NETAPP UNIVERSITY

Clustered Data ONTAP Advanced Protocols Troubleshooting

Offered by CSOps Enablement, Learning, and Performance

COURSE DESCRIPTION

In this course, you learn about the new features in the Data ONTAP® 8.2 operating system and are provided with hands-on lab exercises. Although this course is mode agnostic, most new features work with the clustered Data ONTAP® operating system.

DELIVERY TYPE

Instructor-led training (ILT)

DURATION

Five days

AUDIENCE

NetApp employees who provide multilevel technical support for diagnosing, reproducing, and fixing clustered Data ONTAP issues on NetApp storage systems

TRAINING UNITS

60

PREREQUISITES

- Completion of Clustered Data ONTAP Administration or NetApp Certified Data Management Administration certification and successfully passing the Clustered Data ONTAP Administrator (NS0-156) exam
- Clustered Data ONTAP Troubleshooting Fundamentals
- One to two years of experience supporting NetApp hardware and software

OBJECTIVES

By the end of this course, you should be able to:

- Describe features for scalable SAN, NFS, and CIFS
- Compare the NFS and CIFS features to the 7-Mode features
- Describe new storage scalability and efficiency features
- Gather required data and information needed for support cases
- Check the configuration and collect troubleshooting data for new CIFS features
- Verify NFS configuration and basic troubleshooting steps for new NFS features such as NFS audit, Inter-Vserver copy support, and NFS performance
- Check the configuration and collect troubleshooting data for new SAN features involving scaling, copy offload, vStorage, and V-Series
- Check the configuration and describe best practices for implementing infinite volumes

Day 1

Module1: Overview

- Explain the use and purpose of the management component
- Compare storage failover (SFO) and high availability
- Explain when a replicated database (RDB) is used
- Determine the location of log files
- Identify the types of core files and demonstrate how to create a core file

Module2: Scale-Out Networking Review

- Describe the scale-out networking architecture
- Describe new scale-out networking features
- Identify troubleshooting tools for scale-out networking
Module 3: CIFS
- Use Vserver FPolicy® CLI commands
- Identify best practices for the use of the FPolicy feature
- Recognize FPolicy content in AutoSupport™ messages and EMS logging
- Find FPolicy log messages in the management component log
- Identify the best practices for CIFS auditing
- Recognize CIFS auditing messages in AutoSupport and EMS logging
- Find CIFS auditing log messages in the management component log
- View CIFS autolocation statistics
- Demonstrate how to enable SMB 3.0 and how to configure CIFS nondisruptive operations requirements and CLI commands and scripts
- Identify CIFS nondisruptive messages in AutoSupport and EMS logging
- Use the Vserver security trace command to filter and display access information for troubleshooting access errors
- Enable, disable, and check copy offload on a Vserver
- Recognize and remediate common copy offload problems
- Explain the requirements for the Witness feature to be operational
- Identify error messages in the sktlogd.log file
- Determine which logs contain logging for the Witness feature
- Describe how to enable, disable, and check Access Based Enumeration on a clustered Data ONTAP CIFS share

Module 4: Troubleshooting CIFS
- Follow the flow of CIFS requests in clustered Data ONTAP
- Isolate and resolve Security Damon (SecD) issues
- Identify the new features in clustered Data ONTAP 8.1
- Describe export policy rule interactions in CIFS
- Troubleshoot and resolve CIFS issues

Module 5: NFS
- Configure NFS auditing and set Audit ACE
- Describe best practices for using NFS auditing
- Describe how NFS operations occur in clustered Data ONTAP
- Describe clustered ONTAP data structures
- Describe new NFS features
- Compare NFS in clustered Data ONTAP with Data ONTAP operating in 7-Mode

Module 6: Troubleshooting NFS
- Troubleshoot common NFS issues
- Use troubleshooting commands
- Find NFS auditing messages in AutoSupport and EMS logging
- Find NFS auditing log messages in the management component logs
- Use the NFSv4 MP feature and determine if it is improving performance
- Use diagnostics tools to gather more information about the NFSv4 MP feature

Module 7: SAN
- Define terminology that is related to SAN in clustered Data ONTAP
- Define the architecture, components and services that are related to scalable SAN
- Perform SAN administration tasks
- Describe takeover performance
- Describe network management component initialization before a giveback and after a cluster boot
- Use the new copy-offload command
- Describe new storage QoS settings for performance
- Describe HP EVA storage nondisruptive upgrade (NDU)
- Find information on LUN and initiator counts, counters, and queue depth on V-Series

Module 8: Troubleshooting SAN
- Describe what to avoid and best practices in the use of SAN
- Use counter manager statistics for token manager and RAS trace for triage and data collection
- Describe new LUN statistics and copy manager statistics for troubleshooting VAAI operations
- Use the copy-offload command to check the stat for the Vserver in question
- Use new CLI commands to display the workload stats and storage QoS performance
- Troubleshoot scalable SAN issues

Day 5: Infinite Volumes
- Describe protocols and features that are supported with infinite volumes
- Set up and configure an infinite volume
- Run and monitor consistency checker (CR Iron) to check an infinite volume for corruptions
- Locate related consistency checker logs and messages
- Use tools such as statistics and systat commands for troubleshooting
- Describe the schedule for Snapshot copies and retentions for an infinite volume
- Explain how a NS resiliency mirror avoids a single point of failure of a namespace constituent
- Explain SnapDiff mirrors and their benefits
- Explain how to detect when NS resiliency mirrors are not working and how to recover from namespace failures

PRICING AND CANCELLATION POLICY
For pricing and cancellation information, see the NetApp University LearningCenter.

NOTE: If you are registering for this course with an Authorized Learning Partner, review the partner’s pricing and cancellation policy.