

## ONTAP Cluster Administration and Data Protection Bundle (ONTAP 9.3) (CDOTDP9)

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### Course Summary

#### Description

This 5 day course comprises the ONTAP Cluster Administration (ONTAP 9.3) (ONTAP9ADM) followed by the 2 day ONTAP Data Protection Administration (ONTAP 9.3) (DATAPROT9) courses.

The first 3 days uses lecture and hands-on exercises to teach the basic administration tasks of an ONTAP 9.3 cluster. You use the cluster shell and OnCommand System Manager to manage storage and network resources. ONTAP Cluster Administration is an intermediate course in a comprehensive learning path for NetApp customers, partners and employees.

Students spend the final 2 days learning about the different data protection solutions that are integrated into ONTAP software, including the SyncMirror, SnapMirror, storage virtual machine (SVM) disaster recovery, and SnapVault solutions. The course also provides an overview of ONTAP MetroCluster configuration, NDMP, and cloud-based data protection with NetApp Cloud Volumes ONTAP and NetApp Data Availability Services. You also learn about the tools for managing ONTAP data protection features. In the hands-on exercises, you use NetApp OnCommand System Manager and the CLI to complete key data protection tasks.

The course also provides an overview of the ONTAP MetroCluster high-availability and disaster recovery software solution.

#### Objectives

At the completion of this course, Students will:

- Manage ONTAP administrators
- Configure and manage storage resources
- Configure and manage networking resources
- Create and configure a storage virtual machine (SVM)
- Create and manage FlexVol volumes
- Implement storage efficiency features
- Create protocol servers within an SVM
- Configure basic data protection features
- Perform administrative and preventive maintenance tasks
- Describe the data protection features in NetApp ONTAP software
- Explain the components and configuration of SyncMirror software
- Describe data mirroring relationships in ONTAP software
- Configure SnapMirror relationships for data replication
- Demonstrate storage virtual machine disaster recovery (SVM DR)
- Explain the components and configuration of MetroCluster software
- Configure SnapVault software for disk-to-disk backup and recovery
- Describe NDMP operation to back up data to tape
- Explain cloud-based data protection with NetApp Cloud Volumes ONTAP and NetApp Data Availability Services
- Describe the NetApp and third-party software that is used for ONTAP data protection management

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### Course Summary(cont.)

#### Audience

- Network Engineers
- Channel Partners
- System Engineers

#### Topics

- Cluster Setup
- Cluster Management
- Network Management
- Physical Storage Management
- Logical Storage Management
- Data Access
- Data Protection
- Storage Efficiency
- Cluster Maintenance
- Course Review
- ONTAP Integrated Data Protection
- SyncMirror Software
- ONTAP Mirroring Fundamentals
- SnapMirror Software
- Storage Virtual Machine Disaster Recovery
- MetroCluster Configuration
- SnapVault Software
- NDMP and Tape Backup
- Cloud Volumes ONTAP and Data Availability Services
- SnapCenter and Third-Party Management Software
- Course Review

#### Prerequisites

Completion of the following web based training modules:

- ONTAP Cluster Fundamentals WBT
- ONTAP NAS Fundamentals WBT
- ONTAP SAN Fundamentals WBT
- ONTAP Data Protection Fundamentals WBT

#### Duration

Five Days

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### Course Outline

#### I. *NetApp ONTAP 9 Clusters*

- A. ONTAP deployment options
- B. The cluster
- C. SVMs
- D. ONTAP select learning resources
- E. NetApp cloud volumes learning resources

#### II. *Cluster Setup*

- A. Supported FAS and AFF configurations
- B. Cluster setup
- C. Administration interfaces
- D. OnCommand System Manager: Guided cluster setup

#### III. *Cluster Management*

- A. Manage access control
- B. Cluster node date and time
- C. ONTAP software licenses
- D. Manage jobs and schedules

#### IV. *Network Management*

- A. NetApp ONTAP Network Review
- B. Network ports
- C. Network traffic segregation
- D. LIFs
- E. Nondisruptive LIF configuration
- F. Routing management
- G. Failover group commands
- H. Routing management commands
- I. BGP and VIP LIFs

