Hewlett Packard Enterprise

HPE Digital Learner Nimble Storage Administration and Integration Content Pack

HPE Content Pack number	CP045
Content Pack length	20 Hours
Content Pack category	Category 1
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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. You will also 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.

HPE Digital Learner Nimble Storage Administration and Integration Content Pack has two components:

- Web-based training—available online.
- Hands-on labs, via a virtual environment—available through the HPE vLabs.

You will enjoy access to this self-paced, web-based training for one year from your purchase date. The content of this training is identical to the instructor-led version of this course. During this time, you can repeat sections of the training for reinforcement at your own pace and on your own schedule.

You have 60 sequential days of access to the HPE vLabs virtual environment.

*Realize Technology Value with Training, IDC Infographic 2037, Sponsored by HPE, October 2017

Audience:

This Content Pack is recommended for infrastructure administrators and system engineers who need to learn how to administer HPE SimpliVity.

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. 18.21 (01113228)

Content Pack objectives:

After completing this content pack, students will be able to:

- 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, 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 0: HPE Nimble Storage Administration and Integration	• Describe features available with the HPE Nimble Storage platform	• Review concepts and terminology
Module 1: Introduction to HPE Nimble Storage Advanced Features	• Use and configure key features of the HPE Nimble Storage platform • Describe and use volume pinning	• Describe and use QoS • Describe and use deduplication
Module 2: Understanding Disaster Recovery and Business Continuity	• Describe the objectives of a disaster recovery plan	• Describe recovery timeline objectives, disaster recovery RPO and RTO
Module 3: Data Protection – Advanced Snapshot Usage	• Understanding how space is used with snapshots • Creating a scheduled and unscheduled snapshot • Connecting to a snapshot	• Using a snapshot to recover a file or a full volume • Discuss VSS usage and Windows integration • Describe and demonstrate zero-copy clones • Create a zero-copy clone
Module 4: Data Protection – Replication Usage	• Describe basic replication concepts • Understand SmartReplicate components • Nimble Storage SmartReplicate features • Configure SmartReplicate	• Understanding replication space considerations • Perform handover for a non-disaster event • Perform disaster recovery using SmartReplicate • Describe peer persistence architecture and operation
Module 5: Scale-out, 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 – Pools	• 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
Module 6: Understanding Network Requirements and Usage	• Discuss network requirements and common network scenarios • Identify network best practice guidelines – Group level – Between groups	– Initiator-group subnet segregation – Sub-netting for multiple data subnets – Replication – Best practice for full redundancy
Module 7: Windows Integration	• Review HPE Nimble Storage application and system integration products	• Perform integration tasks between HPE Nimble Storage and Windows
Module 8: Linux, Oracle and Docker Integration	• Review HPE Nimble Storage application and system integration products	• Perform integration tasks between HPE Nimble Storage and Linux
Module 9: VMware and VVol Integration	• Review HPE Nimble Storage application and system integration products	• Perform integration tasks between HPE Nimble Storage and VMware VVols
Module 10: Veeam Integration	• Review HPE Nimble Storage application and system integration products	• Perform integration tasks between HPE Nimble Storage and Veeam
Module 11: Review Appendix	• Product line • Hardware tour	• Introduction to monitoring with the WebUI • User administration

Detailed lab outline

Lab 0: vLabs Access

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 • Task3: 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 volume • Task 7: Testing the Syslog and SNMP Trap Receiver • Task 8: Event logs and audit logs
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 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: Configure the downstream array	• Task 4: Replicate a volume collection • Task 5: Planned outage scenario – temporary transition to the 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 HPE Nimble Storage volume • Task 5: Understanding how new volumes and data placement is managed	• Task 6: Removing an array from a 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 • Task5: 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 Nimble Connection Manager 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-backed datastore • Task 5: Grow a Nimble-backed datastore • Task 6: Create a virtual machine on a Nimble-backed datastore
Lab 8: Working with VVol's	• Task 1: Register the Nimble Storage Protocol Endpoint with vCenter • Task 2: Create a VVol container on a HPE 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 and restore a VVol backed VM
Lab 9: Veeam – HPE Nimble Integration	• Task 1: Connect to the Veeam backup system • Task 2: Configure VMware vSphere as a managed server • Task 3: Add the HPE Nimble Storage array	• Task 4: Create a backup job • Task 5: Remove a disk on a virtual machine • Task 6: Validate the recovery of the lost disk

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