

ONTAP Performance Administration



Delivery: Instructor-led-training (ILT)

Duration: 3 days

Course Description

Learn how to collect and analyze system performance data from NetApp® storage systems that run NetApp ONTAP® 9 software. You learn how to interpret data and how to identify and implement changes that improve system efficiency. You also learn how to use system commands and features to monitor and enhance storage system performance. You learn from hands-on exercises, case studies, and technical discussions.

Role

- Administrator
- Architect

Prerequisites

- *ONTAP Cluster Fundamentals*
- *ONTAP Cluster Administration*
- Hands-on experience with ONTAP software (6 months to 12 months)

Objectives

This course focuses on enabling you to do the following:

- Describe how to use NetApp tools for performance measurement
- Describe the layers within the ONTAP architecture
- Diagram the flow of read and write requests through the network and data layers of ONTAP software
- Discuss how storage quality of service (QoS) operates in an ONTAP cluster
- Explain how to monitor and manage workload performance
- Use the performance analysis tools to identify NAS and SAN performance obstacles

Course Content

This course includes the following modules, lessons, and exercises:

Module**Lessons****Exercises**

Module	Lessons	Exercises
Module 1: NetApp Storage System Architecture	<ul style="list-style-type: none"> FAS/AFF system architecture Read and write paths 	Identifying the storage system components
Module 2: Performance Analysis Fundamentals	<ul style="list-style-type: none"> Performance concepts Workloads 	N/A
Module 3: Performance Analysis Tools	<ul style="list-style-type: none"> Performance analysis tools Using Active IQ Unified Manager 	Analyzing performance statistics
Module 4: Network Layer	<ul style="list-style-type: none"> Identifying network performance issues Resolving network I/O performance issues 	Analyzing network performance
Module 5: NAS Protocols	<ul style="list-style-type: none"> Network Attached Storage Identifying NAS performance issues Resolving NAS performance issues network I/O bottlenecks 	Analyzing NAS performance
Module 6: SAN Protocols	<ul style="list-style-type: none"> SAN overview SAN multipathing SAN load balancing SAN I/O misalignment Queue depth 	Analyzing SAN performance
Module 7: WAFL Layer	<ul style="list-style-type: none"> WAFL functions WAFL readahead Resolving WAFL performance issues 	Analyzing WAFL performance

Module	Lessons	Exercises
Module 8: Storage Layer	<ul style="list-style-type: none"> Storage subsystem hardware Identifying storage performance issues Identifying storage performance issues 	Analyzing storage performance
Module 9: Cache Subsystem	<ul style="list-style-type: none"> Cache subsystems Flash Cache Flash Pool Cache policies Cache sizing 	Analyzing cache performance
Module 10: Storage Quality of Service	<ul style="list-style-type: none"> Managing System Performance with QoS Monitoring storage QoS Performance service levels 	Analyzing Storage QoS performance
Module 11: CPU and Memory	<ul style="list-style-type: none"> CPU subsystem Memory subsystem Resolving WAFL performance issues 	Analyzing CPU performance
Module 12: External Resources	<ul style="list-style-type: none"> Virus Scanning File access policies 	Analyzing external resource performance

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