#### V. *Physical Storage Management*

- A. Drives, RAID and aggregates
- B. Advanced drive portioning
- C. Flash cache and flash pool features
- D. FabricPool aggregates
- E. FabricPool in OnCommand System Manager

#### VI. *Logical Storage Management*

- A. Flexible volumes
- B. Provisioning storage resources
- C. Moving storage resources
- D. FlexGroup and FlexCache volumes
- E. Autobalance aggregate

#### VII. *Data Access*

- A. Use NAS protocols to access data
- B. Use SAN protocols to access data
- C. NVMe and NVMe/FC

#### VIII. *Data Protection*

- A. Manage Snapshot copies
- B. Restore data from a Snapshot copy
- C. Backup and replicate data
- D. Compliance
- E. Storage encryption
- F. Secure purge and secure boot

#### IX. *Storage Efficiency*

- A. Thin provisioning
- B. Deduplication and compression
- C. Flash efficiency
- D. Volume and file clones
- E. Inline deduplication status
- F. Inline data compaction

#### X. *Cluster Maintenance*

- A. Data collection, monitoring and automation tools
- B. Backing up and restoring your cluster configuration
- C. Upgrading your cluster
- D. Performance recommended practices
- E. Technical support
- F. Documentation
- G. ONTAP software upgrades

#### XI. *Course Review*

Labs:

- Exploring ONTAP Management UIs
- Managing ONTAP clusters and administrators
- Managing physical and logical network resources
- Managing virtual network resources
- Managing physical storage
- Exploring RAID-TEC and creating a flash pool
- Managing data volumes

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### Course Outline (cont.)

- Configuring NAS protocols in an SVM
- Configuring iSCSI in an SVM
- Managing Snapshot copies
- Encrypting a volume
- Managing storage efficiency
- Managing FlexClone volumes
- Bonus Exercise: creating a FlexGroup volume
- Installing and configuring Config Advisor

#### XII. *ONTAP Integrated Data Protection*

- A. ONTAP Data Protection Solutions
- B. Data protection management solutions
- C. Managing and monitoring tool

#### XIII. *SyncMirror Software*

- A. SyncMirror software for high availability
- B. Mirrored aggregates
- C. SyncMirror plex failure

#### XIV. *ONTAP Mirroring Fundamentals*

- A. Components of a mirror relationship
- B. Configuration guidelines for intercluster SanpMirror software
- C. Cluster and firewall requirements
- D. DPO systems
- E. FabricPool
- F. Cluster and SVM Peering

#### XV. *SnapMirror Software*

- A. Creating and initializing the SnapMirror relationship
- B. Disaster recovery using SnapMirror software
- C. SnapMirror and ONTAP feature interaction

#### XVI. *Storage Virtual Machine Disaster Recovery*

- A. Replicating configurations in SVM disaster recovery
- B. SVM initial data transfer
- C. SVM disaster-recovery relationship

- D. Scheduled SVM updates

#### XVII. *MetroCluster Configuration*

- A. Fundamentals
- B. Operations

#### XVIII. *SnapVault Software*

- A. Implementing a SnapVault relationship
- B. Using SnapVault software to restore data

#### XIX. *NDMP and Tape Backup*

- A. NDMP fundamentals
- B. NDMP management

#### XX. *Cloud Volumes ONTAP and Data Availability Services*

- A. NetApp cloud volumes ONTAP
- B. NetApp data availability services

#### XXI. *SnapCenter and Third-Party Management Software*

- A. NetApp SnapCenter software
- B. Integration with third-party management software

#### XXII. *Course Review*

Labs:

- Configuring a load-sharing mirror relationship
- Configuring cluster peering and SVM peering
- Using SnapMirror software to mirror FlexVol volumes
- Performing SnapMirror disaster recovery
- Configuring a SnapMirror synchronous relationship
- Using FlexClone technology to clone a SnapMirror volume
- Configuring storage virtual machine disaster recovery
- Configuring the SnapVault relationship
- Using SnapVault to restore data