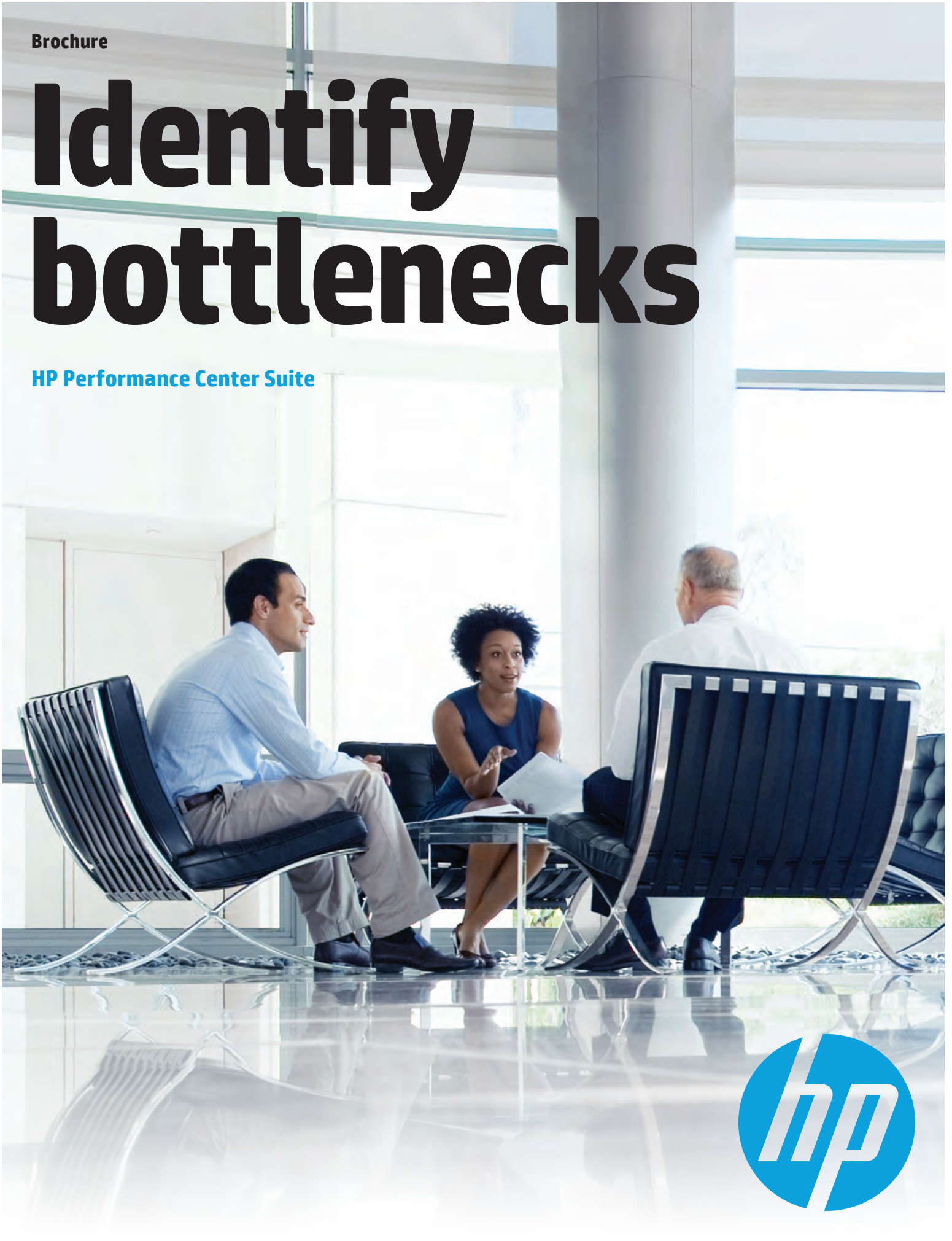# Identify bottlenecks

HP Performance Center Suite

HP Performance Center Suite help you test, analyze, and validate your application performance against business requirements, mitigating the risk associated with application changes, deployments, and upgrades.

Can you meet your application performance challenges?

Today, it's a challenge to keep your mission-critical applications at peak performance and scalability levels as defined by the business. You need an effective way to predict system behavior and performance under realistic stress conditions. In addition, when problems or bottlenecks occur, you need a quick way to diagnose the root cause and fix the problems.

