Dell 1741M Converged Network Adapter FCoE Boot from SAN Guide

Dell Engineering
July 2014

A Dell Deployment and Configuration Guide

Revisions

Date	Description	Authors
July 2014	Initial release	Neal Beard, Dennis Dadey

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1 Executive summary

The Dell PowerEdge M1000e blade chassis is an efficient and powerful platform. Understanding how the blade servers will be utilized in an important part of any data center design. In many Enterprise environments redundancy, management, and control push the need for the server's storage to exist separate from the server hardware. This shared block-level storage generally comes in the form of iSCSI, FC and FCoE. With this boot from SAN configuration, there is an opportunity to boot the server's ESXi 5.1 or 5.5 operating system (as well as any VMs) completely from the remote storage array.

This deployment guide will cover booting VMware's ESXi 5.1 or 5.5 operating system from a fibre channel array with the Brocade 1741M Converged Network Adapter (CNA). The main focus will be the configuration of the Brocade 1741M CNA.

2 Initial HardWare Topology

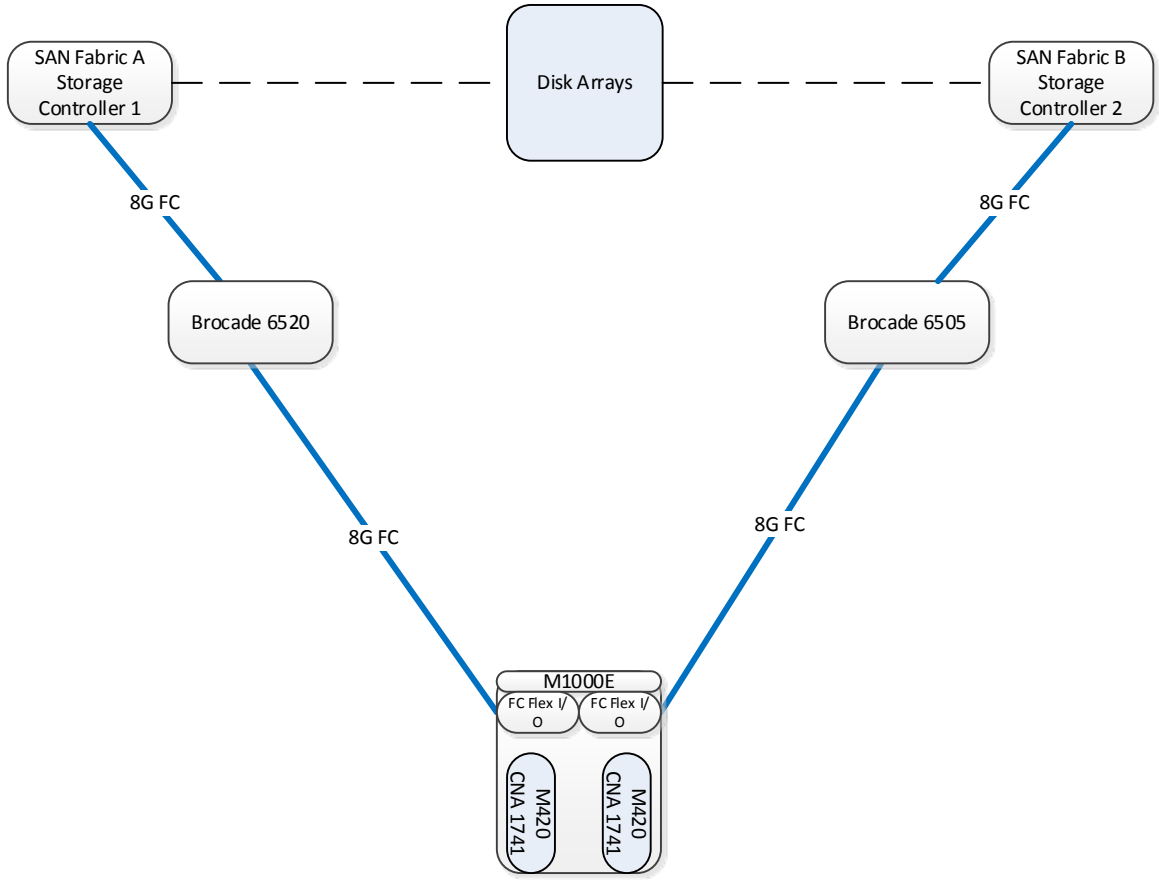

Figure 1 Validated Example Topology

2.1 Infrastructure Components

Components	Revision/Version
Dell M1000e Blade Server Chassis Components	
Midplane	1.1
CMC	4.50 / A05
I/O Aggregator Blade Switch with FC FlexIO module	
Firmware	9-5(0-16)
PowerEdge M420 server 2a	
System BIOS	2.1.7
IDRAC	1.56.55
CPLD	1.0.4
LC	1.4.0.128
OS	ESXII 5.1
Brocade 1741 CNA	
Firmware	3.2.0.0, 3.2.3.0, 3.2.4.0
ESXi Driver	3.2.0.0, 3.2.3.0, 3.2.4.0
PowerEdge M420 server 2c	
System BIOS	2.1.7
IDRAC	1.56.55
CPLD	1.0.4
LC	1.4.0.128
OS	ESXII 5.5
Brocade 1741 CNA	
Firmware	3.2.0.0, 3.2.3.0, 3.2.4.0
ESXi Driver	3.2.0.0, 3.2.3.0, 3.2.4.0
Brocade 6505 and 6520 FC Switch	
Firmware	7.1.0a
Compellent CT-SC8000	
Firmware	6.4.1
FC I/O Qlogic QLE2564 8G	5.08.00
Netapp FAS3220	
Firmware	8.2.1.7-Mode

Table 1 Infrastructure Components

3 VMware 5.1 and 5.5

3.1 VMware ESXi 5.1 Update 2

The VMware ESXi 5.1 update 2 image (.iso) can be downloaded from Dell's support site using the following URL:
