



# Performance Analysis and Tuning for HPE NonStop Systems U4195S

<b>HPE course number</b>	U4195S
<b>Course length</b>	5 days
<b>Delivery mode</b>	ILT
<b>View schedule, local pricing, and register</b>	<a href="#">View now</a>
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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 percent lecture and 40 percent hands-on labs using NonStop servers.

## Why HPE Education Services?

- IDC MarketScape leader 4 years running for IT education and training\*
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- 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
- NonStop NB-series Server Administration I (HG776S) and 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 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 NonStop SQL/MP and 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 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 NonStop systems by identifying and removing performance bottlenecks

## Detailed course outline

<b>Module 1: Performance Analysis Introduction</b>	<ul style="list-style-type: none"> <li>• Steps in tuning a NonStop system and basic tuning principle</li> <li>• Two aspects of response times</li> <li>• Service Level Agreement (SLA) options</li> <li>• Understanding your system(s)</li> <li>• Measure subsystem and its entities</li> </ul>
<b>Module 2: CPU Subsystem</b>	<ul style="list-style-type: none"> <li>• Measure's CPU entity</li> <li>• Processor queueing and its relationship to queueing theory</li> <li>• Processor's memory subsystem</li> <li>• Physical and logical disk loss and CISC and EPIC processes</li> <li>• Measure's processor data in a matrix</li> <li>• NSMA architecture shown in Measure</li> </ul>
<b>Module 3: Queueing Theory</b>	<ul style="list-style-type: none"> <li>• Queueing theory notation and basic queueing theory formulas</li> <li>• Slow and fast device queueing</li> </ul>
<b>Module 4: Disk Subsystem</b>	<ul style="list-style-type: none"> <li>• Integrity NonStop NS-series disk architecture</li> <li>• NB-series systems storage CLIMs</li> <li>• DISC and SERVERNET entities and Measure's disk data in a matrix</li> <li>• Disk cache-hit ratios and buffering non-audited files</li> <li>• Disk settings with SCF and disk fragmentation</li> </ul>
<b>Module 5: Disk Files</b>	<ul style="list-style-type: none"> <li>• Key-sequenced file structure and buffered/unbuffered files</li> <li>• Calculating a volume's true write cache-hit ratio</li> <li>• Locating heavily-written and unbuffered files</li> <li>• File partitioning, file fragmentation, and Reload Analyzer</li> </ul>
<b>Module 6: Processes</b>	<ul style="list-style-type: none"> <li>• TACL RUN command options and analyzing process priorities</li> <li>• Mixed Workload Enhancement (MWE)</li> <li>• Key Measure PROCESS counters</li> <li>• Analyzing process memory consumption</li> <li>• Processes with long \$RECEIVE queues and process acceleration</li> <li>• Measure's PROCESS data in a matrix</li> </ul>
<b>Module 7: Pathway Tuning</b>	<ul style="list-style-type: none"> <li>• TCP process parameters for best performance</li> <li>• Server class parameters for best performance</li> <li>• Pathway statistics and establishing links to server processes</li> <li>• Application Cluster Services (ACS) features</li> </ul>
<b>Module 8: HPE SIM and Other Performance Tools</b>	<ul style="list-style-type: none"> <li>• HPE Systems Insight Manager (SIM) performance essentials</li> <li>• ViewSys, Web ViewPoint, Peek, and Enform</li> <li>• Guardian Performance Analyzer (GPA)</li> <li>• Tandem Performance Data Collector (TPDC)</li> <li>• Tandem Performance Management (TPM)</li> <li>• Availability Stats and Performance (ASAP)</li> <li>• Automatic Process Balancer (APB)</li> <li>• Disk Prospector (Diskpro) and Real-time Process Monitor (RPM)</li> <li>• Tandem Capacity Model (TCM)</li> </ul>

## Course data sheet

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### Module 9: Application Tuning

- Application performance—positive and negative factors
- Meascom output for DISCOPEN and FILE entities
- Meascom output for PROCSH and USERDEF entities
- Meascom output for TMF entity
- Remote Database Facility (RDF) performance issues

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### 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
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## Next steps

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

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