix.com/article/CTX118791</u>.

Add iSCSI storage device into Xen Server



Click New Storage, New Storage Repository dialog is shown.

Input IP address and port (if not 3260) of the Host that runs iStorage Server, press the **Discover IQNs** button, a list of Targets in drop-down control is shown.

🛞 New Storage Repository - loc	alhost.localdomain		
💣 Enter a name and pat	h for the new iSCS	il storage	3
Type Location	Select a name ar target LUN befo	nd provide a target host for your new ISCSI storage, indicating your target I re proceeding.	QN and your
	Name: Target Host:	iSCSI virtual disk storage 192.168.0.195	: 3260
	Use CHAP User: Password:		
	Target IQN: Target LUN:	iqn.2006-03.com.kernsafe:KernSafe.XenTarget 2(192.168.0.195 ▼	Discover IQNs Discover LUNs
CITRIX.			
		< Previous Next > Finish	Cancel

Select desired target in the list.

If the target you want to connect to has CHAP Authentication, check **Use CHAP** and input user name and secret.

Press the **Discover LUNs** button.

The iSCSI Target now contains a valid LUN. Here we create a 10G image file device as a demo.

path for the new iSCS	il storage	0
Select a name ar target LUN befo	nd provide a target host for your new ISCSI storage, indicating your target IQN and you re proceeding.	r
Name: Target Host:	iSCSI virtual disk storage 192.168.0.195 : 3260	
User: Password:		
Target IQN: Target LUN:	iqn.2006-03.com.kernsafe:KernSafe.XenTarget 2(192.168.0.195 •) Discover IQN LUN 0: 01CB3A78F1359BE0: 10 GB (KernSafe) •)	ls Vs
	Select a name as target LUN befor Name: Target Host: Use CHAP User: Password: Target IQN: Target LUN:	path for the new iSCSI storage Select a name and provide a target host for your new ISCSI storage, indicating your target IQN and you target LUN before proceeding. Name: iSCSI virtual disk storage Target Host: 192.168.0.195 Use CHAP : 3260 User:

Press the **Finish** button to continue.

The following dialog is shown, press the **Yes** button to proceed.

Location	
<u>^</u>	Creating a new virtual disk on this LUN will destroy any data present. You must ensure that no other system is using the LUN, including any XenServers, or the virtual disk may become corrupted while in use. Do you wish to format the disk?
	Yes No

Now Xen Server is carrying on a series of operations, such as **Creating SR**, to create data structures required by data repositories.

XenCenter		
	Creating SR	
	-	
		Cancel

Sorted! You now see an iSCSI storage device successfully added into Xen Server.

XenCenter			
File View Pool Server V	M Storage Templates T	fools Window Help	יר
GBack • 💮 Forward • 📑	Add New Server 🕴 🎼 New	r Pool 📸 New Storage 📷 New VM 🛛 🕘 Shut Down 🛛 🗹 No System Alerts	
Show: Server View 🔎 💌	iSCSI virtual disk stor	rage Logged in as: Local root account	t
XenCenter Accelhort localdomain	General Storage Logs		
DVD drives	Storage General Prope	erties Properties	
iSCSI virtual disk stor.			-1
Removable storage	General		
	Name:	iSCSI virtual disk storage	
	Description:	iSCSI SR [192.168.0.195 (ign.2006-03.com.kernsafe.KernSafe.XenTarget2)]	
	Tags:	Add Tag	
	Folder:	<none> Change</none>	
	Type:	LVM over iSCSI	
	Size:	4 MB used of 10 GB total (0 B allocated)	
	SCSI ID:	20000000000000	
	Status		
	State:	ок	
	localhost.localdomain:	Connected	
	Multipathing		
<	localhost.localdomain:	2 of 2 paths active (2 iSCSI sessions)	

At the bottom of this interface you can see there are 2 of 2 paths active.

If by some reasons you will see only 1 path active, go back to your server console and type:

/opt/xensource/sm/mpathcount.py

This causes to refresh multipath status in virtual storage.



After you will do it, you should be able to see proper 2 out of 2 paths active.

Create a virtual machine

Click New VM on Xen Server console.

Select **Windows 7 x64** in the following wizard.