http://www.dell.com/support/home/us/en/04/Drivers/DriversDetails?driverId=KHJHF&fileId=3384409052&osCode=XI51&productCode=poweredge-m420&languageCode=EN&categoryId=EC

Note: The VMware ESXi 5.1 update 2 image contains the 3.2.4.0 version of the 1741M CNA drivers. The firmware on the CNA will need to be updated so that it matches the driver version contained in the VMware .iso image. Please refer to section 3.3 below for the location of the 3.2.4.0 firmware.

3.2 VMware ESXi 5.5

Dell's VMware ESXi 5.5 update one .iso image does not have embedded driver support for the Broadcom 1741M 3.2.4.0 CNA drivers. A VMware ESXi 5.5 customized image will need to be created with the 1741M 3.2.4.0 drivers added. The firmware on the CNA may need to be updated to match the 3.2.4.0 driver.

Instructions for creating a VMware ESXi 5.5 customized image with the 3.2.4.0 drivers can be found in the following White Paper Configuring stateless boot using Dell customized VMware ESXi 5.0.

3.3 Brocade 1741M CNA 3.2.4.0 Drivers and Firmware

The 3.2.4.0 drivers and firmware can be found at the following URLS:

3.2.4.0 Drivers
http://driverdownloads.qlogic.com/QLogicDriverDownloads_UI/SearchByProduct.aspx?ProductCategory=322&Product=1214&Os=167

Select the **VMware ESXi 5.5 FC-FCoE Driver Offline Bundle** (.zip format)

3.2.4.0 Firmware
http://driverdownloads.qlogic.com/QLogicDriverDownloads_UI/SearchByProduct.aspx?ProductCategory=322&Product=1214&Os=194#53

Select the **Multi-Boot Firmware Image** for a .zip formatted version of the firmware that will need to be run from a Windows system.

Select the **Multi-Boot Firmware LiveCD** for an .iso image of a LiveCD that can be used to update the firmware on diskless server or servers without an OS installed. The .iso image will need to be placed on a bootable DVD.

4 Brocade 1741M CNA Boot from SAN BIOS Configuration

This section provides the necessary steps to configure the 1741M CNA for a Boot from SAN environment. The configuration of the 1741M CNA will include:

- Adapter BIOS settings
- Configuration of the boot LUN PWWN and LUN ID

Note: This configuration example utilized the second port of the Brocade 1741M CNA. Either port of the CNA would suffice in a production environment in order to achieve a successful Boot from SAN environment.

