

Accelerated NCDA Boot Camp Data ONTAP 7-Mode (ANCDABC87)

COURSE OVERVIEW:

This is a 5-day bootcamp that expands upon what students learned in the D7ADM course in order to prepare for the NCDA 7-mode certification exam. This is an accelerated course with extended hours so come prepared work hard and become a knowledgeable user of Data ONTAP 7-mode.

WHO WILL BENEFIT FROM THIS COURSE?

This course is intended for NetApp customers, partners and employees who provide basic support and perform administrative functions of the Data ONTAP 8.2 operating system running in 7-mode and those seeking NCDA certification.

PREREQUISITES:

- Three years of experience in a storage related function, such as storage administrator or field engineer
- Six months experience with NetApp storage solutions
- Data ONTAP 7-Mode Fundamentals WBT (Cost – FREE)

COURSE OBJECTIVES:

- Configure a Data ONTAP storage system in an NFS environment
- Configure and administer a storage system for CIFS functionality
- Discuss how to configure a storage system for a SAN FC environment
- Configure and administer a storage system in a SAN iSCSI environment
- Explain and implement the backup and recovery methods that are available in the Data ONTAP operating system
- Describe and implement the business continuance methods that are available in the Data ONTAP operating system

COURSE OUTLINE:

Module 1: NCDA Overview

- Identify the skills and knowledge that NetApp Certified Data Management Administrator (NCDA) certification verifies
- Describe the benefits of certification
- Explain the key concepts of Data ONTAP operating in 7-mode

Module 2: NFS Overview

- Define NFS
- Differentiate between NFS protocol versions
- Recognize the differences between stateless and stateful protocols
- Describe how the storage system acts as an NFS file server
- List the requirements of NFS

Module 3: NFS Setup

- Configure NFS on a NetApp®_ storage system
- Configure a storage system to perform IP to host-name resolution
- Add Network Information Server (NIS) to manage users, groups, and name-to-IP resolution
- Configure a storage system to centrally manage users and groups
- Configure PC-NFS and WebNFS environments to extend the reach of NFS

Module 4: Exports and Mounts

- Identify exportable resources
- Export and unexport resources to clients, subnets, and netgroups
- Manage exports with the exportfs command
- Create mount points and mount exported resources on a client
- Monitor the usage of exported resources
- Explain how to monitor exports with access cache

Module 5: CIFS Overview

- Describe basic CIFS terminology and CIFS versions
- Describe the role of the Data ONTAP storage system within Windows environments:
- Microsoft®_ Windows®_ workgroup
- Non-Windows workgroup
- Windows domains
- Describe host name resolution
- Describe user authentication and authorization

Module 6: CIFS Workgroups

- License CIFS on a storage system
- Join a storage system to a Microsoft®_ Windows®_ workgroup environment using the CIFS setup command
- Review the results of CIFS setup
- Manage newly created configuration files for a CIFS workgroup environment

Module 7: CIFS Shares and Sessions

- Display the list of shared resources available on the storage system
- Configure a client machine to access a storage system share
- Identify users and hosts that are connected to the storage system in CIFS sessions
- Add, modify, and delete shares

Module 8: CIFS Access Control

- Create and manage local users for a storage system
- Create and manage local users for a storage system
- Create local group and local users for that group
- Use the CLI (command-line interface), NetApp®_ System Manager, and Microsoft®_ tools to add, delete, and modify access permissions for shares
- Use Microsoft tools to add, delete, and modify access permissions for files and folders

Module 9: CIFS Domains

- Terminate the CIFS service to prepare for CIFS domain configuration
- Reconfigure the CIFS service for a Windows®_ domain
- Identify the resulting files
- Create domain users and add the domain users to a local storage system group
- Configure preferred domain controllers (DCs)

