**Hewlett Packard Enterprise**

# Managing HPE 3PAR StoreServ III H9P97S

This 3-day training covers advanced topics that a storage administrator will encounter after performing the tasks covered in the 3PAR basic courses (HK902 and HK904). Topics included are: Space Explained, Performance, Alerts, Troubleshooting, Upgrading, Adaptive Flash Cache (AFC) and Configuration Rebalancing. The course is 50% lecture with 50% hands-on labs. Additional Scenario Labs compliment the Module Labs. These Lifecycle Labs include Adaptive optimization, Quality of Service and Adaptive Flash Cache.

## Audience

- A storage administrator who has been managing 3PAR StoreServ arrays on a daily basis for at least a year. This training is not for an individual who has no experience managing a 3PAR array

## Prerequisites

- Students must have attended HK902 and HK904

## Course objectives

After completing this course, students will be able to:
- Explain how space is allocated and mapped
- Understand performance bottlenecks and best practices to overcome them
- Size an array for adaptive optimization
- Explain 3PAR events and alerts and how to get notifications about them
- Use CLI and GUI to troubleshoot your storage system
- Perform rebalancing
- Use Adaptive Flash Cache to increase performance
- Upgrade your hardware and software of your storage system
- Employ tools that can be used to troubleshoot and respond to 3PAR performance issues

**Managing HPE 3PAR StoreServ III**

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|---|---|
| **Price** | USD $2,700 |
| **Links to local schedules, pricing and registration** | **US/Canada** **Mexico/Latin America** **Brazil** |
| **HPE course #** | H9P97S |
| **Category** | Storage |
| **Duration** | 3 days |

# Course outline

**Module 1: Overview**
- Course Introduction
- Course Agenda
- Lab roadmap

**Module 2: Space Explained**
- Understand space utilization
- Volume space
- Logical disk space
- CPG space
- Distributed sparing
- Thin deduplication
- Space reclaimation
- Mapping space

**Module 3: Performance**
- Understanding performance bottleneck
- Servicing I/O
- RAID
- Initiators
- Front end vs back end
- Back end writes
- CPU
- Cache
- Adaptive Flash Cache
- SSD Performance
- Express writes
- Component Benchmarks
- Hardware FC Links
- Benchmarks
- Interactive response law
- CLI Counters
- Troubleshooting discussion
- CLI performance stats
- System reporter SSMC PD stats
- System reporter CLI stats

**Module 4: Lifecycle Discussion**
- Lifecycle of a System
- Introduction Lab
- Introduction to the Ninja Stars output
- Include a copy of the Roadmap here.

**Module 5: Alerts**
- View, interpret, and manage system events and alerts
- Use the checkhealth command for troubleshooting
- Alert notifications for System Reporter
- SSMC email notifications
- Event log monitoring and management
- SNMP settings and capabilities
- SMI-S standard, WBEM Initiative, and 3PAR CIM Support
- Local Notification Service on the HPE 3PAR Service Processor (SP) setup

**Module 6: Rebalancing**
• Balanced HPE 3PAR array definition
• Phases and options of the tunesys command
• System tuning and related tasks from the HPE 3PAR SSMC and the CLI
• Tunesys and tunevv options and limitations
• Tuning operations troubleshooting
• Tuning scenarios

**Module 7: Adaptive Flash Cache**
• AFC benefits
• What can/cannot be moved into AFC
• Different LRU (Least Recently Used) queues description and the concept of LRU queue demotion
• CLI commands to setup, enable, disable, remove, and monitor AFC
• Guidelines and rules regarding AFC
• Working with AFC using SSMC
• Monitoring AFC using the statcache and srstatcache commands

**Module 8: Upgrading 3PAR**
• Servicing options for your HPE 3PAR 7000/8000 components
• Repair/replace procedures of CSR components
• Storage system disks upgrade
• Best practices when upgrading
• HPE 3PAR OS update operation

# Learn more at

## hpe.com/us/training/storage

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