Perform the following steps to configure the second adapter port on the 1741M CNA.

1. While the M420 blade server is powering on, press the **Ctrl+B** or **ALT+B** key combination when the 1741M BIOS becomes available (Figure 2).

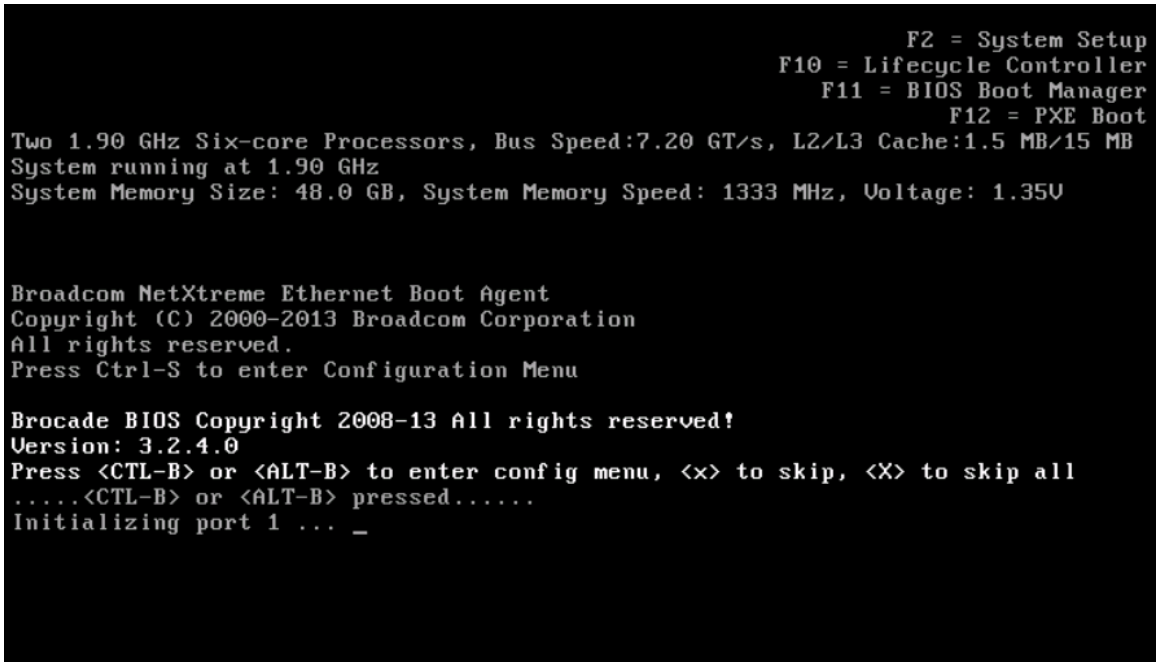

Figure 2 Ctrl+B or Alt+B to Enter the BIOS Configuration Menu

2. Select the second adapter port on the 1741M and press the <**Enter**> key.
   In Figure 3 the second adapter port is highlighted. The Port World Wide Name (PWWN) of the second adapter port on the 1741M is **10:00:00:05:33:48:A8:45**.

