Hewlett Packard Enterprise

HPE Nimble Storage Advanced Administration and Integration H6LH9S

HPE course number	H6LH9S
Course length	2 Days
Delivery mode	ILT, VILT
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*Realize Technology Value with Training, IDC Infographic 2037, Sponsored by HPE, October 2017

This course will provide additional knowledge of the advanced capabilities of the HPE Nimble Storage arrays, including Multi-Array Groups and Pools, QOS, Volume Pinning, Replication, Disaster Recovery, VMWare VVOLs, configuration of Syslog and SNMP trap forwarding and explore the audit logs and event logs. Using extensive hand-on lab exercises that comprise over 70% of the course, you will gain a practical understanding of integrating HPE Nimble Storage with Microsoft Windows, Linux, VMWare and Veeam. In addition to the instructor supported lab time, students will receive 3 additional consecutive days of extended lab time starting immediately after the class finishes.

Audience

Storage administrators who desire additional training on the advanced features of HPE Nimble

Prerequisites

- H6LH8S: HPE Nimble Storage Introduction and Administration or
- H9TH5S: HPE Nimble Storage Introduction and Administration (with extended lab time) or
- H9TH1S: Designing HPE Nimble Solutions, Rev. 18.11 (01113228)

Course objectives

- Review HPE Nimble Storage platforms and associated features
- Discuss and understand disaster Recovery RPO and RTO
- Describe, configure and perform replication between groups for both planned and unplanned disaster recovery scenarios
- Discuss and perform advance administration features including volume performance settings, SNMP, deduplication, encryption, etc
- Working with clones and Zero copy clones
- Create a volume snapshot and perform a file recovery, as well as a volume recovery from a snapshot
- Configure and manage multi-member groups, storage pools and discuss scale up and scale out guidelines and requirements
- Configure and perform volume moves between pools and volume striping in a multi-member pool
- Discuss network considerations and networking best practices and scenarios for HPE Nimble Storage
- Discuss Nimble QOS features
- Describe VSS and how it can be used in your storage environment, and how it integrates with Nimble Storage
- Perform Application integration with VMware, Linux and Veeam
- Evaluate design considerations and best practices

Detailed course outline

Module 1: Nimble Storage Solution and Product Overview - Review	• Review of array initialization and configuration • Working with Users, SYSLOG, SNMP and Event Logs	• Discuss Volume attributes: Volume Pinning , QOS, Deduplication, etc.
Module 2: Understanding Disaster Recovery RPO and RTO	• Understanding disaster recovery	• Understanding disaster recovery terminology RTO and RPO
Module 3: Advance snapshots usage	• Observe and understand space usage as a volume changes and what happens to snapshots during that time • Discuss VSS usage and Windows integration • Creating manual and scheduled snapshots	• Understanding how space is used with snapshots for sizing • Using a snapshot and Zero Copy clone to recover a file or a full volume
Module 4: Administration and Using Replication	• Nimble Storage Replication and replication features • Understanding how space is used with replication • Configure replication between groups	• Replication considerations • Perform handover for a non-disaster event • Perform disaster recovery operation
Module 5: Administration of Multi-Array Groups and Pools	• Describe the use and benefits of Nimble Storage's Scale-Out Architecture • Describe the following Scale-Out concepts – Groups – Group Leader / Scale-Out Database – Pool	• Describe the steps in the following group operations – How new arrays can be added to and removed from groups – How to merge storage pools – How to merge groups – Describe preconditions and limitations on the operations above • HF to AF migration fork-lift data migration using grouping
Module 6: Network Considerations for Nimble Storage	• Discuss network requirements and common network scenarios • Identify network best practice guidelines – Group level – Between groups	– Initiator-Group Subnet Segregation, why? – Sub-netting for multiple Data Subnets – Replication – Best practice for full redundancy
Module 7: Application Integration – Windows, Veeam, VMWare, and Linux	• Windows Integration – Using VSS Snapshots – NPM Protection for Windows Applications • Linux Integration – Nimble Connection Manager on Linux – Nimble Oracle Application Data Manager – Nimble Docker Volume Plugin Support • VMware integration – vSphere Installation Bundle (VIB) – VMware Nimble Connection Manager (NCM) – VMware Networking Best Practices	– Nimble vCenter Plug-in – VMware SRM + Nimble Replication Efficient DR Automation • Veeam integration – Veeam Backup & Replication – Instant VM Recovery – Verified Protection and Leveraged Data SureBackup @& On-Demand Sandbox

