

Configure Citrix XenServer with P300Q

Tim Chung

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QSAN Technology, Inc.
<http://www.QsanTechnology.com>
White Paper# **QWP201011-P300H**

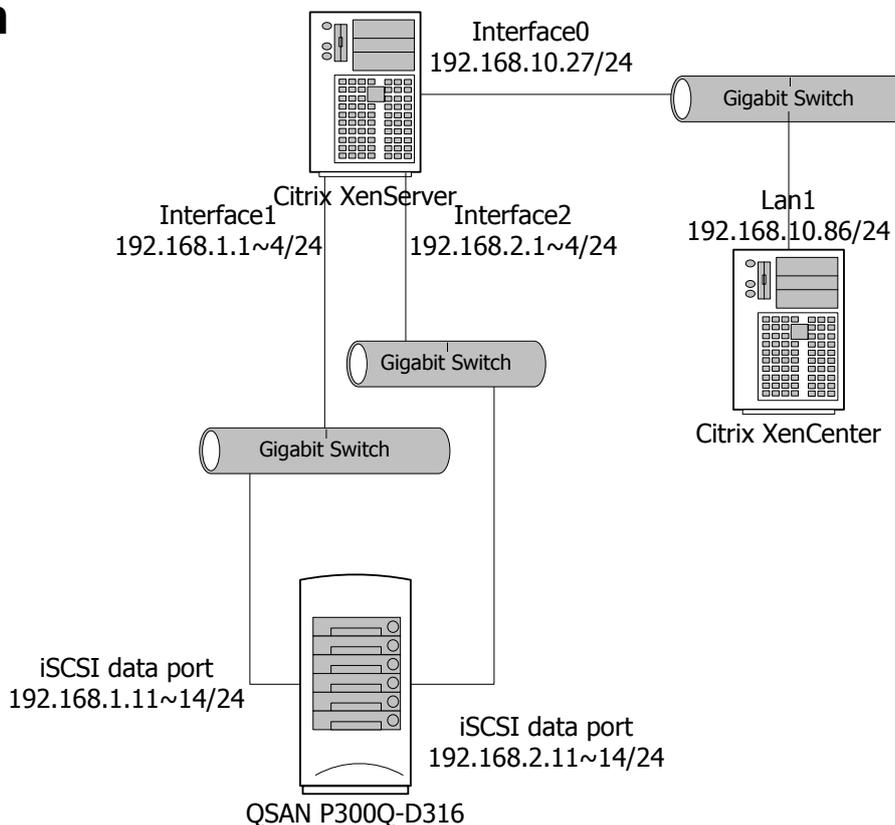
Introduction

In this document, it introduces how to use the QLogic iSCSI HBA and software iSCSI initiator in **Citrix XenServer** to connect to **QSAN P300Q-D316** subsystem as the iSCSI target. The multipathing is supported by **Citrix XenServer** and will be introduced in the following section, too.

Environment

Host OS:	Citrix XenServer 5.6.0
NICs:	Interface 0 (for management) Interface 1 (for iSCSI traffic) Interface 2 (for iSCSI traffic)
iSCSI HBA:	QLogic QLE4062C (dual-port)
Host OS for management console:	Windows Server 2003 Enterprise
NIC:	Lan1 (connect to XenServer management port)
Target:	QSAN P300Q-D316
RAM:	2GB DDR2-667 on each controller
Firmware:	2.0.1 (20101203_1500)
iSCSI data ports:	192.168.1.11~14/24 for ports on controller 1, 192.168.2.11~14/24 for ports on controller 2