To address the challenge of application performance, many enterprises over-buy hardware or think about deploying their application in the cloud, in the hope that robust processing power and throughput capacity will be sufficient to handle peak loads. This is a costly approach, which ultimately might not accomplish what it is intended to do. The answer doesn't necessarily lie in more servers, processors, or memory.

It lies in a testing solution that enables IT staff to validate and tune the performance of applications based on expected load conditions. This solution must support new technologies such as Web 2.0, mobile and new platforms such as cloud and hybrid environments along with existing platforms and technologies. It must also be able to scale from simple, project-based testing to a full-scale testing center of excellence (COE) that consolidates hardware, standardizes best practices, and leverages global testing resources.

A flexible approach to testing

HP Performance Center is a suite of integrated performance testing solutions that can emulate hundreds or thousands of concurrent users on a variety of devices to apply production workloads to virtually any environment; identify potential performance bottlenecks; and help diagnose and fix the root cause of problems. Using Performance Center Suite, testing teams can stress an application from end to end—applying consistent, measurable, and repeatable loads—and then use the data to identify scalability issues that could impact users.

HP Performance Center Suite:

- Tests a broad range of applications including the latest Web 2.0 technologies, mobile applications, as well as applications with legacy technologies

- Supports testing on traditional platforms, as well as new platforms such as cloud, hybrid environments, and mobile

- Tests mobile applications whether they are built in-house or by a third party, and whatever the platform may be. It allows covering a wider variety of mobile clients in each test scenario

- Integrates with Shunra™ Network Virtualization product allowing testers to simulate realistic network conditions, making it easier to identify application performance bottlenecks

- Pinpoints the root cause of application performance problems and helps improve performance, thereby reducing hardware and software costs

- Lowers the risk of deploying systems that do not meet your performance requirements

- Supports individual, project-based testing as well as a COE that supports multiple projects and teams

Tools for performance testing

HP Performance Center Suite comprises the following offerings:

• HP Performance Center

• HP LoadRunner

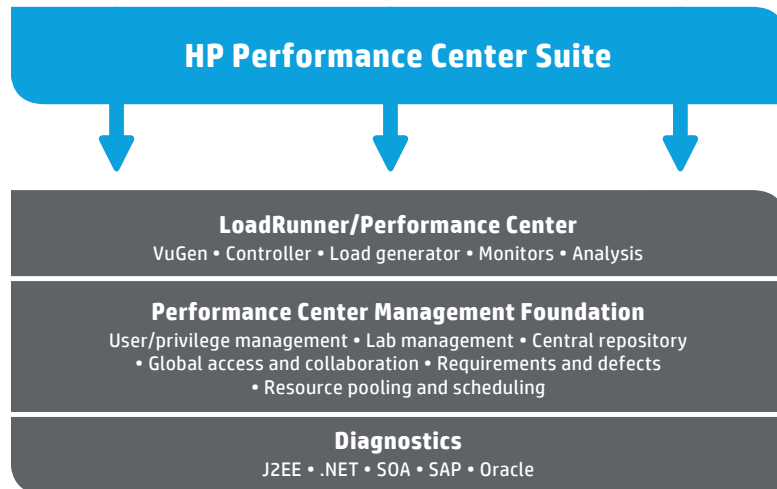• HP Diagnostics

HP Performance Testing offerings

Performance testing from any place, for any size, and for any type of environment
The agility in how business wants IT to deliver has drastically increased. HP's objective is to provide a menu of options on performance testing solutions to support any type of environment, application, methodology, maturity, and consumption model that the customer have to allow them to accelerate the delivery applications that perform with quality. HP provides high-quality software and services that address all aspects of your software application lifecycle needs. With HP, you have access to standard-based, modular, multiplatform software coupled with global services and support.

HP Performance Center Suite is available through:

• Permanent licenses

• Term licenses (daily, monthly, 3 months, 6 months, and 1 year terms)

• HP performance testing in the cloud

• HP performance testing as a service (TaaS)

• HP LoadRunner delivered by partners

Figure 1. HP Performance Center Suite

HP Performance Center Suite

LoadRunner/Performance Center
VuGen • Controller • Load generator • Monitors • Analysis

Performance Center Management Foundation
User/privilege management • Lab management • Central repository • Global access and collaboration • Requirements and defects • Resource pooling and scheduling

Diagnostics
J2EE • .NET • SOA • SAP • Oracle

Click here to know more about application performance testing and how HP LoadRunner works.

