



**Enterprise Computing Solutions - Education Services**

## **TRAINING OFFERING**

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**You can reach us at:**

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# ONTAP Performance Analysis (ONTAP 9.6)

CODE:	LENGTH:	PRICE:
NEP_OT-CLU-PA9.6	24 Hours (3 days)	€2,850.00

## Description

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.

## 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

## Audience

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

## Prerequisites

Hands-on experience with ONTAP software (6 months to 12 months) is required in addition to the OT-CLU-DPA instructor led class..  
**OT-CLU-DPA - ONTAP Cluster Administration and Data Protection**

## Programme

Basic Concepts of Performance	
<b>Module 1: Performance Analysis Fundamentals</b>	<b>Module 2: Performance Analysis Tools</b>
Performance terminology	FAS and AFF Architecture
Using Active IQ Unified Manager	Data Flow
<b>Module 3: Storage System Architecture and Data Flow</b>	NVRAM Functionality
WAFL Functions	Identifying CPU Performance Bottlenecks
WAFL Readahead	Resolving CPU Performance Bottlenecks
<b>Module 4: WAFL</b>	Identifying Memory Performance Bottlenecks
Resolving WAFL issues	Resolving Memory Performance Bottlenecks
<b>Module 5: CPU and Memory</b>	
Disk Subsystem Hardware	
Analyzing and Isolating Disk Subsystem Bottlenecks	
Analyzing Disk Subsystem Bottlenecks with Statit	
<b>Module 6: Disk Subsystem</b>	<b>Module 7: Cache Subsystem</b>
Resolving Disk Subsystem Bottlenecks	
Cache Subsystem Overview	
Flash Cache Feature	
Flash Pool Feature	
Flash Cache Policies and Flash Pool Policies	
Storage Pool	
Cache Sizing	
<b>Module 8: Storage Quality of Service</b>	Managing System Performance with QoS

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

**Labs:**

## Module 9: NAS Subsystem Resolving NAS Bottlenecks

- 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

## Session Dates

Date	Location	Time Zone	Language	Type	Guaranteed	PRICE
08 Jul 2024	Virtual Classroom (GMT / UTC)	BST	English	Instructor Led Online		€2,850.00
09 Dec 2024	Virtual Classroom (GMT / UTC)	GMT	English	Instructor Led Online		€2,850.00

### Additional Information

This training is also available as onsite training. Please contact us to find out more.