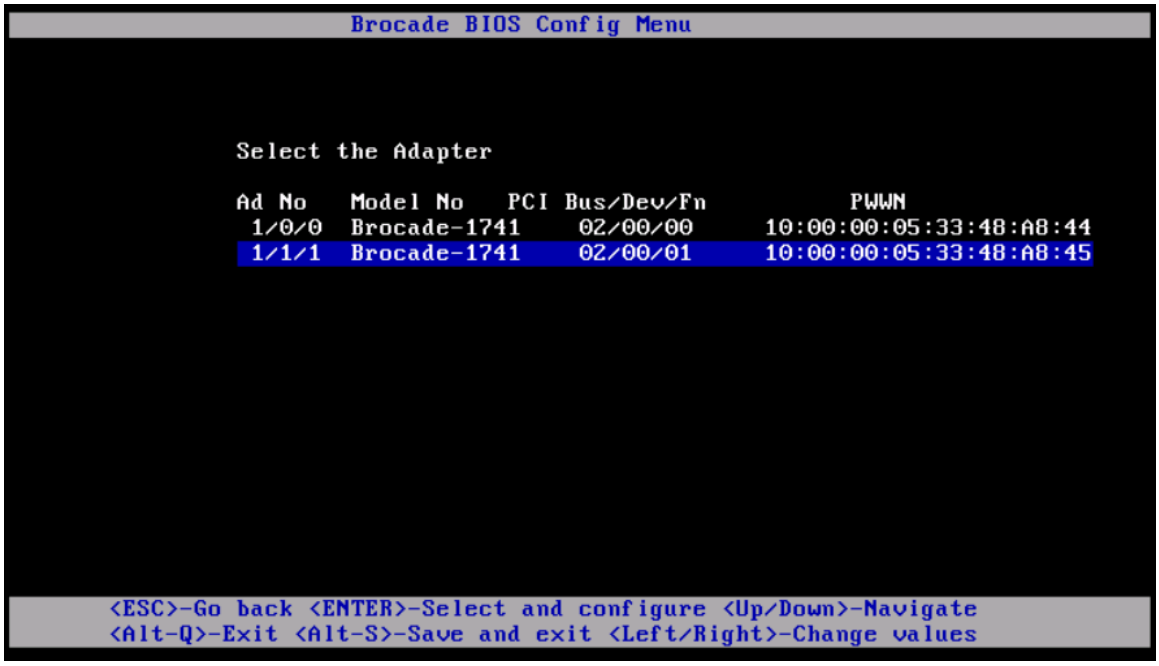

Figure 3 Brocade 1741M Adapter Port Selection

3. In the Brocade BIOS Config Menu, select **Adapter Settings** and press the <**Enter**> key (Figure 4).

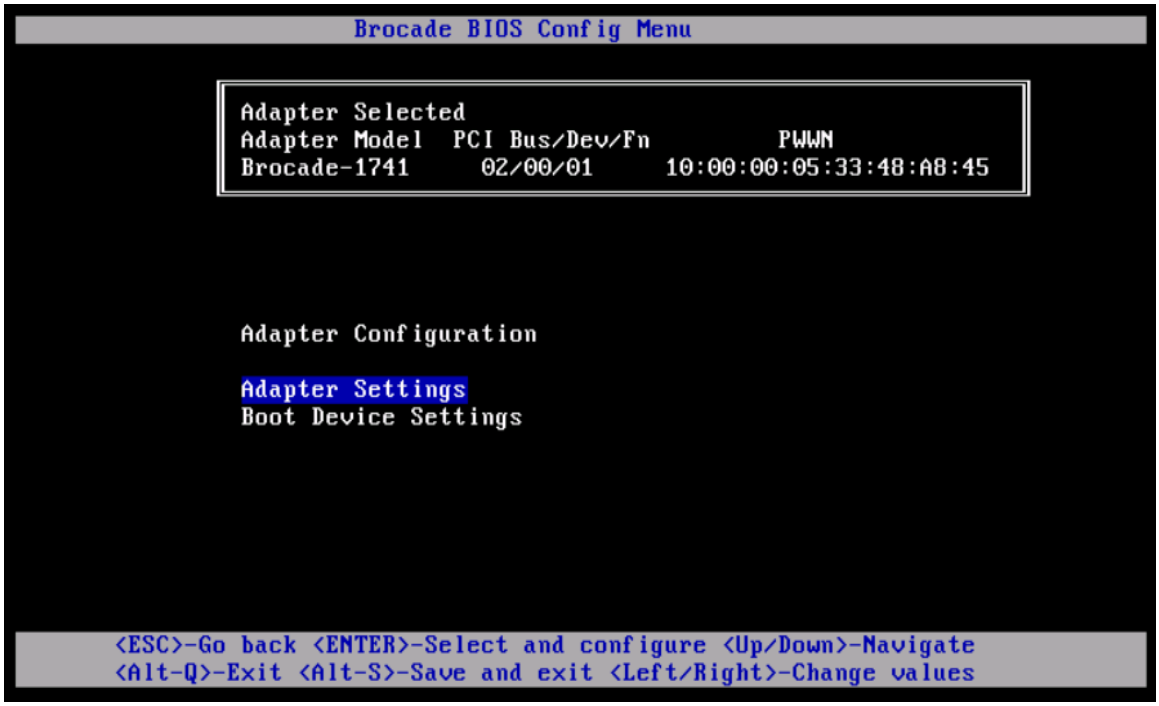

Figure 4 Select Adapter Settings

4. Make the following changes to the Adapter Settings (Figure5):
   - BIOS — **Enabled**
   - Boot LUN — **Flash Values**
     - The Flash Values setting tells the 1741M CNA to obtain boot LUN information from flash memory.
   - Bootup Delay — **1min**
     - Setting Bootup Delay to 1min allows the CNA to delay discovery of the boot LUN on the target storage array.