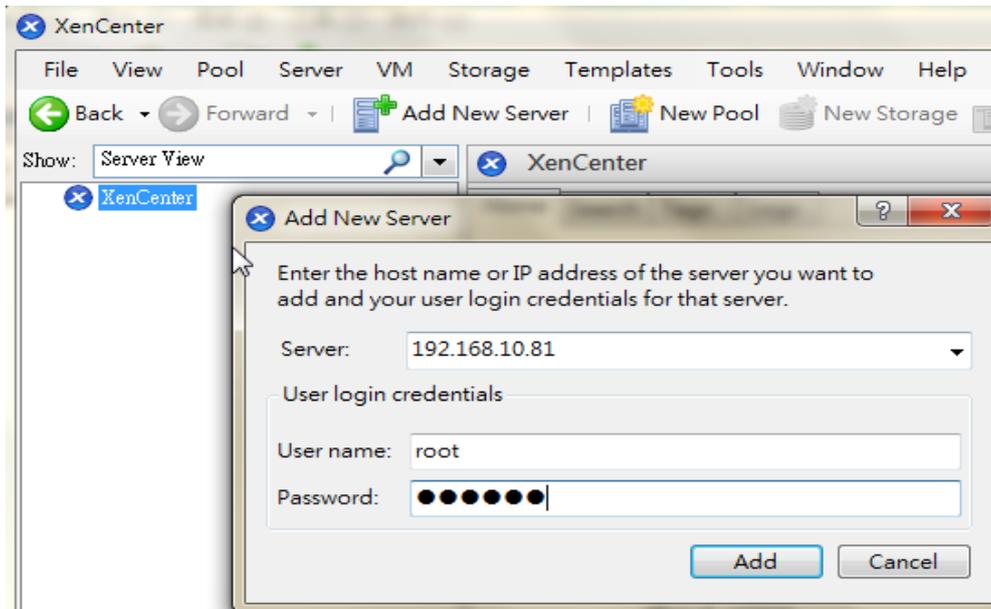
Diagram



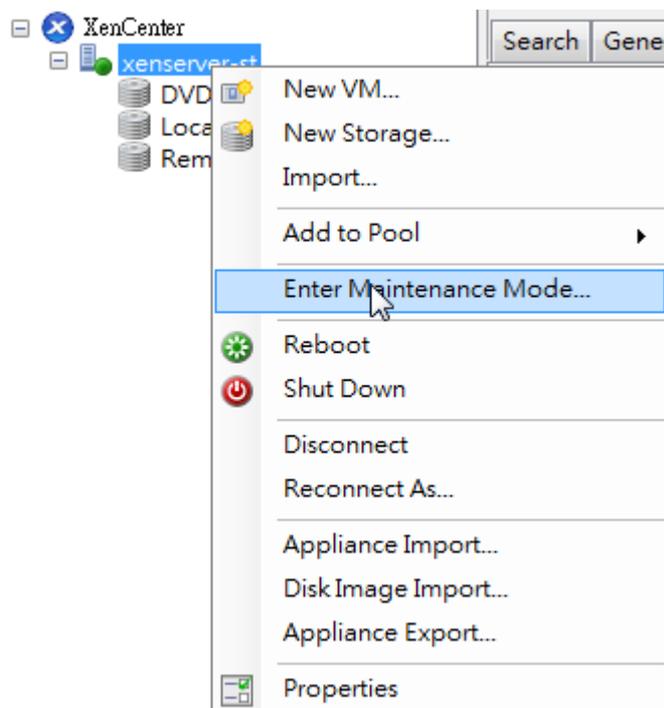
Configuration

Part 1: Enable the multipathing support in XenServer

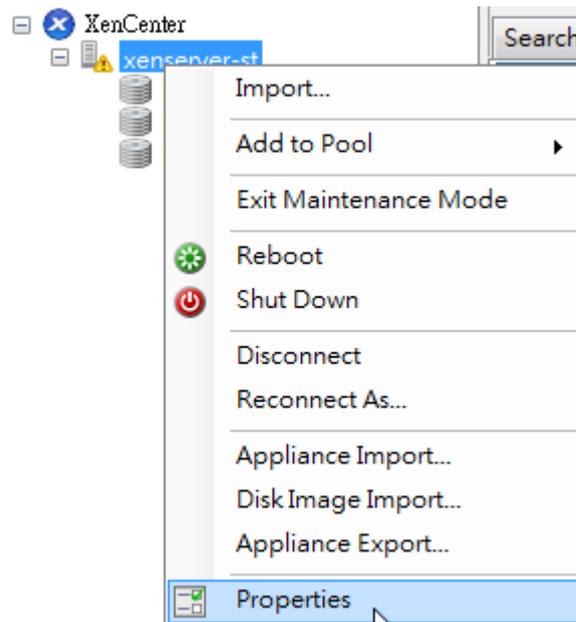
1. Login XenServer from Citrix XenCenter.