😣 New VM - localhost.localdoma	in entre second	□ X
Select an operating s	ystem for the new virtual machine	?
Template Name Location CPU & Memory Virtual Disks Virtual Interfaces Finish	Templates: Image: SUSE Linux Enterprise Server 10 SP1 Image: SUSE Linux Enterprise Server 10 SP1 x64 Image: SUSE Linux Enterprise Server 10 SP2 x64 Image: SUSE Linux Enterprise Server 10 SP2 x64 Image: SUSE Linux Enterprise Server 10 SP2 x64 Image: SUSE Linux Enterprise Server 11 x64 Image: Windows 7 Image: Sum Server 2003 Image: Windows Server 2008 Image: Windows Server 2008	E t
CITRIX.	then reconfigure themselves with the optimal settings for Windows 7 xb4. VCPUs: 1 Memory: 2 GB	Cancel

Input the desired name and description.

😣 New VM - localhost.localdoma	in	and the second second	_ □	x
💣 Enter a name and de:	scription for the I	new virtual machine		?
Template Name Location CPU & Memory Virtual Disks Virtual Interfaces Finish	Name: Description:	Windows 7 x64 (1)		
CITRIX.		< Previous Next > Finish	Can	icel

Press the **Next** to continue.

Select installation media for operating system.

New VM - localhost.localdoma	in f the guest operating system in	stallation media	×
Template Name	Select a physical DVD/CD-RC for your guest operating syst media.	IM drive and insert the installation media em, or use an ISO image of your installation	
Location CPU & Memory	Physical DVD Drive:	DVD drive 0 on localhost.localdomain	•
Virtual Disks	ISO Image:	xs-tools.iso	-
Virtual Interfaces			
Finish			
CITRIX			
		< Previous Next > Finish Ca	ncel

Choose **physical DVD Drive** on XenServer.

Press the **Next** button to continue.

Specify the number of CPUs and memory size.

New VM - localhost.localdom	PUs and the initial memory allocation for the new VM
Template Name Location CPU & Memory Virtual Disks Virtual Interfaces Finish	Number of vCPUs: Initial memory: 1024 MB Iocalhost.localdomain Physical CPUs: 2 Total memory: 2029 MB Free memory: 1623 MB
6110-0	< Previous Next > Finish Cancel

Select number of vCPUs.

Specify initial memory size.

Press the **Next** button to continue.

Select storage device.

New VM - localhost.localdomain Enter the information a	about the virtual	disks for the new virtual machine	e 3
Template Name Location	The default vir You can add, r Virtual disks in	tual disks for the template you have se modify or delete virtual disks, if require stalled on the new machine:	lected are listed below. d. When you have finished, click "Next" to
CPU & Memory	Size (GB)	Location	Shared
Virtual Disks Virtual Interfaces Finish	9	iSCSI virtual disk storage	Yes
CITRIX	L		Add Edit Delete
		< Previous	Next > Finish Cancel

First you see an **iSCSI Virtual disk storage** device, which is previously created by iStorage Server. It is Xen Server's default storage device. If you want to add other virtual disk, press the **Add** button.

Select **iSCSI virtual disk storage...** and then press the **Next** button, the **Disk Settings dialog** is shown.

Disk Settings			×
Enter the settings for the new virtual disk Size: 5.0 GB 🔲 Read Only –		Disk Access I	Priority
Location:	Lowest		Highest
Name 🔺	Description	Size (GB)	Free Space (GB)
iSCSI virtual disk stor	iSCSI SR [192.168.0.195 (iqn.2006-03.co	9	9
Local storage on loca		29	29
		Ok	Cancel

Specify the size of the new virtual disk.

Press the **OK** button to finish the wizard.

A virtual machine is built.

Note that before Version 5.5 update1 in the Storage labels of your virtual machine, you need to exchange the position of iSCSI Virtual Storage and Local Storage (make sure iSCSI Virtual Storage at position 0) so that the operating system can be installed on this iSCSI device.

Install Operating system

Run the virtual machine and set up the operating system.

The process is just like that on real machine.

