Hewlett Packard Enterprise

Performance Analysis and Tuning for HPE NonStop Systems U4195S

HPE course number	U4195S
Course length	5 days
Delivery mode	ILT
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Become familiar with the system load balance approach and performance tuning concepts for your HPE NonStop system. Learn how to capture and analyze performance data, then adapt the adjustments to maximize performance and increase system utilization. Topics include Measure, Measure entities, queuing theory, TPM, RPM, ViewSys, Web ViewPoint practical approaches to system tuning, and using performance tools. The course is 60% lecture and 40% hands-on labs using NonStop servers.

Why HPE Education Services?

- IDC MarketScape leader 4 years running for IT education and training*
- Recognized by IDC for leading with global coverage, unmatched technical expertise, and targeted education consulting services*
- Key partnerships with industry leaders OpenStack®, VMware®, Linux®, Microsoft®, ITIL, PMI, CSA, and (ISC)²
- Complete continuum of training delivery options—self-paced eLearning, custom education consulting, traditional classroom, video on-demand instruction, live virtual instructor-led with hands-on lab, dedicated onsite training
- Simplified purchase option with HPE Training Credits

Audience

- System managers, technical support, and performance analysis personnel
- Systems and application designers and developers

Prerequisites

- Concepts and Facilities for HPE NonStop Systems (U4147S) and
- HPE NonStop NB-series Server Administration I (HG776S) and HPE NonStop NB-series Server Administration II (HG777S) or
- Equivalent system administration courses or experience

Course objectives

At the conclusion of this course, you should be able to:

- Apply the basic tuning principle for HPE NonStop
- Analyze Measure's key entities and use Reload Analyzer
- Apply several basic queuing theory formulas
- Analyze disk cache-hit ratios and fragmentation
- Calculate a volume's true write cache-hit ratio
- Analyze process priorities and process memory consumption
- Identify processes with long $RECEIVE queues
- Evaluate TCP process and server class parameters for best performance
- Use Measure, SQLCI, and MXCI to analyze HPE NonStop SQL/MP and HPE NonStop SQL/MX performance
- Identify positive and negative factors in application performance

*Realize Technology Value with Training, IDC Infographic 2037, Sponsored by HPE, January 2016

Benefits to you

- Learn how to regularly monitor your HPE NonStop systems and quickly recognize problems so users experience smooth IT operations
- Effectively utilize the range of available performance tools
- Learn practical performance tuning procedures reinforced through extensive hands-on lab sessions
- Optimize your HPE NonStop systems by identifying and removing performance bottlenecks

Detailed course outline

Module 1: Performance Analysis Introduction	• Steps in tuning a NonStop system and basic tuning principle • Two aspects of response times • Service Level Agreement (SLA) options • Understanding your system(s) • Measure subsystem and its entities
Module 2: CPU Subsystem	• Measure's CPU entity • Processor queueing and its relationship to queueing theory • Processor's memory subsystem • Physical and logical disk loss and CISC and EPIC processes • Measure's processor data in a matrix • NSMA architecture shown in Measure
Module 3: Queueing Theory	• Queueing theory notation and basic queueing theory formulas • Slow and fast device queueing
Module 4: Disk Subsystem	• Integrity NonStop NS-series disk architecture • NB-series systems storage CLIMs • DISC and SERVERNET entities and Measure's disk data in a matrix • Disk cache-hit ratios and buffering non-audited files • Disk settings with SCF and disk fragmentation
Module 5: Disk Files	• Key-sequenced file structure and buffered/unbuffered files • Calculating a volume's true write cache-hit ratio • Locating heavily-written and unbuffered files • File partitioning, file fragmentation, and Reload Analyzer
Module 6: Processes	• TACL RUN command options and analyzing process priorities • Mixed Workload Enhancement (MWE) • Key Measure PROCESS counters • Analyzing process memory consumption • Processes with long $RECEIVE queues and process acceleration • Measure's PROCESS data in a matrix
Module 7: Pathway Tuning	• TCP process parameters for best performance • Server class parameters for best performance • Pathway statistics and establishing links to server processes • Application Cluster Services (ACS) features
Module 8: HPE SIM and Other Performance Tools	• HPE Systems Insight Manager (SIM) performance essentials • ViewSys, Web ViewPoint, Peek, and Enform • Guardian Performance Analyzer (GPA) • Tandem Performance Data Collector (TPDC) • Tandem Performance Management (TPM) • Availability Stats and Performance (ASAP) • Automatic Process Balancer (APB) • Disk Prospector (Diskpro) and Real-time Process Monitor (RPM) • Tandem Capacity Model (TCM)

Module 9: Application Tuning	• Application performance—positive and negative factors • Meascom output for DISCOPEN and FILE entities • Meascom output for PROCESSH and USERDEF entities • Meascom output for TMF entity • Remote Database Facility (RDF) performance issues
Onsite Delivery Equipment Requirements	NonStop server with four processors and six disk volumes G06.28, H06.15, J06.04 or later with Measure, TPDC, and RPM installed • Private class requests: • Might require up to two days set-up time on a customer system prior to the class • Access to a supergroup logon for the instructor

Next steps

- Consider attending the other optional and advanced learning courses in the HPE NonStop operations management curriculum

Learn more at
hpe.com/ww/learnnonstop

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