



Managing HPE 3PAR StoreServ III: Performance and Health Management

Duration: 3 Days **Course Code: H9P97S** **Delivery Method: Company Event**

Overview:

This 3-day training covers advanced topics that a storage administrator will encounter after performing the tasks covered in the HPE 3PAR basic courses (HK902S and HK904S). 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.

Target Audience:

A storage administrator who has been managing HPE 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 HPE 3PAR array.

Objectives:

- At the conclusion of this course, the student should be able to:
 - Explain how space is allocated and mapped
 - Identify data reduction
 - Understand performance
 - Discuss best practices
 - Explain HPE 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 HPE 3PAR performance issues.
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Prerequisites:

- HK902S - Managing HPE 3PAR StoreServ I: Management and local replication
 - HK904S - Managing HPE 3PAR StoreServ II: Optimizing and Remote Replication
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Content:

Module 1: Overview

- Course Introduction
- Course Agenda
- Lab roadmap

Module 2: Space Explained

- Understand space utilization
- Volume space
- Large volumes
- Logical disk space
- CPG space
- Overprovisioning
- Distributed sparing
- Adaptive sparing
- Adaptive data reduction
- Thin deduplication
- Space reclamation
- Mapping space
- SR Space forecasting

Module 3: Performance

- Understanding performance bottleneck
- Servicing I/O
- Express layout
- RAID
- Initiators
- Front end vs back end
- CPU
- Cache
- Adaptive Flash Cache
- WriteBack single node
- SSD Performance
- Unbalanced systems
- Express writes
- Benchmarks
- Hardware FC Links
- I/O Queueing
- Interactive response law
- CLI Counters
- Troubleshooting discussion

Module 4: Lifecycle Discussion

- Lifecycle of a System
- Introduction Lab
- Introduction to the Ninja Stars output
- Roadmap

Module 5: Alerts

- View, interpret, and manage system events and alerts
- Alert tiering, Internationalization,
- Spare Part Notification
- Single Click Locate
- Use the checkhealth command for troubleshooting
- Alert notifications for System Reporter
- Alerts threshold criteria editing
- SR Alert space metrics
- SSMC email notifications
- Event log monitoring and management
- SNMP settings and capabilities
- Syslog support
- SMI-S standard, WBEM Initiative, and 3PAR CIM Support

Module 6: Rebalancing

- Balanced HPE 3PAR array definition
- Large volumes rebalancing
- Phases and options of the tunesys command
- Express Layout: Active-Active PDs
- New options
- Limitations
- System tuning and related tasks from the HPE 3PAR SSMC and the CLI
- Tunesys and tunevv options and limitations
- New options
- 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
- Improvements
- Working with AFC using SSMC
- Monitoring AFC using the statcache and srstatcache commands

Module 8: Upgrading HPE 3PAR

- Servicing options for your HPE 3PAR 7000/8000 components
- Repair/replace procedures of CSR components
- Customer Self Repair
- Combo cards
- Hardware Schematics
- Safe to Remove
- Storage system disks upgrade
- Express Layout: Active-Active PDs
- Best practices when upgrading
- Contact Management
- HPE 3PAR OS update operation
- Customer Self-Upgrade
- Remote Support
- SP Upgrade
- HPE 3PAR Service Console

Further Information:

For More information, or to book your course, please call us on 0800/84.009

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