

## ONTAP 9.3.3 Data Protection Administration (DATAPROT9.3)

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### Course Summary

#### Description

This course was designed to teach the core technologies of ONTAP 9.3.0 Data protection. You will learn how to implement and manage SnapMirror, SnapVault, SnapLock, SMV DR and NDMP technologies which are used to replicate and restore mission-critical data in the enterprise. The course also surveys real-world scenarios and use cases to teach you when to use each of the NetApp protection solutions. Backup and restore operations are taught using the command line and OnCommand System Manager. This course also provides an overview of the ONTAP 9.3.0 MetroCluster HA and disaster recovery software solution.

#### Objectives

At the completion of this course, Students will:

- Describe NetApp protection technology and the NetApp integrated data-protection solutions that are supported in ONTAP 9.3
- Design, implement, and manage ONTAP 9.3 SnapMirror replication
- Perform storage virtual machine disaster recovery setup and operation
- Design, implement, and manage ONTAP 9.3 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 9.3 software

#### Audience

This course is designed for :

- Network Engineers
- Channel Partners
- System Engineers
- NetApp Customers

#### Topics

- ONTAP Integrated Data Protection
- NetApp Mirroring Fundamentals
- Implement SnapMirror Relationships
- Disaster Recovery for Storage Virtual Machines
- Disk-to-Disk Backup with SnapVault Software
- SyncMirror and MetroCluster Software
- NDMP and Tape Backup

#### Prerequisites

- ONTAP 9.3 Cluster Administration (ONTAP9.3ADM)
- ONTAP Data Protection Fundamentals WBT

#### Duration

Two Days

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### Course Outline

#### I. *ONTAP Integrated Data Protection*

- A. Data protection overview ◦ Currency
- B. Types
- C. Consistency
- D. Challenges
- E. High availability ◦ NVRAM
- F. RAID DP or RAID-TEC technology
- G. Backup and archive ◦ Snapshot copy
- H. SnapRestore
- I. SnapVault
- J. Dump or SMTape
- K. Disaster recovery ◦ SnapMirror
- L. FlexClone
- M. Load-sharing mirrors
- N. SyncMirror
- O. MetroCluster
- P. Compliance ◦ NetApp Storage Encryption (NSE)
- Q. SnapLock
- R. Cloud ◦ Private storage
- S. Snap-to-Cloud
- T. AltaVault
- U. OnCommand system manager
- V. Host-level software
- W. Application-level software
- X. Data Protection tools

#### II. *NetApp Mirroring Fundamentals*

- A. SnapMirror technology
- B. Mirror relationships
- C. Relationship types
- D. Load sharing
- E. SnapMirror and SnapVault configuration
- F. SnapMirror policies and configuration
- G. Automatic transfers
- H. Intercluster network connectivity
- I. TCP connections
- J. Two cluster networking
- K. Cluster cascade networking
- L. Deployment configuration
- M. SnapMirror cascade deployments
- N. Cluster Fan-out or Fan-in
- O. Intercluster SnapMirror Throttle
- P. Network compression
- Q. Peer relationships

#### III. *Implement SnapMirror Relationships*

- A. FlexVol volumes mirror copy
- B. SnapMirror relationships configuration
- C. Licensing
- D. Language setting
- E. Job schedules
- F. Monitoring relationships
- G. Failover mode
- H. Disaster mode
- I. Version-independent SnapMirror technology
- J. FlexClone technology
- K. Tape backup
- L. NDMP
- M. Volume move

#### IV. *Disaster Recovery for Storage Virtual Machines*

- A. SVM disaster recovery
- B. Identity preserve option
- C. SVM disaster recovery requirements
- D. Selective protection
- E. Test and Dev
- F. Convert a volume

#### V. *Disk-to-Disk Backup with SnapVault Software*

- A. SnapVault Solution components
- B. Snapshot copy policy
- C. SnapVault backups
- D. Managing SnapMirror and SnapVault updates
- E. SnapVault end-to-end storage efficiency
- F. Storage compression
- G. Space planning requirements
- H. Tiered backup
- I. Restoring data

#### VI. *SyncMirror and MetroCluster Software*

- A. Data mirroring
- B. Plexes and pools to an aggregate relationship
- C. Storage type considerations
- D. SyncMirror Plex failure
- E. MetroCluster overview
- F. Nondisruptive operations

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### Course Outline (cont'd)

- G. Local HA failover
- H. Protecting data
- I. Unmirrored aggregates
- J. Node-level QoS
- K. Active-active configuration
- L. Planned switchover
- M. Tiebreaker software

#### VII. NDMP and Tape Backup

- A. NDMP technology
- B. Terms and concepts
- C. Nodes, connections and variables
- D. Managing SVM-Scoped NDMP
- E. NDMP backup models
- F. User authentication
- G. SVM-aware NDMP
- H. Management commands

#### Labs

- Ensure connectivity to your ONTAP cluster
- Synchronize system time for windows domains
- Assign a network time protocol (NTP) server for SVL-NAU and RTP-NAU
- Verify that required license codes are installed
- Create intercluster subnets and LIFs
- Prepare the storage environment on RTP-NAU as the secondary target
- Configure cluster peering
- Configure SVM peering
- Configure a SnapMirror relationship
- Verify data transfer
- Take the source volume offline
- Activate the destination volume
- Reactivate the original source volume
- Restore the original SnapMirror relationship
- Create an unscheduled Snapshot copy
- Configure storage virtual machine disaster recovery
- Check for space requirements
- Create the disaster-recovery SVM
- Create an SVM peer relationship
- Create the SVM SnapMirror relationship
- Failover to the disaster-recovery SVM
- Reverse the SnapMirror relationship
- Recover the primar SVM
- Create the SnapVault relationship
- Verify data transfer
- Simulate a disaster and recover data