XenCenter	
File View Pool Server VM Storage Templates Tools Window Help	
🔇 Back 🔹 💮 Forward 🕞 📑 Add New Server 🕴 🎼 New Pool 📑 New Storage 👘 New VM 🗏 🕘 Shut Down	✓ No System Alerts 👳
Show: Server View 🔎 🔻 Windows 7 x64 (1)	Logged in as: Local root account
General Storage Network Console Performance Snapshots Logs	
Windows 7 x64 (1) DVD Drive: DVD drive 0 on localhost.localdomain	Looking for guest console
DVD drives	
📓 Local storage	
a removable storage	
Windows is loading files	
Send Ctrl-Alt-Del	Shift+U) Fullscreen (Ctrl+Alt)

XenCenter	
File View Pool Server VM Storage Templates Tools Window Help	
😋 Back 🝷 💮 Forward 🕞 📑 Add New Server 🏥 New Pool 💣 New Storage 👘 New VM 🕘 Shut Down	🧹 No System Alerts 👳
Show: Server View P - 🚯 Windows 7 x64 (1)	Logged in as: Local root account
Console Performance Snapshots Logs	
Windows 7 x64 DVD Drive: DVD drive 0 on localhost.localdomain	Looking for guest console
iSCSI virtual dis	
Cocal storage Removable stol	
Windows ⁻⁷	
Install now 🏵	
	← F
What to know before installing Windows	
Kepair your computer Copyright © 2009 Microsoft Corporation. All rights reasonal.	
Send Ctrl-Alt-Del	Shift+U) Fullscreen (Ctrl+Alt)

Press the Install Now button to install OS.

XenCenter		
File View Pool Server	VM Storage Templates Tools Window Help	
Gack • 💮 Forward •	📑 Add New Server 📑 New Pool 💣 New Storage 💼 New VM 🕘 Shut Down	🧹 No System Alerts 👳
Show: Server View 🔎 💌 🦉	Windows 7 x64 (1)	gged in as: Local root account
G	General Storage Network Console Performance Snapshots Logs	
Windows 7 x64	DVD Drive: DVD drive 0 on localhost.localdomain 💌 🛛	ooking for guest console
W Windows 7 x64	Install Windows Where do you want to install Windows? Name Tetal Sce Free Spece Type Disk 8 Unaflocated Spece 8.0 G8 9.0 G8	
	4g Behreah Drive options (gdvanced) ● Load Driver ▲ ▲ The recommended free space for installation is 10338 MB. ■ Baset ▲ Catenting information	
< <u> </u>	Send Ctrl-Alt-Del	U) Fullscreen (Ctrl+Alt)

Select the 9G disk. Just like that on a real hard disk.

Setup starts copying files



Last, with all work done, we'll see iSCSI virtual storage device in the virtual operating system.

XenCenter				— — X
File View Pool Server VM Storage	Templates Tools Wind	dow Help		
G Back 👻 🕤 Forward 👻 🛛 📑 Add New S	ver 🗆 🎼 New Pool 💣 N	New Storage 👚 New VM 🗆 🌘	🕛 Shut Down	🧹 No System Alerts 🗧
Show: Server View 🔎 💌 🚯 Windows	x64 (1)		Log	ged in as: Local root account
S XenCenter Succenter Succenter	Network Console Perform /D drive 0 on localhost.localdo	nance Snapshots Logs	• L	ooking for guest console
Local storage	ile Action <u>View Help</u>	ce Properties		
Control and a store	Computer General Policies Volumes Image: System The volumes contained on Dat: Dat: Dat: Dat: Dat: Dat: Der Status: Der Status: Dato: Data Der Status: Mation style: Mation style: Der Perrered space: Image: System Volumes: Volume System Reserved	Driver Datals this disk are listed below. k 0 sic ine def Boot Record (MBR) 15 MB 48 8 Capacity 9114 MB 100 MB Properties Datals Database Properties Database D	e File, Crash	ent 🔺
	Unal	located Primary partition		Dat .
	و کا ک		P 1	9:43 AM 5/25/2010
< Ⅲ ► Send Ctrl-Alt	el	Scale	Undock (Alt+Shift+	U) Fullscreen (Ctrl+Alt)

Likewise, you may install Windows Server 2003, Windows XP, Vista and Windows Server 2008, or even any version of Linux as you wish.

Contact

Support:	support@kernsafe.com
Sales:	sales@kernsafe.com
Marketing:	marketing@kernsafe.com
Home Page:	http://www.kernsafe.com
Product Page:	http://www.kernsafe.com/product/istorage-server.aspx
Licenses	http://www.kernsafe.com/product/istorage-server/license-compares.aspx
Forum:	http://www.kernsafe.com/forum



KernSafe Technologies, Inc.

www.kernsafe.com

Copyright © KernSafe Technologies 2006-2011. All right reserved.