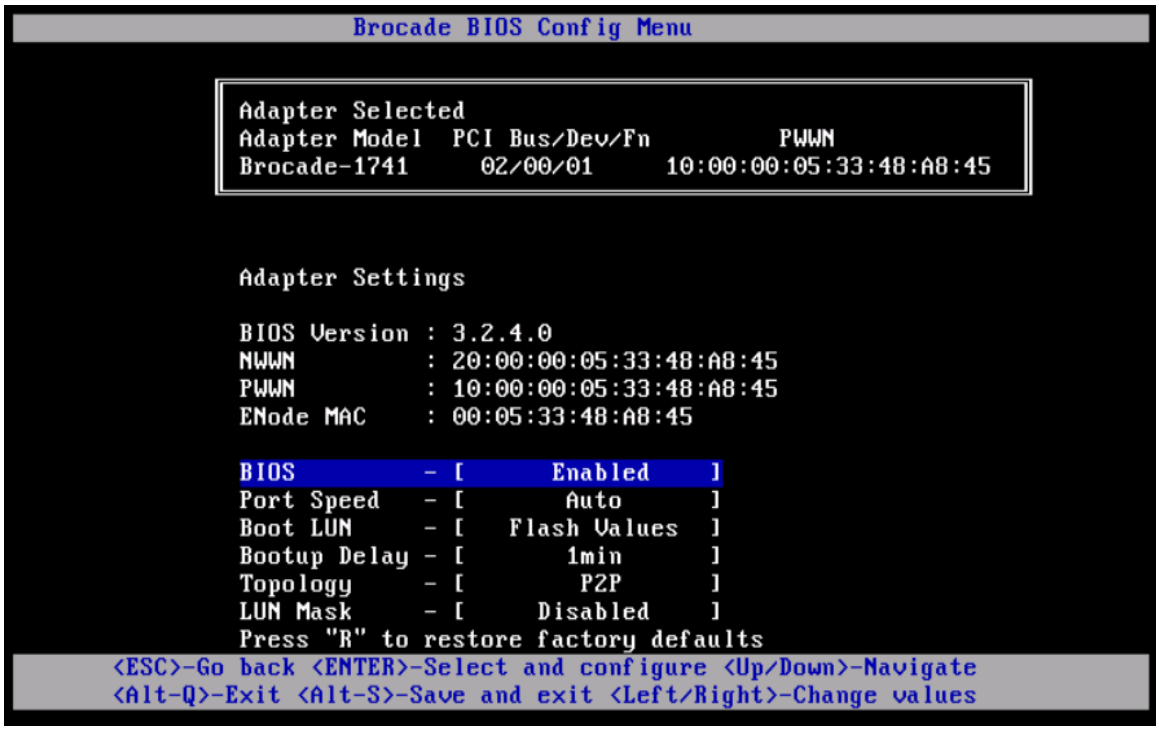

Figure 5 Adapter Settings Configuration

5. Press the <**Esc**> key to return to the main menu.

6. Select **Boot Device Settings** and press the <**Enter**> key (Figure 6).

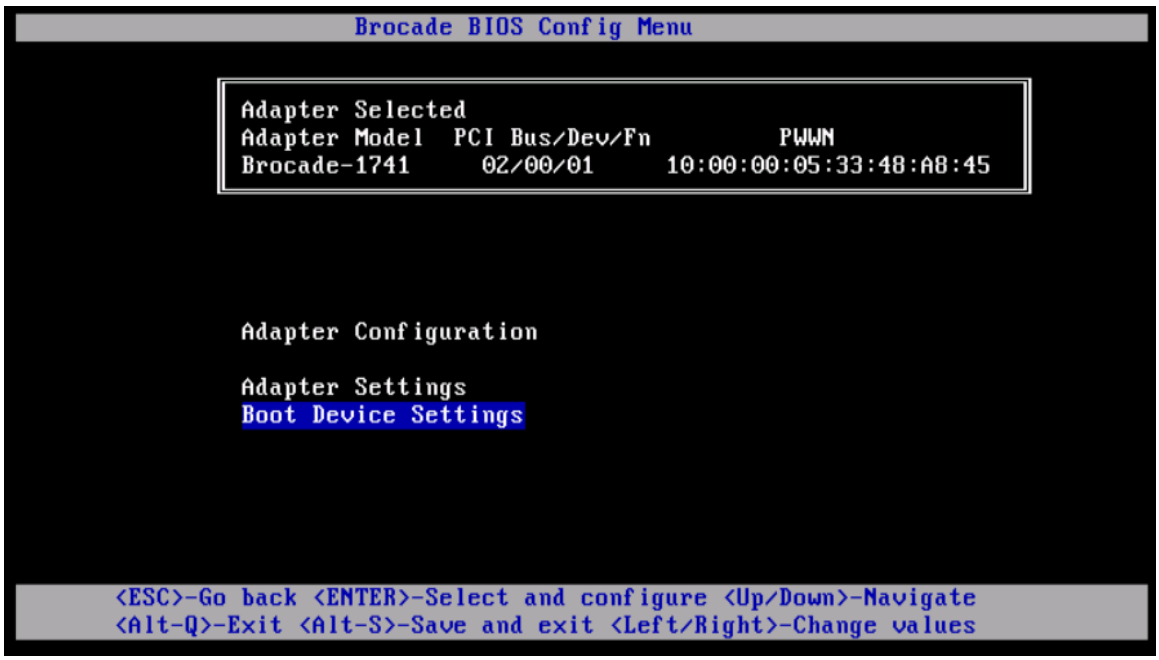

Figure 6 Boot Device Settings

7. In the Boot Device Settings (Figure 7), highlight ID 0 and press the <**M**> key. Enter the target device PWWN and boot LUN ID.

Note: The target device PWWN can be obtained from the Name Server database of the Fibre Channel switch. The target device LUN ID can be obtained from the storage array.

