

ST230c-EN Performance Analysis on Clustered Data ONTAP

Kurzbeschreibung:

ONTAP 9 Performance Analyse including case studies and solutions

Zielgruppe:

Experienced NetApp storage administrators and architects

Voraussetzungen:

We suggest to visit the training „ST200c ONTAP 9.x Admin Basics" or "ST221c ONTAP 9.x Data Protection & High Availability" before. Also we recommend to have at least 9 to 12 months experience with ONTAP administration.

Sonstiges:

Dauer: 5 Tage

Preis: 4500 Euro plus Mwst.

Ziele:

This training provides basics about the performance analysis on Netapp systems and ONTAP. This includes the NetApp hardware, software and tools for the data analysis.

Inhalte/Agenda:

- - ◆ Introducing the following topics:
 - ◆ Physical and logical errors: e.g. fragmentation, misalignment, small IOs, reconstructs, silent data corruption
 - ◆ Further „anti-bully“, „fairness limitations“ like TCP-Window size, buffer credits, quality of service and CMD queue limits for storage
 - ◆ What are the effects?
 - ◆ How can we recognize them?
 - ◆ Countermeasures from NetApp: lost write protection, free space reallocate, read reallocate, dedupe, compression, compaction, VAAI, ODX, thin provisioning
 - ◆ The mathematical basics:
 - ◆ Queueing theory and the correct use of filer performance analysis
 - ◆ Detect Open and closed loads, single threaded & parallel loads at clients
 - ◆ ONTAP commands to identify...
 - ◆ Highest latencies
 - ◆ Highest IO loads
 - ◆ Highest data throughputs
 - ◆ Biggest queues
 - ◆ Performance tuning:
 - ◆ HDD + PAM = Flash Cache
 - ◆ HDD + SSD = Flash Pool (Hybrid Aggregate)
 - ◆ SSD only = All Flash FAS (AFF)
 - ◆ Flexgroup
 - ◆ Presentation: which optimizations are possible and rational in each case?
 - ◆ Sizing:
 - ◆ Adequate consideration of the client IOs
 - ◆ Estimation of the additional housekeeping IOs from a filer
 - ◆ Size of the metadata and the working set
 - ◆ Overview of external monitoring tools:
 - ◆ System Manager
 - ◆ OnCommand Unified Manager with OnCommand Performance Manager
 - ◆ Harvest, Graphite, Grafana
 - ◆ Troubleshooting configuration errors (HW / SW)