HP LoadRunner software
HP LoadRunner is a comprehensive solution for testing system behavior and performance. It enables a consistent, repeatable process for performance testing, enabling application quality and reliability.

Using a record and playback mechanism, it helps you drive production workload to the test environments. As it drives load against the system, HP LoadRunner captures the end-user response time of key business processes and transactions to determine if service level agreements (SLAs) can be met. Nonintrusive, real-time performance monitors obtain and display performance data from every application tier, server, and system component; and the data is correlated with the transaction data to quickly pinpoint problem areas.

With the patented HP TruClient Technology, HP LoadRunner enables faster and easier scripting, and gives you the ability to record and replay at various levels, from the GUI level down to the transport and socket level, depending on the level of customization required. This flexibility to choose the level of recording facilitates use by both technical as well as non-technical personnel. It supports a broad range of applications, including new Web 2.0 technologies, mobile applications, as well as legacy application technologies. It also supports testing of applications on all platforms, regardless of whether it is an application running in the cloud, a native mobile application, a browser-based application, or an application in a hybrid environment.

Integration for developers
To enable load testing earlier in the application lifecycle—which is particularly relevant in agile environments—HP LoadRunner integrates with the leading J2EE, Microsoft® Visual Studio .Net, Microsoft .NET, NUnit, JUnit, Selenium, Eclipse, and Jenkins environments. This integration lets you create HP LoadRunner scripts directly within the integrated development environment, so developers can participate in the performance testing efforts earlier. In addition, HP Diagnostics Profiler software allows developers to view and debug performance issues at code level within their development environments and desktops. LoadRunner also provides application programming interfaces (APIs) for integrating load testing into your build management or other automated system.

AIG was able to get remarkable performance testing results with the help of **HP LoadRunner**. See how they got a five-year return on investment (ROI) of 577% with **HP LoadRunner** and other HP solutions.*

Integration with community
To learn easier and faster about HP Performance Testing, HP LoadRunner integrates with HP Live Network. HP Live Network provides a single portal for HP performance testing users and partners to share and distribute contents with the entire community. Users can access and automatically install contents from HP Live Network directly from HP LoadRunner.

HP LoadRunner helps you test your application, diagnose problems, and deploy without surprises.

HP Performance Center software
Is an enterprise-level performance testing platform that enables the formation of a performance testing COE or a performance testing shared service. It is built on top of HP LoadRunner, and hence inherits all the capabilities of HP LoadRunner. Being a Web-based solution, it can be accessed globally, 24x7 for around-the-clock usage, thereby increasing utilization of resources and reducing cost. The scheduling engine allows teams to plan future tests, and schedule the resources they will need. It also provides capabilities such as asset sharing, project grouping, and simultaneous viewing of tests that enable process efficiencies and collaboration. A Web-based topology view lets you define the test environment and monitor against it.

The Performance Center software provides complete end-to-end traceability from performance requirements (or SLAs) to defects, thereby showing the exact quality of the application against business needs; this includes trending so that you can compare the performance of the application over multiple tests and iterations. It provides everyone from the executives to the line-of-business (LOB) managers to the testers, visibility into the status of the projects as well as to the quality of the applications.

* "BV Spotlight - AIG HP Management Solutions Analyst Report," IDC, September 2011.

HP's support for Lab Management Automation allows testing teams to provision and deploy a test lab themselves in a hybrid delivery environment (bare-metal or virtual, in-house or in the cloud), through Performance Center software. Leveraging an out-of-the-box integration with HP Continuous Delivery Automation (CDA), users are able to define the infrastructure topology, application configuration, and associated components (middleware, databases, etc.), and then deploy with the appropriate application build as needed. This model driven approach helps eliminate user errors in lab configuration, thereby making the testing efforts more relevant and accurate.

Testing teams can also schedule tests along with the lab deployment so that the test execution as well as the lab deployment can be kicked off when a new build is ready to be tested. Because the test environment can be provisioned and torn down dynamically, and not left idle, utilization of test infrastructure can also be dramatically improved through Lab Management Automation.