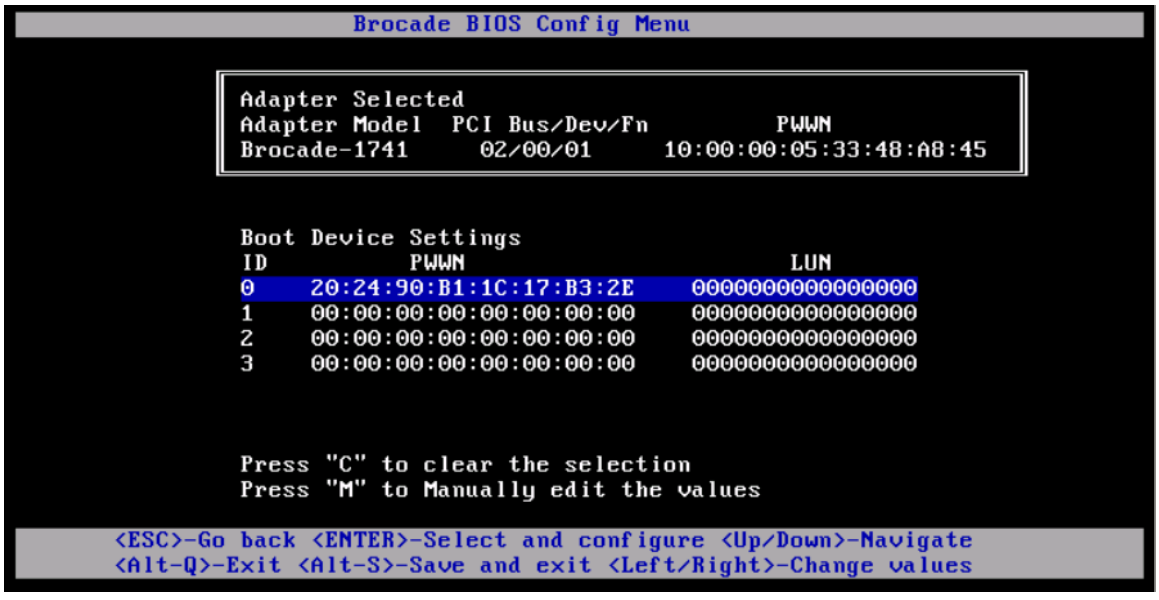

Figure 7 Boot Device Settings

8. Once the information has been entered press the <**M**> key to exit edit mode and then the **ALT+S** key combination to save and exit.
9. Highlight **Exit Brocade Config Menu** (Figure 8) and press the <**Enter**> key.

Figure 8 Brocade Exit Menu

10. Figure 9 shows the 1741M CNA successfully discovering the remote boot LUN, which was configured in the previous steps.

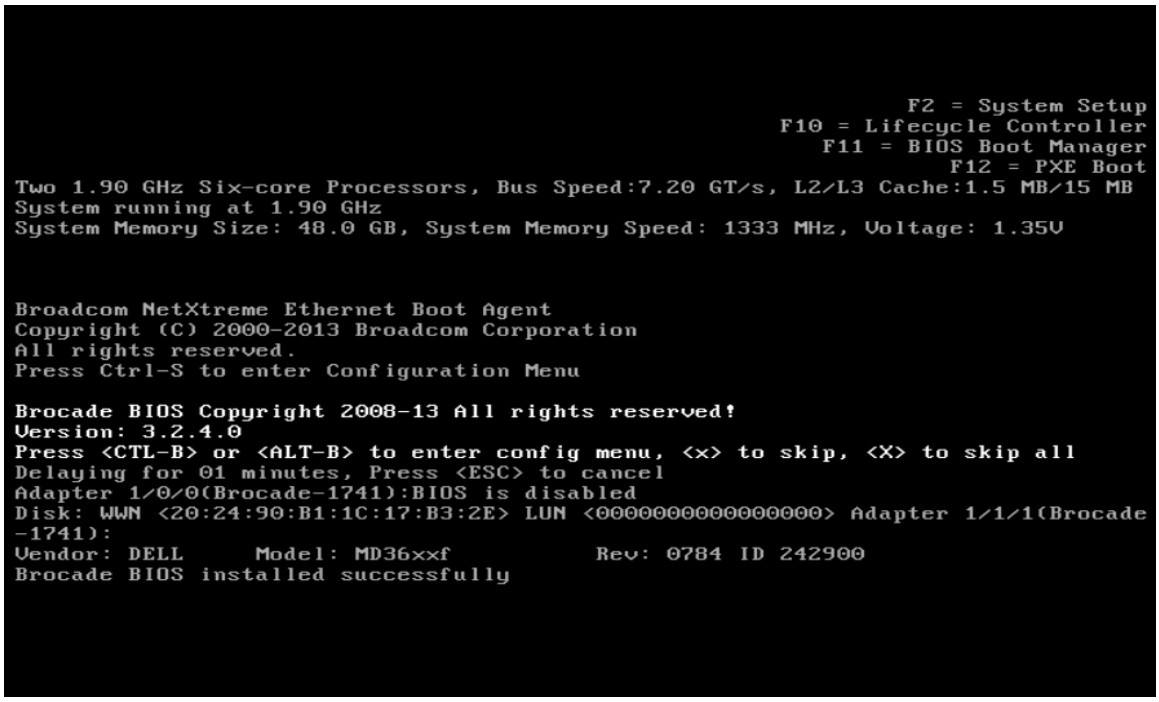

Figure 9 Brocade 1741M CNA remote boot LUN discovery

5 Brocade 1741M CNA Configuration Conclusion

In conclusion, the 1741M CNA supports an ESXi 5.1 or 5.5 boot from SAN network configuration. This enterprise level CNA has an easily navigable interface that allows a network engineer to setup a highly available server and storage environment.

A Support and Feedback

Contacting Technical Support

Support Contact Information	Web: http://Support.Dell.com/
	Telephone: USA: 1-800-945-3355

Feedback for this document

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