Module 10: NAS Multiprotocol

- Describe security styles and how they affect file permissions
- Determine and verify user mappings for CIFS users that access UNIX®_ volumes and qtrees and mixed volumes and qtrees
- Determine and verify user mappings for UNIX users that access New Technology File System (NTFS) volumes and qtrees and mixed volumes and qtrees
- Describe the WAFL (Write Anywhere File Layout) Credential Cache

Module 11: NAS Troubleshooting

- Locate options and configuration files that might be misconfigured on the storage system
- Test for Domain Name System (DNS) resolution on both the storage system and the client
- Use client-side tools to test the client configuration
- Use storage system and client tools to isolate network system blockages
- Recognize typical error messages and list the commands to identify their sources

Module 12: SAN Overview

- Describe the differences between network-attached storage (NAS) and storage area network (SAN)
- List the protocols to implement a SAN environment
- Define a LUN, initiator, and target
- Describe ports, worldwide node names (WWNNs), and worldwide port names (WWPNs)
- Implement a SAN

Module 13: iSCSI Connectivity

- Describe multiple-path implementation with iSCSI connectivity
- Configure network ports on Windows®_ and NetApp®_ systems
- Identify the node name (WWNN) on Windows and NetApp systems
- Configure and verify multiple-path iSCSI connectivity between Windows and NetApp systems

Module 14: FC Connectivity

- Implement multiple paths with Fibre Channel (FC) connectivity
- Configure FC ports on Windows®_ and Data ONTAP systems
- Describe the commands and utilities to identify worldwide node names (WWNNs) and worldwide port names (WWPNs) on Windows®_ and Data ONTAP systems

Module 15: LUN Access

- Describe the steps that are required to enable a Windows®_ Server initiator to access a LUN on a storage system

Module 16: Availability Features

- Describe the features that you can use to ensure system availability
- Explain RAID-DP functionality
- Define SyncMirror
- Define the high-availability controller configuration
- Describe a stretch MetroCluster environment
- List the basic steps to implement a stretch MetroCluster
- Describe a fabric-attached MetroCluster environment
- List the basic steps to implement a fabric-attached MetroCluster

Module 17: Managing Snapshot Copies

- Describe the functions and benefits of Snapshot and SnapRestore technologies
- Use the storage system CLI and NetApp System Manager interfaces to manage Snapshot copies
- Manage and reclaim space used by Snapshot copies
- Use Snapshot copies to restore lost data

Module 18: SnapMirror Technology

- Explain the SnapMirror Async, Sync, and Semi-Sync modes of operation
- Describe how volume SnapMirror and qtree SnapMirror software replicate data
- Configure SnapMirror software
- Perform advanced SnapMirror operations
- Explain SnapMirror performance impact

Module 19: Managing SnapVault Technology

- Describe SnapVault®_ components and benefits
- Configure SnapVault software on primary and secondary systems
- Administer a SnapVault backup on primary and secondary systems
- Describe the application-consistent backup operations
- Restore data from secondary system to primary system

Module 20: Open Systems SnapVault

- Describe how Open Systems SnapVault®_ integrates with Data ONTAP®_ SnapVault
- Describe Open Systems SnapVault advanced features
- Configure and administer Open Systems SnapVault
- Perform Open Systems SnapVault backup and restore operations
- Troubleshoot and resolve Open Systems SnapVault transfer failures

Module 21: Storage Efficiency

- Utilize FlexClone technology to create efficient copies of volumes, files, and LUNs
- Use deduplication and compression to manage data growth

Module 22: Performance and Data Collections Tools

- Use Data ONTAP operating system commands and tools to capture performance data
- Describe Data ONTAP tools that can affect performance
- Use the reallocate command to maintain performance
- Use recommended techniques to optimize Data ONTAP configuration for SAN and NAS

