Transform Application Performance Testing for a More Agile Enterprise
Managing complex testing processes

Technology innovation drives the global networked economy. Application architectures and platforms, especially for Web and mobile solutions and devices, advance rapidly. Keeping pace with change is key for driving digital transformation within a *dynamic environment of accelerating release cycles*, increasing user expectations, and the need for scalability.

In addition to powering enterprise transformation, software and technology advances also increase complexity. Browser variations and mobile operating systems continue to proliferate. The opportunities offered by the Internet of Things (IoT), Big Data, and analytics are surging. New and existing processes and models continuously change how business is done.

Smarter solutions help development and testing teams cut through the noise with functionality that leaves the capabilities of typical testing labs behind. With the right solutions, teams can work with shared services, APIs, and open-source code and tools, as well as a variety of Web, IoT, and mobile app protocols. This means organizations like yours can translate IT complexity into success by shortening test cycles, eliminating bottlenecks and costly production defects, and speeding the delivery of high-quality, high-performance applications and devices.
Enhanced application performance testing

The SAP® LoadRunner application by Micro Focus provides a full spectrum of functionality that lets you code performance testing into applications, devices, and sensors. SAP LoadRunner integrates with widely used open-source development and testing technologies, supports open APIs, and works with continuous integration and deployment frameworks.

Continuous performance testing cuts the risks and costs of waiting until the end of the development cycle to test. But continuous testing doesn’t just happen. It calls for a shift in approach, from simple “record-playback” testing that occurs late in the product cycle to a more robust engineering approach that starts early in the cycle and occurs repeatedly.

You can test performance throughout the development process and find and address production defects more quickly and cost-effectively. You can run tests at each stage in the pipeline with tests triggered automatically. SAP LoadRunner provides feedback to help create successful, high-quality apps while optimizing and accelerating development.

What’s more, SAP LoadRunner facilitates SAP HANA® software deployments, adding business value across your enterprise. You can benchmark the current performance of applications that will run in your high-performance environment, and validate data migration with rigorous load testing.

Enhanced application performance testing
Continuous and integrated evaluation
United development and operations approach
Support for mobile and IoT protocols
Web 2.0 testing and network virtualization
Service and network virtualization and integration
Continuous and integrated evaluation

Application performance and user experience are affected by network conditions, such as latency and packet loss, that can impact mobile app behavior and slow response times. SAP LoadRunner enables you to simulate diverse network conditions and behaviors for more comprehensive testing.

SAP LoadRunner lets you access production analytics to find out how people are actually using applications and to concentrate testing on the most important areas of functionality. You can focus on the user experience, align testing efforts to reduce actual and perceived load times, and enhance image optimization and content rendering.

SAP LoadRunner protects against performance regression by providing clear pass-fail indications about whether recent code changes affect application performance. You get support for integrated unit and functional testing, and developers can work with Microsoft Visual Studio and Eclipse. You can further extend testing power by adding APIs for SAP LoadRunner to unit tests in Visual Studio or Eclipse. The application integrates with Jenkins open-source automation servers, allowing you to trigger tests from SAP LoadRunner, present the results in a Jenkins user interface, and determine pass-fail results according to service-level agreements.

Enhanced application performance testing

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United development and operations approach

Support for mobile and IoT protocols

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Service and network virtualization and integration
United development and operations approach

SAP LoadRunner enables an approach that brings development and operations teams closer together to build software that can be released to production at any time, by detecting problems early and keeping code defect free. With the performance center edition of SAP LoadRunner by Micro Focus, you can share performance information between development and operations to improve visibility and test planning.

The application enables continuous assessment, measurement, and feedback from production and lets you simulate real user loads and situations. For example, a typical user doesn’t use all available features, so tests for seldom-used functionality can be given lower priority. You can compare performance test results with real production data benchmarks, use production user traffic and system monitoring data, and create performance test scenarios that closely resemble realistic environments.

Better testing helps you establish intelligent service-level agreements before going live with new applications.

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Support for mobile and IoT protocols

SAP LoadRunner by Micro Focus, mobile and IoT protocol bundle, supports a range of protocols for new technologies and the changing ways business customers consume content. The bundle gives you the flexibility to test across a range of emerging and legacy applications, platforms, and technologies. They include Web, mobile apps, Ajax, Apache Flex, HTML5, .NET Framework, Java, Google Web Toolkit, Microsoft Silverlight, SOAP, Citrix software, and ERP solutions.

