

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

Duration: 5 Days

### Course Content

This 5 day course comprises the 3 day ONTAP 9.3 Cluster Administration (ONTAP9ADM) followed by the 2 day ONTAP 9.3 Data Protection Administration (DATAPROT9) courses.

The first 3 days uses lecture and hands-on exercises to teach basic administration of an ONTAP® cluster. You configure and maintain a cluster. You practice working with ONTAP features. 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 customers, partners, and NetApp employees.

### Course Objectives

- Describe how ONTAP fits into the NetApp Cloud and Data Fabric strategy
- Identify supported ONTAP configurations
- Create a cluster
- 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
- Upgrade and revert ONTAP patches and releases
- Describe NetApp protection technology and the NetApp integrated data-protection solutions that are supported in ONTAP
- Design, implement and manage ONTAP SnapMirror replication
- Perform storage virtual machine disaster recovery setup and operation
- Design, implement and manage ONTAP SnapVault replication
- Use the OnCommand System Manager to set up and manage backup and restore operations
- Describe how SyncMirror software can be used to protect data at the aggregate level
- Describe how to implement the NDMP protocol in ONTAP software

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

#### ONTAP Cluster Administration

##### Module 1: ONTAP 9

- Data Fabric foundation
- ONTAP deployment options
- Software Defined storage
- Cluster components
- Storage Virtual Machine (SVM)

##### Module 2: Cluster Setup

- Supported FAS and all Flash FAS configurations
- Cluster setup
- Administration interfaces
- OnCommand System Manager

### **Module 3: Cluster Management**

- Manage access control
- Configure cluster setting
- Manage cluster-level features
- Date and time
- Licenses
- Policies, jobs and schedules

### **Module 4: Network Management**

- Network review
- Network ports
- IPspaces
- LIFs
- Nondisruptive LIF configuration
- Routing management

### **Module 5: Physical Storage Management**

- Architecture concepts
- Storage resources
  - Disks
  - RAID groups
  - Aggregates
- Disk partitioning
- Flash pool and Flash cache
- FabricPool aggregates

### **Module 6: Logical Storage Management**

- Flexible volumes
  - FlexVol
  - FlexGroup
- Provisioning storage resources
- Moving storage resources

### **Module 7: Managing Data**

- Unified storage
- NAS protocols
  - NFS
  - SMB
- SAN protocols
  - iSCSI
- Managing Snapshot copies
- Snapshot policy
- Restoring data from Snapshot copy

### **Module 8: Storage Efficiency**

- Thin provisioning
- Deduplication and compression

- Flash efficiency
- Inline data compaction
- FlexClone volumes

### **Module 9: Cluster Maintenance**

- Active IQ
- Upgrading the cluster
- Events and alerts
- Performance best practices
- Technical support

### **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
- Configuring NAS protocols in an SVM
- Configuring iSCSI in an SVM
- Managing Snapshot copies
- Managing storage efficiency
- Managing FlexClone volumes
- Exploring the event log

## **ONTAP Data Protection**

### **Module 1: ONTAP Integrated Data Protection**

- Overview
- Data protection solutions
- Integrated data protection features
- Monitor and manage solutions

### **Module 2: NetApp Mirroring Fundamentals**

- Mirror relationship components
- SnapMirror policy configuration
- intercluster network configurations
- SnapMirror and SnapVault cascade deployments
- Cluster and SVM peering

### **Module 3: Implementation of SanpMirror Relationships**

- Creating and initializing the SnapMirror relationship
- Disaster recovery
- SnapMirror and ONTAP feature interaction

### **Module 4: Disaster Recovery for Storage Virtual Machines**

- SVM disaster recovery requirements
- SVM for data protection
- Manual SVM update
- Scheduled SMV updates

**Module 5: Disk-To-Disk Backup with SnapVault Software**

- SnapVault relationship
- SnapVault and storage compression
- Restoring data using SnapVault

**Module 6: SyncMirror and MetroCluster Software**

- SyncMirror components
- SyncMirror operation
- MetroCluster overview
- MetroCluster switchover, healing and switchback

**Module 7: NDMP and Tape Backup**

- NDMP fundamentals
- Terms and concepts
- Backup models
- NDMP management

**Labs:**

- Preparing for mirror relationships
- Using SnapMirror software to mirror FlexVol volumes
- Performing SnapMirror disaster recovery
- Using FlexClone technology to clone a SnapMirror volume
- Configuring storage virtual machine disaster recovery
- Configuring the SnapVault relationship
- Using SnapVault to restore data