Labs

- Log in to the exercise environment
- Perform a health check on the storage systems and the Linux server
- Install NetApp OnCommand System Manager
- Add storage systems to System Manager
- Use OnCommand System Manager to create aggregates
- Use OnCommand System Manager to create an aggregate with a flash pool
- Use the CLI to create aggregates
- Use the CLI to create an aggregate with a flash pool
- Destroy an aggregate and initialize its disks
- Create a Flexvol volumes
- Resize Flexvol volumes
- Create Qtrees
- Use the CLI to investigate the status of the NFS protocol
- Investigate NIS and LDAP
- Investigate NFS protocols and configuration files
- Determine if the storage system is accessible from a unix or unix host
- Enable the NFS protocol
- Create a netgroup on the storage system
- Designate a unix host as an administrative host
- Designate a unix host as an administrative host
- Change the permissions for the root volume export
- Mount exported volumes on a unix administration host
- Use system manager to export a Qtree to a subnet
- Use a unix admin host to export a Qtree to a netgroup

- Investigate the status of the CIFS protocol on your storage systems
- Execute the CIFS setup script
- Determine the CIFS protocol status
- Map a drive to the root volume of the storage system
- View CIFS shares from the CLI, system manager, or computer management
- Use the CLI to create shares
- Use system manager to create shares
- Use Windows Computer Management to create shares
- View file and folder properties from the windows host
- Display CIFS session information from the storage system CLI
- Add a local user account on the storage system
- Add a local group to a storage system
- Grant share access to the new group
- Determine whether CIFS configuration prerequisites are met
- Set up the prerequisites for CIFS configuration
- Use system manager to terminate CIFS services
- Use the CIFS setup wizard to join a storage system to a Windows domain
- Use the storage system CLI to join a storage system to a Windows domain
- Create a domain user as a member of the built-in administrators group
- Use Windows Computer Management to manage storage system shares
- Display CIFS session
- Configure multiprotocol access
- Use the WCC to view the mapping of unix to Windows users
- Create, share, and export unix, NTFS, and mixed-style Qtrees
- Access a unix-style volume as a Window server
- Access NTFS security-style volumes as a unix user
- Troubleshoot multiprotocol access
- Send an autosupport message
- Locate storage system diagnostic log files
- Recall diagnostic commands to enter on the storage system
- Capture a packet trace
- Recall diagnostic commands to enter on a unix host
- Recall diagnostic commands to enter on a windows host
- Identify the components of your SAN exercise environment
- Configure iSCSI on a storage system
- Configure Windows for MPIO
- Install NetApp Host Utilities
- Configure iSCSI on Window
- Confirm an iSCSI session on a storage system
- Confirm a second iSCSI session on Windows
- Create a Flexvol volume to contain LUNs
- Create a LUN that is mapped to an igroup
- Initialize a LUN with disk management
- Provision a LUN with disk management
- Make the mounting of a LUN persistent
- Move a volume
- Manage Snapshot copies on the storage system CLI and System Manager
- Ensure that Snapshot directories are visible to CIFS and NFS users

- Restore a windows file from a Snapshot copy
- Create a data-loss test scenario
- Use SnapRestore technology to restore a volume
- Use SnapRestore technology to restore a file
- Identify the source and destination systems
- Set up SnapMirror on the source storage system
- Set up SnapMirror on the destination storage system
- Initiate a baseline transfer and schedule updates
- Update the SnapMirror relationship
- Break the SnapMirror relationship
- Resynchronize the relationship from the source storage system
- Reinststate the original SnapMirror relationship
- Configure synchronous SnapMirror mode
- Identify primary and secondary systems
- Configure SnapVault software on the primary system
- Configure SnapVault software on the secondary system
- Initialize the transfer
- Perform a restore
- Restart the backup relationship
- Install Open Systems SnapVault for Windows server
- Configure the SnapVault secondary system
- Configure Windows Server 2012 firewall settings
- Establish the Open Systems SnapVault baseline
- Perform a restore and resume SnapVault operations
- Enable, schedule, and run volume deduplication operations
- Create a FlexClone volume clone
- Create a FlexClone LUN clone and work with fractional reserve
- Locate statistics on flash pool performance
- Set processing priorities with the FlexShare tool
- Use the sysstat command to collect performance statistics
- Use the stats command to collect performance statistics

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