

NetApp - Clustered Data ONTAP 8.2 Administration

Code:	NA-DCADM
Length:	5 days
URL:	View Online

Data ONTAP 8 is the next generation data storage operating system from NetApp. In this course, you will learn the evolution of clustered Data ONTAP, utilize new features such as flash pool and infinite volumes, understand the benefits of scalability, be able to explain the architecture and functionality of a Data ONTAP, and be able to configure and manage, a Data ONTAP cluster. The Fast Lane Cluster-Mode enhanced labs add value to the student lab experience by providing additional exercises on the following topics: Delegation of VServers and creation of VServer management LIFS Using the command line to configure iSCSI SAN Backup and Restore of the Cluster Configuration Creating Intercluster SnapMirror Relationships from the command line Managing storage efficiencies from the command line Additional information about 7-Mode Transition to Clustered Data ONTAP is also being provided. Topics include: Migration Methodology 7-Mode Transition Tool The Migration Process Migrating Qtrees NetApp Migration Services

Skills Gained

- By the end of this course, you should be able to:
- Explain the primary benefits of a Data ONTAP cluster
- Create a cluster
- Implement role-based administration
- Manage the physical and logical resources within a cluster
- Manage features to guarantee nondisruptive operations
- Discuss storage and RAID concepts
- Create aggregates
- List the steps that are required to enable storage failover (SFO)
- Create a flash pool
- Build a namespace using multiple volumes
- Configure FlexCache
- Create an infinite volume
- Identify supported cluster interconnect switches
- Set up and configure SAN and NAS protocols
- Configure the storage-efficiency features
- Administer mirroring technology and data protection
- Explain the notification capabilities of a cluster
- Scale a cluster horizontally
- Configure the storage QoS feature

Who Can Benefit

- Anyone who wants hands-on experience with Data ONTAP Cluster-Mode

Prerequisites

- The below courses are recommended before attending the Data ONTAP Cluster-Mode Administration class.
- Basic NetApp Configuration and Administration (BNCA)
- Web-based training courses:
 - Clustered Data ONTAP Fundamentals
 - Data ONTAP 8 Cabling

Course Details

Clustered Data ONTAP 8.2 Administration

- Module 1 Overview Explain the primary benefits of Data ONTAP clustering
- Identify the scope of Data ONTAP concepts such as node virtual storage servers (Vservers), administrative Vservers, and data Vservers
- Module 2 Installation and Configuration Configure nodes and install the operating system
- Create a cluster to the Expand a cluster two nodes
- Set the dates, times, and time zones of the nodes in the cluster
- Module 3 Cluster Administration Basics Describe and utilize the various tools to manage a cluster
- Determine which commands are available for a command directory
- Determine whether parameters are required or optional for a command
- Switch among privilege levels
- Describe the Vserver administrative roles
- Explore policies and job schedules
- Discuss the enhanced node-locked licensing model
- Module 4 Architecture Show the end-to-end path of a file write request through a cluster
- Answer questions about replicated database (RDB) concepts
- Identify the differences between a vol0 root volume and a data virtual storage server (Vserver) root volume
- Module 5 Physical Data Storage Draw the connections from a high-availability (HA) pair of controllers to the disk shelves
- Discuss storage and RAID concepts
- Create aggregates
- List the steps that are required to enable storage failover (SFO)
- Explain and enable ?two-node HA? mode for two-node clusters
- Create a flash pool
- Module 6 Logical Data Storage Create a volume
- Build a namespace by using multiple volumes
- Configure FlexCache storage
- Create an infinite volume
- Module 7 Physical Networking Draw the connections of the network cables from the three networks to a controller
- Explain port roles
- Create an interface group
- Configure virtual LAN (VLAN) tagged ports

- Identify supported cluster interconnect switches
- Discuss switchless two-node clusters and single-node clusters
Module 8 Logical Networking
Create NAS data logical interfaces (LIFs)
- Create a LIF failover group
- Migrate and revert a NAS data LIF
- Configure DNS load balancing
Module 9 NAS Protocols
Create an export policy for a data Vserver
- Create an NFS configuration for a data Vserver
- Create a CIFS domain, server, and share
- Mount exports and shares to NFS and CIFS clients
- Create name mapping rules between NFS and CIFS
Module 10 SAN Protocols
Explain the differences between the supported SAN protocols
- Identify the components that implement scalable SAN on a cluster
- Configure iSCSI on a cluster and create a LUN
- Configure a Windows iSCSI initiator
- Create a portset and an igroup
Module 11 Storage Efficiency
Discuss the storage-efficiency features that are built into clustered Data ONTAP
- Identify the commands that are needed to manage storage efficiency
Module 12 Data Protection: Snapshot and SnapMirror
Copies
Create a Snapshot copy of a volume and create Snapshot policies
- Create load-sharing (LS) and data-protection (DP) mirror copies
- Manually and automatically replicate mirror copies
- Promote an LS mirror copy to replace its read/write volume
- Restore a Snapshot copy to be a read/write volume
- Configure Vserver and cluster peering for data protection
Module 13 Data Protection: Backups and Disaster Recovery
Configure and replicate to SnapVault backups
- Answer questions about NDMP backup
- Discuss disaster recovery in a clustered Environment
Module 14 Cluster Management
Explain how to configure and use the AutoSupport tool
- Demonstrate the use of the cluster Event Management System (EMS)
- Nondisruptively upgrade the Data ONTAP software
- Scale the cluster storage capacity by adding disks to an aggregate
- Configure the Storage QoS feature
- Identify any offline storage
- Review the required steps for forcing a system core dump
- Module 15 Recommended Practices
Identify some recommended practices for clustered Data ONTAP high availability
- List some of the ways to balance clustered Data ONTAP resources
- Describe some of the methods for managing a cluster
- Enumerate some of the ways to protect and recover a cluster from a disaster
- Lab Exercises
- Lab 1-1 Identify Cluster-Mode concepts as a physical or logical
- Lab 1-2 Identify the scope of Cluster-Mode concepts

