

HP Continuous Access Replication Test Outcomes Tru64 UNIX

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TEST OBJECTIVE

To successfully boot a host running Tru64 UNIX operating system using a replica of its boot disk. The original system boot disk is replicated using storage array level replication technology, in this instance via the use of HP Continuous Access.

TEST SETUP

Server Setup

Server Model: Alpha Server 1200

Operating System: Tru64 UNIX V.5.1B

HostName: Csstest1

Host Type (Standalone/Clustered): Standalone

Multipathing Software: Native Tru64 multipathing driver

SAN/Storage Array Setup

SAN Storage Array Model: HP Enterprise Virtual Array 5000

EVA VCS Version: 3.020

Number of SAN Fabrics: 2

Fibre Channel SAN Fabric consists of: Brocade (HP supplied) SilkWorm 22x00 & 2800 (1Gb)

Fibre Channel SAN Switch Firmware: V.2.6.2.c.

Continuous Access Setup

Primary EVA Storage System Name: GPHSV06

Destination EVA Storage System Name: GPHSV07

DR Mode: Source (active-passive)

Failsafe Mode: Disabled

Write Mode: Synchronous

TEST STEPS & RESULTS

1. SAN Fabric zoning was configured to allow the host access to GPHSV06.
2. A host called "Csstest1" was created under CV-EVA (Command View EVA) and two of the host's FCA WWPNs (World Wide Port Names) were added to the "Ports" tab of the host. Host OS type was set to "Tru64 UNIX".
3. A Vdisk called "Csstest1_dg3_003" (Redundancy: VRAID 5; Capacity: 20GB; OS Unit ID: 10603; Preferred Path: Path A Failover/Failback) was created and then presented to CV-EVA host called "Csstest1".
4. At the SRM prompt of the host, the following commands were run to configure boot parameters:
 - set mode diag
 - wwidmgr -clear all
 - wwidmgr -show wwid
 - wwidmgr -quickset -udid 10603
 - init
5. Tru64 UNIX V.5.1B Operating System was installed by accepting the default installation options on the boot disk configured in previous steps.
6. Once the OS installation was complete, another Vdisk was created and presented to the host purely for mimicking a closer production host environment where generally a host has an operating system disk and one or more data disks. The attributes of the additional Vdisk created and presented to the host for data partition were Name of the Vdisk: Csstest1_dg1_004; Redundancy: VRAID 5; Capacity: 10GB; OS Unit ID: 10604; Preferred Path: Path B Failover/Failback. At the host operating system level, this disk was configured for hosting a separate ADVFS Domain and a fileset using the following commands:
 - hwmgr -scan scsi (to detect the disk that has been presented to the OS)
 - hwmgr -show scsi (to establish the new disk device name)
 - disklabel -r dsk1 (to read the disk layout information)
 - disklabel -z dsk1 (to clear the disk label)
 - disklabel -wr dsk1 (to write a standard label to the disk and also make it bootable)
 - mkfdmn /dev/disk/dsk1c saket_dmn
 - mkfset saket saket_dmn
 - mkdir /usr/local/narayan
 - Edited the /etc/fstab file to create the following entry:
saket_dmn#saket /usr/local/narayan advfs rw 0 2

- mount /usr/local/narayan
7. Using the CV-EVA interface, one DR Group was created “DR Group 001” to which both Vdisks namely Csstest1_dg3_003 & Csstest1_dg1_004 were added. The following attributes were configured for “DR Group 001”:
 - Destination System: GPHSV07
 - DR Mode: Source (active-passive)
 - Dest Disk Group: Select Automatically
 - Failsafe Mode: Disabled
 - Write Mode: Synchronous
 8. Sufficient time was allowed for “Copy Status” to change to “Normal”, effectively ensuring that initial replication was complete.
 9. Host “Csstest1” was shutdown using “shutdown –hs now” command.
 10. Fabric zoning was reconfigured to allow Csstest1’s FCAs to now access the destination storage system GPHSV07 and revoke access to primary storage system GPHSV06.
 11. A host called “Csstest1” was created via the CV-EVA interface on the destination storage system GPHSV07. Both the FCA WWPNs installed in “Csstest1” were presented to the CV-EVA host called “Csstest1”
 12. “DR Group 001” was deleted. Deletion of a DR Group terminates the replication relationship between the Vdisks of the source and destination leaving the source and destination Vdisks intact.
 13. Vdisks presented to Csstest1 from the primary storage system (GPHSV06) were unrepresented.
 14. The replicated Vdisks from the destination storage system (GPHSV07) were assigned the same LUN and UDID as the source Vdisks from the primary storage system GPHSV06. The replicated Vdisks (Csstest1_dg3_003 & Csstest1_dg1_004) were presented to CV-EVA host called “Csstest1”.
 15. It was confirmed through the CV-EVA interface and also additionally via SSSU (SHOW VDISK FULL) command that both the source and replicated Vdisk had the same World Wide LUN Name. CV-EVA also reported that UUID on the source and replicated Vdisks were different.
 16. It was observed that the replicated Vdisks on the destination storage system by default had the “Write Protect” setting enabled. This was disabled.
 17. At the SRM prompt of the host, “boot –fl s” command was executed to boot the host into single user mode without any modifications to the boot variables. The attempt failed as expected.
 18. At the SRM prompt of the host, the following commands were run to configure the boot variables:
 - set mode diag
 - wwidmgr –clear all

- `wwidmgr --show wwid`
- `wwidmgr --quickset --udid 10603`
- `init`

19. Attempt to boot off the host OS succeeded, however a change in the disk device names was observed, e.g. disk device associated with UDID 10603; LUN 3 which appeared on the system as `/dev/disk/dsk0` had changed to `/dev/disk/dsk1`. Similar name change was observed for the data disk associated with UDID 10604; LUN 4.