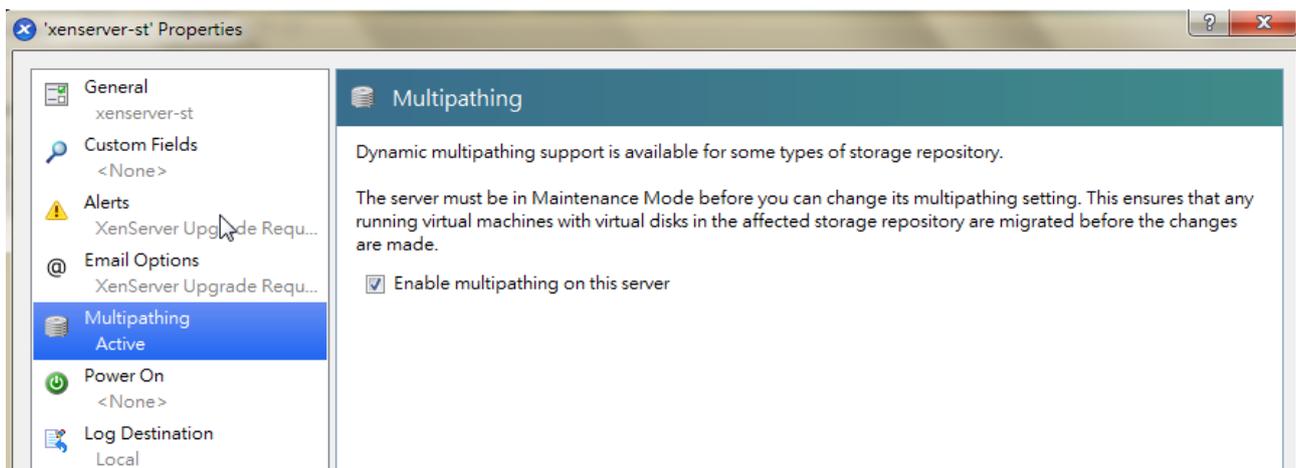
2. Right-click XenServer host and select **"Enter Maintenance Mode..."**, let the host go into maintenance mode.



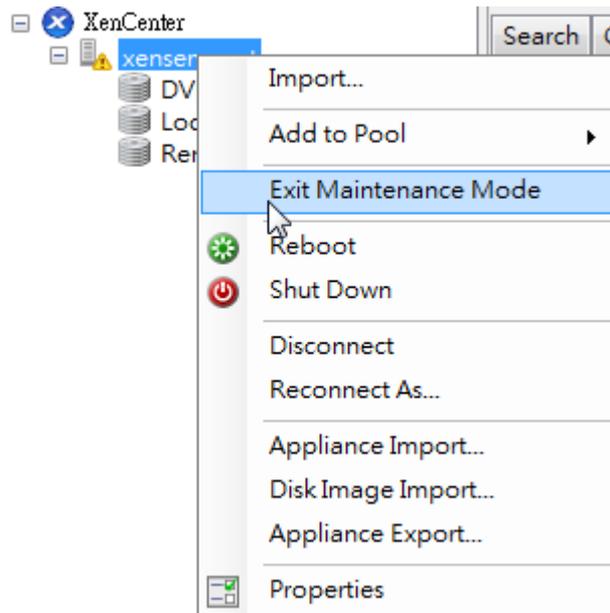
3. After the host is in maintenance mode, right-click the host and select **"Properties"**.



