



# ONTAP Performance Administration (PERFCDOT)

ID PERFCDOT Price 2,700.— €(excl. tax) Duration 3 days

## Course Overview

This course enables you 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.

## Who should attend

- Professionals who manage NetApp storage systems and would like a deeper understanding of Clustered Data ONTAP system performance

## Prerequisites

- ONTAP Cluster Fundamentals WBT
- [ONTAP Cluster Administration and Data Protection Bundle \(CDOTDP9\)](#)
- Hands-on experience with ONTAP software (6 to 12 months)

## Course Objectives

- 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

## Detailed Course Outline

### Module 1: Performance Analysis Fundamentals

- Basic Concepts of Performance
- Performance Monitoring Methodology

### Module 2: Performance Analysis Tools

- Performance terminology
- Using Active IQ Unified Manager

### Module 3: Storage System Architecture and Data Flow

- FAS and AFF Architecture
- Data Flow
- NVRAM Functionality

### Module 4: WAFL

- WAFL Functions
- WAFL Readahead
- Resolving WAFL issues

### Module 5: CPU and Memory

- Identifying CPU Performance Bottlenecks
- Resolving CPU Performance Bottlenecks
- Identifying Memory Performance Bottlenecks
- Resolving Memory Performance Bottlenecks

### Module 6: Disk Subsystem

- Disk Subsystem Hardware
- Analyzing and Isolating Disk Subsystem Bottlenecks
- Analyzing Disk Subsystem Bottlenecks with Statit
- Resolving Disk Subsystem Bottlenecks

### Module 7: Cache Subsystem

- Cache Subsystem Overview
- Flash Cache Feature
- Flash Pool Feature
- Flash Cache Policies and Flash Pool Policies
- Storage Pool
- Cache Sizing

### Module 8: Storage Quality of Service



- Managing System Performance with QoS

## **Module 9: NAS Subsystem**

- NAS functions
- Identifying NAS Bottlenecks
- Resolving NAS Bottlenecks

## **Module 10: SAN Subsystem**

- SAN Overview
- SAN Multipathing
- SAN load balancing
- SAN I/O Misalignment
- Queue depth

## **Labs:**

- Identifying cluster components
- Analyzing performance statistics
- OnCommand performance manager thresholds, events and alerts
- Identifying and resolving storage controller performance issues
- WAFL performance monitoring and analysis
- Identifying and resolving disk I/O bottlenecks
- Exploring cache performance
- Cluster interconnect performance
- Workload management with storage QoS
- NAS performance
- SAN protocol performance

# About Fast Lane



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