Automating the time-consuming process of deploying a new environment saves time and money. Using automated deployment makes sharing deployments between Dev and Ops easier.
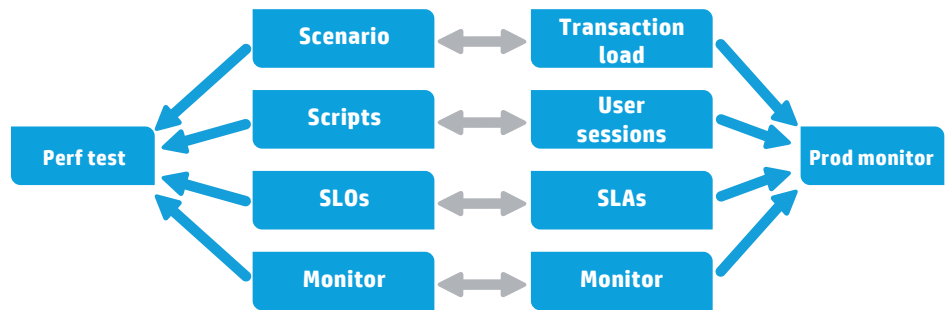
HP Diagnostics software
Helps pinpoint the exact root cause of performance bottlenecks on the application tier, and reduces the mean time to resolution (MTTR) in J2EE, .NET, SOA, and ERP environments. It drills down from slow, end-user transactions to the bottlenecked application component, method, or SQL statement, helping resolve memory exceptions and other common problems quickly. It integrates with LoadRunner or Performance Center software to correlate end-user transaction issues directly to the application code problems, thus providing, complete end-to-end visibility into transactions. It provides actionable information to resolve application-level performance problems quickly and easily.

Built to connect across the complete application lifecycle

HP Performance Center Suite helps support performance testing across the complete application lifecycle. It supports developer testing by providing easy access to testing resources, as well as with developer-oriented products such as HP Diagnostics Profiler. It integrates with HP Application Lifecycle Management (ALM) to provide visibility into the quality of an application or project across the entire testing lifecycle. Integrated dashboards give executives complete insight into the overall quality of the application across functional and performance testing, as well as complete requirements coverage and defect statuses. The Lab Management functionality enables developers, testers, and production to be consistent with their deployments across the lifecycle.

Figure 2. Communalities between performance testing and production monitoring

HP Performance Center Suite also has tie-ins to HP Business Availability Center (BAC) for production monitoring. Scripts built from the Performance Center Suite can be used for production monitoring within HP BAC solutions. Similarly, from the HP Real User Monitoring (RUM) component of HP BAC, a real-user session can be converted into a script for performance testing. Usage information can also be derived from RUM to the Performance Center software so that testers can create more accurate testing scenarios. Also, common technologies such as HP SiteScope software and HP Diagnostics software share configurations and metrics between testing and production, and hence help bridge the gap between testing and operations.

Figure 3. Guided workflow for using production usage data to create accurate performance tests

HP Services

HP Software Professional Services brings together deep consulting expertise with HP Performance Center software that delivers innovative testing solutions and delivery models in the context of complete application lifecycle. HP provides strategic advisory services, solution consulting, HP Software implementation, education, and support services for a comprehensive portfolio from strategy through management. The testing-as-a-service provides innovative, flexible testing services and output-based pricing models for performance testing services.

Built on HP Performance Center software, HP SaaS addresses teams with on-demand projects (ad hoc projects, seasonal testing, and last minute), as well as large organizations with a COE. Project teams can purchase the number of virtual users and protocol types they need for as long as they need them, and scale up or down as projects evolve. Performance tests can be executed from load generators in the cloud or on premises behind a firewall. Whether or not a license has already been purchased, the offering is available on a subscription basis, thereby fitting the timeline and budget of any project.

For more information visit hp.com/go/hpswprofessionalservices

Learn more at
hp.com/go/performancevalidation

Developing solutions for major social and environmental challenges
hp.com/hpinfo/globalcitizenship

Are your application performances in sync with your business requirements? Test, analyze, and validate if they are; mitigate the risk associated with application changes, deployments, and upgrades with HP Performance Center Suite. Connect with peers and HP software experts at **hp.com/go/performancecommunity**.

Join our **hp.com/go/lrblog**