IBM System Storage SAN Volume Controller

Host Attachment Guide - Errata

Version 4.3.0

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Contents

Introduction

This guide provides update information for chapter 2 in the SVC 4.3.*0 IBM System Storage SAN Volume Host Attachment Guide* and describes
How to attach HP-UX 11iv3, running on HP 9000 and Integrity Servers to an SVC cluster
Guidance on the attachment of the IBM System Storage™ TS7650G ProtecTIER De-duplication Gateway to SVC.
Guidance on the attachment of Citrix Xen Server to SVC
. The material in this guide should be read in conjunction with the existing material in the Host Attachment Guide available at: http://www.ibm.com/storage/support/2145.

Who should use this guide

This errata should be used by anyone using *the IBM System Storage SAN Volume Controller Host Attachment Guide* that wishes to attach HP-UX 11iv3, running on HP 9000 or Integrity Servers to their SAN Volume Controller ,wishes to attach IBM System Storage™ TS7650G ProtecTIER De-duplication Gateway to SAN Volume Controller or the attachment of Citrix Xen Server.

Last update

This document was last updated: 15 Oct 2008

Change History

The following revisions have been made to this document:

Date	Sections Modified
21 May 2008	New Document
10 Oct 2008	Additional information on IBM System Storage™ TS7650G ProtecTIER De-duplication Gateway
10 Oct 2008	Guidance on the attachment of Citrix Xen Server

Chapter 2. Attaching to HP 9000 and HP Integrity Servers

The following additions should be noted.

System Prerequisite

SVC 4.2.1.4 and SVC 4.3.0 can support HP-UX 11.31 September 2007 (and later 0803) releases. The following patches must be applied to all the hosts with 0709 Patches attaching to SVC:
PHKL_37453 (esdisk),
PHKL_37454 (esctl),
PHCO_37483 (scsimgr)

0803 Bundle contains the above listed patches.

Note: RPQ required for support of earlier than HP-UX 11.31 September 2007 release.

The following IBM Web site provides current interoperability information about supported device driver and firmware levels:
http://www.ibm.com/storage/support/2145

New Mass Storage Stack and Native Multi-pathing on HP-UX 11.31

A new mass storage stack was introduced by HP-UX 11.31. The new features include a new agile naming method and native multi-pathing solution. For more detail information, refer to related HP publications.

To support the new mass storage stack and native multi-pathing of HP-UX 11.31, the type attribute of related host objects must be specified as ***hpux***.

IBM no longer supports SDD on HP-UX 11.31. Although legacy DSF naming and PVLinks are still supported by HP-UX 11.31 for backward compatibility, IBM recommends using the new agile naming and native multi-pathing with SVC.

HP-UX 11.31 command ***ioscan –fnNC disk*** can discover and show all hardware paths and persistent DSFs of the attached disks. SVC VDisks are discovered as IBM 2145 disks.

Command ***scsimgr get_info all_lpt*** can determine the open close state of paths to a SVC VDisk. The value of WWID in the output of ***scsimgr*** matches VDisk_UID of the corresponding VDisk on SVC. Also HP-UX 11.31 September 2007 release and later implement the T10 ALUA support.

Implicit ALUA support has been integrated to hpux host type of SVC 4.2.1.4 and SVC 4.3. Asymmetric state of paths to preferred SVC node of the LUN is shown as ACTIVE/OPTIMIZED by command ***scsimgr***. This value of paths to non-preferred is shown as ACTIVE/NON-OPTIMIZED. Following is an example of using ***scsimgr*** command:

scsimgr get_info all_lpt -D /dev/rdisk/disk1484

STATUS INFORMATION FOR LUN PATH : lunpath993

Generic Status Information

SCSI services internal state	= STANDBY
Open close state	= STANDBY
Protocol	= fibre_channel
EVPD page 0x83 description code	= 1
EVPD page 0x83 description association	= 0
EVPD page 0x83 description type	= 3
World Wide Identifier (WWID)	= 0x600507680184000060000000000005d4
Total number of Outstanding I/Os	= 0
Maximum I/O timeout in seconds	= 30
Maximum I/O size allowed	= 2097152
Maximum number of active I/Os allowed	= 8
Maximum queue depth	= 8
Queue full delay count	= 0
Asymmetric state	= ACTIVE/NON-OPTIMIZED
Device preferred path	= No
Relative target port identifier	= 256
Target port group identifier	= 1

