

# Data ONTAP 8.1 7-Mode Administration (D7ADM)

## *Module 1 The NetApp Storage Environment*

- Identify the key features and functions of NetApp storage systems
- Describe the advantages that a NetApp storage system provides
- Distinguish between network-attached storage (NAS) and SAN topologies
- Describe NetApp Unified Storage Architecture
- Access the NetApp Support site to obtain software and hardware documentation

## *Module 2 WAFL Simplified*

- Describe how data is written to and read from WAFL (Write Anywhere File Layout) file system on a volume
- Explain the WAFL file system concepts, including consistency points (CPs), RAID management, and storage levels
- Describe how RAID is used to protect disk data
- Explain how the WAFL file system processes write and read requests

## *Module 3 Basic Administration*

- Connect remotely to a FAS system by using the console and a remote host
- Access NetApp System Manager to administrator a storage system
- Execute commands by using the console, a remote host and NetApp System Manager
- Use commands to analyze a FAS system
- Configure and manage the NetApp AutoSupport tool for a FAS system

## *Module 4 Physical Storage*

- Describe Data ONTAP RAID technology
- Identify a disk in a disk shelf based on its ID
- Execute commands to determine a disk ID
- Identify a hot-spark disk in a FAS system
- Describe the effects of using multiple disk types
- Create a 32-bit aggregate and a 64-bit aggregate
- Execute aggregate commands in the Data ONTAP operating system
- Calculate usable disk space

## *Module 5 Logical Storage*

- Explain the concepts related to volumes in the Data ONTAP operating system
- Define and create a flexible volume
- Execute vol commands
- Define and create qtrees

## *Module 6 Administration Security*

- Restrict administrative access
- Restrict console and NetApp System Manager access
- Configure a client machine as an administration host to manage a storage system

### *Module 7 Networking*

- Identify the configuration of network settings and components in the Data ONTAP operating system
- Explain and configure name resolution services
- Configure routing tables in the Data ONTAP operating system
- Define and create interface groups
- Discuss the operation of virtual LANs (VLANs) and how to route them

### *Module 8 NFS*

- Explain NFS implementation in the Data ONTAP operating system
- License NFS on a storage system
- Explain the purpose and format of /etc/ exports
- List and define the export specification options
- Describe the use of the exportfs command
- Mount an export on a UNIX host

### *Module 9 CIFS*

- Describe the CIFS environment
- Configure the storage system to participate in the CIFS environment
- Share a resource on the storage system
- Map a drive from a client to the shared resource on the storage system

### *Module 10 NAS Management*

- List some security methods for protecting data
- Explain and configure a security style setting for a volume and a qtree
- Describe methods of tracking and restricting storage usage
- Explain, create, and manage quotas
- Explain and configure the Data ONTAP FPolicy file-screening policy

### *Module 11 SAN*

- Explain the purpose of a SAN
- Identify supported SAN configurations
- Distinguish between Fibre Channel (FC), Fibre Channel over Ethernet (FCoE) and iSCSI protocols
- Define a LUN and explain LUN attributes
- Use the LUN setup command and NetApp System Manager to create iSCSI-attached LUNs
- Access and manage a LUN from a Windows host
- Define SnapDrive data management software and its feature

### *Module 12 Snapshot Copies*

- Describe the function of Snapshot copies
- Explain the benefits of Snapshot copies
- Identify and execute Snapshot commands
- Create and delete Snapshot copies
- Configure and modify Snapshot options
- Explain the importance of the .snapshot directory
- Describe how Snapshot technology allocates disk space for volumes and aggregates
- Schedule Snapshot copies

- Configure and manage the Snapshot copy reserve

#### *Module 13 Space Management*

- List the storage efficiency techniques that are available within the Data ONTAP operating system
- Identify the factors that impact space consumption in the Data ONTAP operating system
- Describe how and when a volume consumes space from the aggregate that contains it
- Explain how to guarantee writes for a file
- Explain how the Data ONTAP operating system can provide space to a full volume
- Identify the deduplication and compression techniques that are available in the Data ONTAP operating system

#### *Module 14 High-Availability*

- Describe high-availability (HA) solutions
- Discuss how HA increases the reliability of storage
- Define HA controller configuration
- Describe the three modes of HA operation with an HA pair
- Analyze how HA affects clients protocols during failover and giveback operations

#### *Module 15 Virtualization Solutions*

- Describe how to virtualize a storage controller by using MultiStore software
- Configure MultiStore software
- Assign client protocols on MultiStore software

#### *Module 16 Backup and Recovery Methods*

- List the methods available to back up and recover data
- Use ndmcopy to process full and incremental data transfers
- Discuss dump and restore
- Describe, enable, and configure Network Data Management Protocol (NDMP) on a storage system

#### *Module 17 Data Collection Tools*

- Use the sysstat, stats, and statit commands
- Describe the factors that affect RAID performance
- Execute commands to collect data about write and read throughputs
- Execute commands to verify the operation of hardware, software, and network components
- Identify commands and options that are used to obtain configuration and status

#### *Module 18 Data ONTAP Upgrades*

- Access the NetApp Support site for the following documents:
  - Data ONTAP Upgrade Guide
  - Data ONTAP Release Notes
- Use a configuration worksheet to collect data for installation
- Describe how to perform Data ONTAP software upgrades and reboots
- Use the setup command to configure a storage system