4. Highlight **"Multipathing"**, check **"Enable multipathing on this server"** option, and then click **"OK"** button.



5. Right-click the host and click **"Exit Maintenance Mode"**.



6. Now **"Multipathing"** is enabled on the host.

Part 2: When log on iSCSI target by QLogic iSCSI HBA

1. In the console of XenServer, run the following command to get text-based UI for the iSCSI HBA. Please refer to the CLI User's Guide in QLogic web site to set up the HBA correctly and log on iSCSI target.

```
# iscli
main Interactive Menu

-----
Program Version: 1.2.00.26 Driver Version: 5.01.00.00.05.06-c2 IC: 2
FW Version: 3.0.1.53 Type: Copper
Current HBA/Port Information: HBA Alias:
HBA: 0 Port: 0 HBA Port Index: 1 HBA Model: QLE4062C
IP Address: 192.168.100.80 Link: Down
IPv6 Protocol is currently disabled.
Port iSCSI Name: qsan
Port iSCSI Alias: QL4062-1
-----

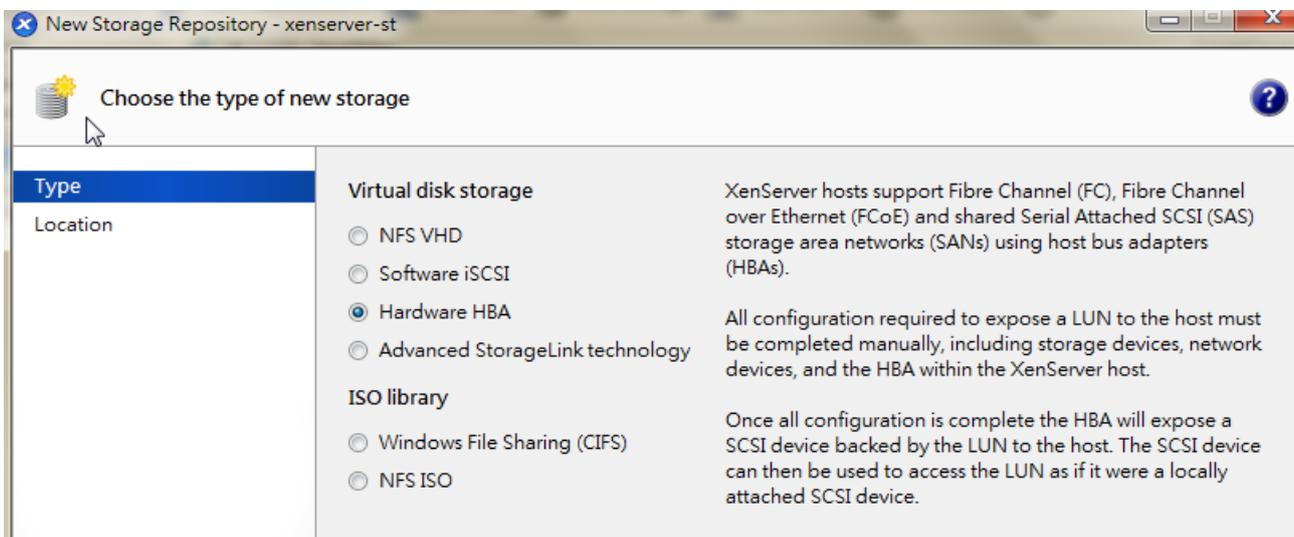
1. Display Program Version Information
2. Host Level Info & Operations
3. HBA Level Info & Operations
4. Port Level Info & Operations
5. List All QLogic iSCSI HBA Ports detected
6. Help
7. Select HBA Port
8. Refresh
9. Exit
enter selection:
```

2. Or the following commands can be used to assign IPs of iSCSI ports on HBA and connect to the iSCSI targets.

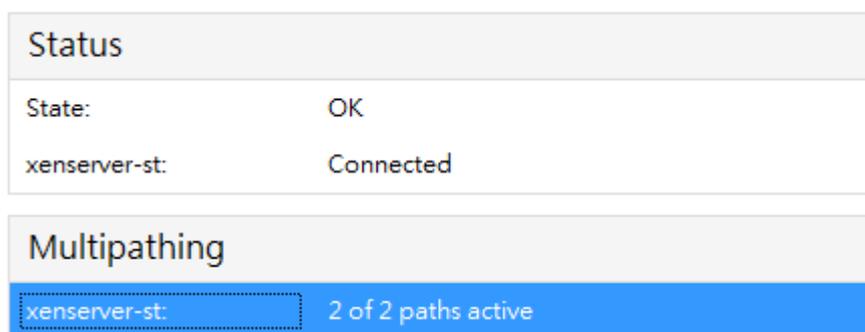
```
# iscli -ipdhcp 0 -IP 192.168.1.20 -IPNM 255.255.255.0 -IPGW 192.168.1.254
# iscli -ipdhcp 1 -IP 192.168.2.20 -IPNM 255.255.255.0 -IPGW 192.168.2.254
//Set IPs for port 0 and port 1 on iSCSI HBA

# iscli -pa 0 192.168.1.11 -NAME iqn.2004-08.tw.com.qsan:p300q:dev0.ctr1
# iscli -pa 1 192.168.2.11 -NAME iqn.2004-08.tw.com.qsan:p300q:dev0.ctr2
//Create persistent iSCSI targets to port 0 and port 1 on iSCSI HBA
```

3. Now it can be created a new SR by scanning the volume on iSCSI HBA. Select the type of Hardware HBA when creating the SR.