STATUS INFORMATION FOR LUN PATH : lunpath990

Generic Status Information

SCSI services internal state	= ACTIVE
Open close state	= ACTIVE
Protocol	= fibre_channel
EVPD page 0x83 description code	= 1
EVPD page 0x83 description association	= 0
EVPD page 0x83 description type	= 3
World Wide Identifier (WWID)	= 0x600507680184000060000000000005d4
Total number of Outstanding I/Os	= 0
Maximum I/O timeout in seconds	= 30
Maximum I/O size allowed	= 2097152
Maximum number of active I/Os allowed	= 8

Maximum queue depth	= 8
Queue full delay count	= 0
Asymmetric state	= ACTIVE/OPTIMIZED
Device preferred path	= No
Relative target port identifier	= 0
Target port group identifier	= 0

Dynamic LUN expansion

Dynamic LUN expansion feature, added in HP-UX 11.31, now supports SVC VDisk expansion (using the command ***svctask expandvdisksize)***. Refer to HP publication HP-UX System Administrator's Guide: Logical Volume Management: HP-UX 11i Version 3 for more information of a host-side operation.

Clustering Support

ServiceGuard 11.18 provides a new cluster lock mechanism called cluster lock LUN. SVC can support this new feature by specifying the block device name of a VDisk for CLUSTER_LOCK_LUN variable in the cluster configuration ASCII file. The lock LUN among all cluster nodes must point to the same SVC VDisk. This consistency can be guaranteed by determining the WWID of the VDisk. The lock LUN can not be used for multiple cluster lock, and can not be used as a member of a LVM volume group or VxVM disk group.

SAN Boot Support

SAN Boot is supported for all HP-UX 11iv3 releases on both HP 9000 PA-RISC and Integrity (IA64 Itanium) Servers..Please refer to HP publication HP-UX System Administrator's Guide for details.
HP 9000 Servers have been in use for a long time and have been covered extensively in Host Attachment Guide.
So, we'll focus on here on **SAN Boot on Integrity (IA64 Itanium) Servers:**

After OS Installation on SVC VDisk, HP-UX creates Primary Boot partition, which is set as the default choice.
The Primary Boot is the upper line of the setboot menu at the MP Server console and the boot starts in 10 seconds unless interrupted - just like normal boot.
A change to the Alternative boot partition, adding a boot disk and a boot order can be configured within the console boot menu.

There is also ***setboot*** command to list, add or modify Primary Boot, HA Alternative boot and Alternative boot from already booted OS.

To upgrade Host's or HBA's Firmware or check for the connected SAN disks can be done using EFI shell.

Known Limitations

HP-UX 11.31 0703 and 0803 hosts require that a VDisk with SCSI LUN id 0 be defined in each

iogroup for the remaining disks to be recognized.

By default, the lowest available SCSI LUN id is allocated when a VDisk is mapped to a host, so 0 for the first host mapping.

But it can also be created manually, like in the following example of defining a virtual disk to host mapping with SCSI LUN id 0:
svctask mkvdiskhostmap -host <host_name | host-id> -scsi 0 <vdisk_name | vdisk_id>

Chapter 3. IBM System Storage™ TS7650G ProtecTIER De-duplication

IBM System Storage™ TS7650G ProtecTIER De-duplication Gateway Software can generate a substantial volume of write I/O during backup. SVC is more than capable of sustaining the I/O workload generated by the TS7650G ProtecTIER SW, however when used in conjunction with the SVC global mirror feature there is an additional requirement that the long distance link must be capable of sustaining the peek write workload generated during the backup. Customers who want to replicate their data de-duplication repository for disaster recovery purposes at global distances should ensure that they are using high bandwidth long distance links.

Chapter 4. Citrix Xen Server

Guest Operating support

For Guest Operating support please visit the SAN Volume Controller Supported Hardware at
http://www-01.ibm.com/support/docview.wss?rs=591&uid=ssg1S1003277
Only operating systems listed on this support matrix are supported at this time

Clustering support

Clustering Guest Operating Systems either within or across Citrix XEN servers or clustering of XEN servers is not support

Configuration Guidelines

Linux

From CITRIX XenServer support standpoint, Linux VM's are always supported in paravirtualized mode. Please use/install Linux based VM's in paravirtual mode only as directed by CITRIX XEN support documentation.

Windows

From CITRIX XenServer support standpoint, Windows VM's are always supported as HVM with paravirtualized drivers (PV) for storage and network, which should be installed from CITRIX XenServer installation CD(s). Please use/install Windows based VM's in HVM with PV drivers only as directed by CITRIX XEN support documentation.

Support for Windows VM's also mandates hardware virtualization support, such as Intel-VT or AMD-V based processor(s), which is a requirement for support from CITRIX. If you plan to use/install Windows VM's under CITRIX XEN, then make sure that the server processors have hardware virtualization support, such as Intel-VT or AMD-V based processor(s).