Detailed lab outline

Lab 1: Administrator Settings – Working with Users, Syslog and Event logs	• Task 1: Launch HPE Nimble graphical user interface (GUI) • Task 2: Review Network configuration • Task 3: HPE Nimble Array Administration • Task 4: Configuring and Starting a Syslog Server and SNMP Trap Receiver	• Task 5: Creating and connecting to a Volume • Task 6: Connect the server to the HPE Nimble Storage array volume • Task 7: Testing the Syslog and SNMP Trap Receiver • Task 8: Working with the Audit log and Events
Lab 2: Using and Understanding Snapshot and Zero-Copy Clone Data Protection Features	• Task 1: Create a Volume for Snapshot Review • Task 2: Connect the server to the HPE Nimble Storage array volume • Task 3: Adding data to the volume and taking snapshots	• Task 4: Recovering lost or deleted files from a snapshot • Task 5: Recovering from Volume Corruption
Lab 3: Replication and Disaster Recovery	• Task 1: Initialize a new array • Task 2: Configure the Upstream Array • Task 3: Configuring the Downstream Array	• Task 4: Replicate a Volume Collection • Task 5: Planned Outage Scenario – Temporary Transition to Remote DR Site • Task 6: Unplanned Outage Scenario – disaster recovery
Lab 4: Multi-Array Groups and Pools	• Task 1: Review Current Pool Status • Task 2: Adding an array to the Default pool • Task 3: Observing Capacity and volume behavior • Task 4: Connect the server to the Nimble Storage array Volume • Task 5: Understanding How New Volumes and Data placement is handled	• Task 6: Removing an Array from the pool and assigning the array to a new Pool • Task 7: Moving a Volume between Pools • Task 8: Merging two pools in a Group • Task 9: Removing or Evacuating an Array from a Pool and Group
Lab 5: Using and Understanding Advanced Volume Features	• Task 1: Create a Volume • Task 2: Working with Volume Pinning - Volume Performance Attribute • Task 3: Connect the server to the FSserver06 Volume • Task 4: Create Volumes Using Volume Performance attribute • Task 5: Connect the Server to the FSServer10 Volume	• Task 6: Connect the server to the FSserver11 Volume • Task 7: Working with Deduplication • Task 8: Working with Volume Limits/ QOS • Task 9: Working with Encryption
Lab 6: Working with Linux Integration	• Task 1: Logging into the Linux Server • Task 2: Installing the HPE Nimble Storage Linux Toolkit (NLT)	• Task 3: Working with Connection Manager (NCM) for Linux • Task 4: Working with Settings

Lab 7: VMWARE INTEGRATION	• Task 1: Register the Nimble Plug-in • Task 2: Nimble Connection Manager • Task 3: Create a Nimble-backed Datastore	• Task 4: Clone a Nimble-based Datastore • Task 5: Grow a Nimble-based Datastore • Task 6: Create a VM on a Nimble-backed Datastore
Lab 8: Working with VVOLs	• Task 1: Register the Nimble Storage Protocol Endpoint with vCenter • Task 2: Create a VVol Container on a Nimble Storage Array • Task 3: Create a Nimble-backed VVol Datastore	• Task 4: Create a VM Storage Policy • Task 5: Create a VM based on a Storage Policy • Task 6: Delete & Restore a VVol backed VM
Lab 9: VEEAM - NIMBLE INTEGRATION	• Task 1: Login to the Veeam Backup System • Task 2: Configure VMware vSphere as a Managed Server • Task 3: Add Storage (Adding the Nimble Storage Array)	• Task 4: Create a Backup Job • Task 5: Remove a Disk on a Virtual Machine • Task 6: Validate Recovery of Lost Disk

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