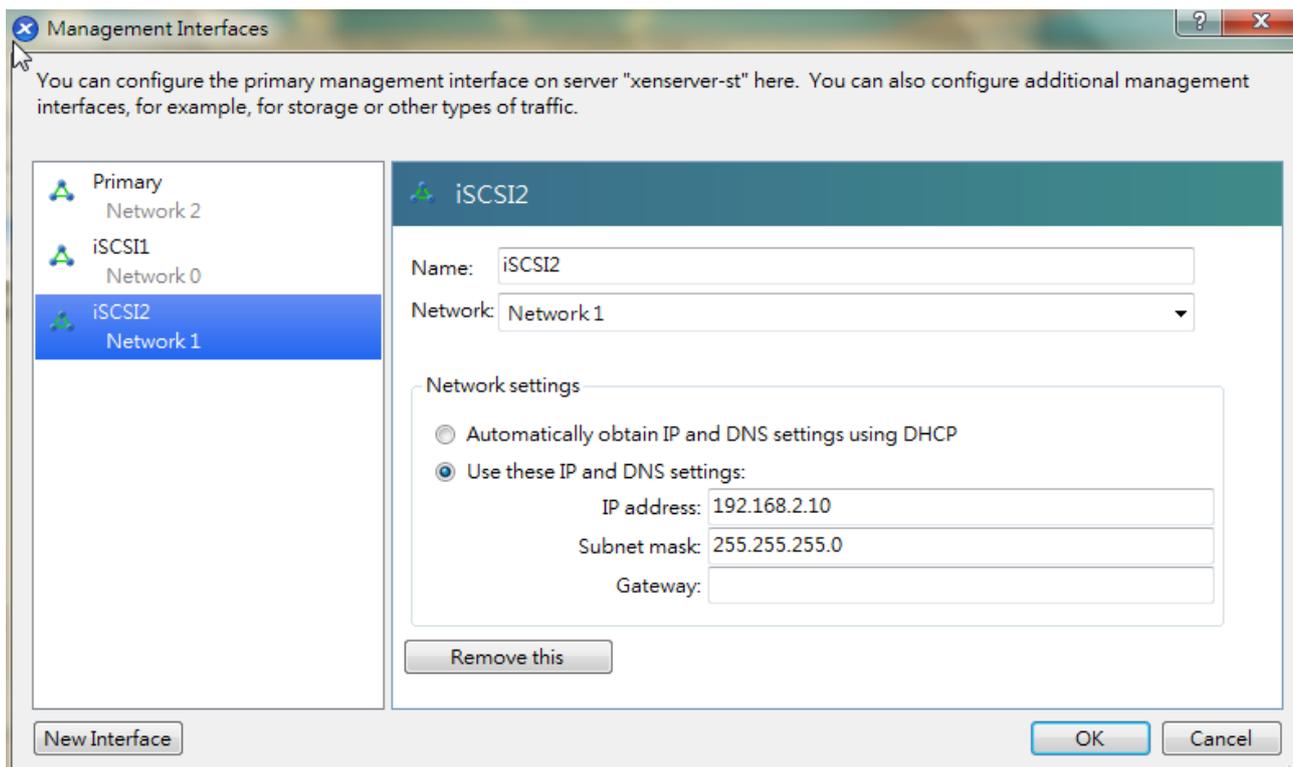
4. If the configuration of iSCSI HBA is set up correctly, it will display that the multipath is working in the new created SR.



Part 3: When log on iSCSI target by software iSCSI initiator in XenServer

- **Management Interfaces for the iSCSI connections**

1. Create two management interfaces used for iSCSI connections.



- **Create new SR in P300Q with multipathing enabled**

To create new SR (Storage Repository) in **P300Q**, it needs to use the software iSCSI initiator in XenServer to log on the iSCSI target. If XenServer logs on the iSCSI target with two or more iSCSI portals, the multipathing will be created automatically. This is good for one iqname of iSCSI target with multiple portals, but for the case of the same volume attached to different iSCSI targets with different iqnames, it is not working. **P300Q** fits this case that a virtual disk is attached to LUN ID on both controllers which iqnames are different. It means that it can not log on the iSCSI target on both controllers with the same LUN at the same time. This is the problem of the XenServer (maybe bug). For the VMware solution or Microsoft Hyper-V, this is not a problem at all to run with **P300Q**. According to the document of Citrix knowledge center [CTX124754](#), there is a workaround for this issue.