- Lab 2-1 Create a cluster and configure the first node in the cluster
- Lab 2-2 Add a second node to the cluster
- Lab 2-3 Preserve free space on vol0 volumes
- Lab 3-1 Connect to the command shell and explore the command hierarchy
- Lab 3-2 Review command options
- Lab 3-3 Compare privilege levels
- Lab 3-4 Use Partial commands and complete commands with the tab key
- Lab 3-5 Install NetApp OnCommand System Manager
- Lab 3-6 Configure NetApp OnCommand System Manager for your cluster
- Lab 3-7 Explore package licensing
- Lab 4-1 Identify kernel and user-space processes
- Lab 4-2 Explain RDB and quorum concepts
- Lab 4-3 vol0 and Vserver root volumes uses and limitations
- Lab 5-1 Create a new aggregate
- Lab 5-2 Add disks to the aggregate
- Lab 5-3 Use System Manager to create an aggregate
- Lab 5-4 Create a Flash Pool
- Lab 6-1 Create a cluster Vserver
- Lab 6-2 Create a flexible volume
- Lab 6-3 Use System Manager to create a flexible volume
- Lab 6-4 Configure FlexCache for a volume
- Lab 6-5 Configure an infinite volume
- Lab 7-1 Identify port roles
- Lab 7-2 Create an interface group
- Lab 7-3 Create a VLAN
- Lab 8-1 Create a NSA data LIF
- Lab 8-2 Explore routing groups
- Lab 8-3 Migrate a data LIF
- Lab 8-4 Rehome a data LIF
- Lab 8-5 Failover a data LIF
- Lab 8-6 Delete the VLANs and the interface group
- Lab 8-7 Create a failover group
- Lab 9-1 Configure a Vserver to serve CIFS and NFS
- Lab 9-2 Create a NAS data LIF
- Lab 9-3 Create an export policy
- Lab 9-4 Create and export a volume
- Lab 9-5 Create a CIFS share
- Lab 9-6 Access your CIFS share share from a Windows client
- Lab 9-7 Configure CIFS Home Directories
- Lab 9-8 Access your data from a NFS client
- Lab 10-1 Use NetApp System Manager to create a Vserver for iSCSI

- Lab 10-2 Enable an aggregate as a resource for a Vserver
 - Lab 10-3 Configure Windows for MPIO
 - Lab 10-4 Install the Windows Host Utilities
 - Lab 10-5 Configure the iSCSI software initiator (in Windows)
 - Lab 10-6 Use NetApp System Manager to create an iSCSI-attached LUN
 - Lab 10-7 Access the iSCSI-attached LUN on the Windows host
 - Lab 11-1 Create a volume
 - Lab 11-2 Resize a volume
 - Lab 11-3 Create a Qtree and set quotas
 - Lab 11-4 Use FlexClone volumes
 - Lab 11-5 Enable deduplication and data compression
 - Lab 12-1 Create and initialize LS and DP SnapMirror replications
 - Lab 12-2 Compare DP mirror replication times
 - Lab 12-3 Add volumes and files to a replicated namespace
 - Lab 12-4 Schedule periodic SnapMirror replications
 - Lab 12-5 Promote an LS mirror
 - Lab 12-6 Set up an intercluster peer relationship
 - Lab 12-7 Configure a Vserver peer relationship
 - Lab 12-8 Use System Manager to configure to SnapMirror relationship
 - Lab 12-9 Use the CLI to configure a SnapMirror relationship
 - Lab 12-10 Update SnapMirror relationship
 - Lab 13-1 Configure a SnapVault relationship
 - Lab 13-2 Restore from a SnapVault backup
 - Lab 14-1 Move a volume
 - Lab 14-2 Use roles to delegate administrative tasks
 - Lab 14-3 Explore the storage QOS feature
 - Additional Fast Lane labs:Delegation of VServers and creation of VServer management LIFS
 - Using the command line to configure iSCSI SAN
 - Backup and Restore of the Cluster Configuration
 - Creating Intercluster SnapMirror Relationships from the command line
 - Managing storage efficiencies from the command line
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