2. Create two virtual disks which are used as **Control SR** by XenServer in **P300Q**. Attach them to LUN 0 and LUN 1 of iSCSI target 0. 128MB is enough for the **Control SR**. The number of virtual disks used as **Control SR** is the twice of iSCSI targets in **P300Q** which are going to be connected by XenServer with multipathing. For example, if there is only one target, it needs 2 virtual disks used as **Control SR**; if there are two targets, it needs 4 virtual disks used as **Control SR**, and so on.
3. In XenServer, create **Control SR** by logging on the LUN 0 to the controller 1 and the LUN 1 to the controller 2.

New Storage Repository - xenserver-st

Choose the type of new storage

Type	Virtual disk storage	Shared Logical Volume Manager (LVM) support is available using either iSCSI or Fibre Channel access to a shared LUN.
Location	<input type="radio"/> NFS VHD <input checked="" type="radio"/> Software iSCSI <input type="radio"/> Hardware HBA <input type="radio"/> Advanced StorageLink technology	Using the LVM-based shared SR provides the same performance benefits as unshared LVM for local disk storage, however in the shared context, iSCSI or Fibre Channel-based SRs enable VM agility — VMs may be started on any server in a pool and migrated between them.
	ISO library <input type="radio"/> Windows File Sharing (CIFS) <input type="radio"/> NFS ISO	

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Enter a name and path for the new iSCSI storage

Type	Select a name and provide a target host for your new iSCSI storage, indicating your target IQN and your target LUN before proceeding.
Location	Name: <input type="text" value="CtrlSR1"/> Target Host: <input type="text" value="192.168.1.11"/> : <input type="text" value="3260"/> <input type="checkbox"/> Use CHAP User: <input type="text"/> Password: <input type="text"/> Target IQN: <input type="text" value="iqn.2004-08.tw.com.qsan:p500h-fff904158:dev0.ctr1 (192.168.1.11)"/> Discover IQNs Target LUN: <input type="text" value="LUN 0: 206D001378904318: 128 MB (Qsan)"/> Discover LUNs

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Storage Repositories

Storage

Name	Description	Type	Shared	Usage
CtrlSR1	iSCSI SR [192.168.1.11 (iqn.2004...]	LVM over i...	Yes	3% (4 MB used)
CtrlSR2	iSCSI SR [192.168.2.11 (iqn.2004...]	LVM over i...	Yes	3% (4 MB used)
DVD drives	Physical DVD drives	udev	No	100% (1024 MB us...
Local storage		LVM	No	15% (10 GB used)
Removable storage		udev	No	0% (0 B used)

- In the console of XenServer, create a VDI on each of the **Control SR** by following commands:

```
# xe sr-list params=uuid name-label=CtrlSR1
//A uuid of SR CtrlSR1 is returned by this command.

# xe vdi-create sr-uuid=<SR_uuid> type=user name-label=P300QMGT virtual-
size=64
//A VDI which name is P300QMGT is created and a uuid of the VDI is
returned by this command.
```

- Repeat the commands above on each **Control SR** to created its VDI.
- Then execute the following command in console of XenServer on each VDI.

```
# static-vdis add <vdi_uuid> P300QMGTStatic
```

- Reboot XenServer to let the settings take effect. If the configuration is set up correctly, it will display 2 active paths for the iSCSI SR. One is from controller 1 and the other is from controller 2.

Status	
State:	OK
xenserver-st:	Connected
Multipathing	
xenserver-st:	2 of 2 paths active (1 iSCSI sessions)

- Now it can be created normal SR by following the regular process and the multipaths for a new SR will be activated automatically.

Summary

QSAN P300Q RAID subsystem provides high performance I/O and disk fault tolerance with RAID function. It can provide a safety storage for guest OS in Citrix XenServer. Although the configuration of multipathing is a little complicated than VMware or Hyper-V, it still works in **P300Q**.

Applies to

- **P300Q-Series** FW 2.0.1 (20101203_1500)
- **P500Q-Series** FW 2.0.1 (20101203_1500)

References

- XenServer Administrator's Guide
<http://support.citrix.com/article/CTX124887>
- The Knowledge Center CTX124754 in Citrix XenServer web site
<http://support.citrix.com/article/CTX124754>
- The QLogic SANsurfer iSCSI HBA CLI User's Guide
http://driverdownloads.qlogic.com/QLogicDriverDownloads_UI/SearchByProduct.aspx?ProductCategory=82&Product=1037&Os=187
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