The message queuing telemetry transport (MQTT) protocol is used to send and receive data from smart objects for IoT applications. With the protocol, users can emulates MQTT clients, such as sensors, actuators, and switches, and design and execute performance testing of MQTT-based IoT systems.

The mobile and IoT protocol bundle supports HTTP/2, the latest HTTP Web network protocol, which loads pages faster. The bundle supports HTML5 and HTTP live streaming (HLS) for audio and video streaming, which includes new record and play functionality and metrics that help identify potential loading bottlenecks.

SAP LoadRunner helps you pinpoint user, system-level, and code-level bottlenecks quickly.
Web 2.0 testing and network virtualization

New technologies and frameworks, along with a lack of commonly accepted standards, make testing for Web 2.0 applications a complex undertaking. SAP LoadRunner features innovative browser-based virtual-user generator functionality to facilitate load testing and a sophisticated interface that speeds processing. SAP LoadRunner supports Web and JavaScript-based applications. It helps you create Web 2.0 testing strategies and choose appropriate automation solutions. Developers can build complex load testing scripts into mobile and Web apps so testing can occur earlier, more often, and with much less effort – over the entire development lifecycle.

Network virtualization reporting identifies potentially problematic issues in transactions and provides recommendations for optimizing network traffic. Client-side breakdown reporting provides statistics that measure the quality of the user experience for your applications.

Enhanced application performance testing
Continuous and integrated evaluation
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Support for mobile and IoT protocols

Developers can take advantage of popular open-source scripting tools such as Apache JMeter and the Git version control system for managing scripts.

Web 2.0 testing and network virtualization
Service and network virtualization and integration
Service and network virtualization and integration

Testing processes often depend on the availability of services outside the control of development teams, such as applications that include API calls to other internal and external systems. This can raise issues for scenarios that call for repeatable responses and lead to bottlenecks. With SAP LoadRunner, you can simulate services to reduce these dependencies and slowdowns, and perform testing – particularly load testing – without affecting the performance of live services.

SAP LoadRunner integrates with the SAP Service Virtualization application by Micro Focus to facilitate performance testing of business processes that access services not currently available. This gives you greater flexibility and control over testing environments. You can test application responses and interactions under a variety of conditions, such as slow or unexpected responses and offline services.

Network behavior and conditions such as latency, bandwidth, packet loss, and jitter affect how applications perform. The network virtualization module for SAP LoadRunner by Micro Focus simulates network conditions to deliver accurate and reliable performance results. This contributes to meaningful application and infrastructure changes and superior application performance, even in adverse network conditions.

- Enhanced application performance testing
- Continuous and integrated evaluation
- United development and operations approach
- Support for mobile and IoT protocols
- Web 2.0 testing and network virtualization

Service and network virtualization and integration
High-quality applications and devices and faster deployment

SAP LoadRunner enables and empowers your development and testing efforts for applications and devices while increasing the speed and efficiency of test processes and reducing costs. With it, your organization can move with greater agility and adapt to changing business conditions and opportunities by reducing slowdowns in development. SAP LoadRunner facilitates the deployment of SAP HANA software and enables you to benchmark the current performance of enterprise applications. With SAP LoadRunner, you can reduce hardware and software costs by accurately predicting application scalability and capacity. It helps lower the risk of software failures at times of peak demand with accurate load testing and validation. You can shorten test cycles and eliminate bottlenecks and production defects. And you can gain an edge in the digital economy with faster planning and delivery of new service-driven business processes and applications and support for mobile and IoT solutions and devices.

SAP LoadRunner gives you the power to **meet the scalability needs** of enterprise, mobile, and IoT applications.
Summary
Keep pace in the digital economy by speeding the delivery of high-quality, innovative applications and devices that give you an edge over the competition. With the SAP® LoadRunner application by Micro Focus, you can validate performance, virtualize your network, simulate workloads, benchmark production system performance, and optimize your SAP HANA® software deployments. You can shorten testing and development cycles and eliminate bottlenecks and costly production defects.

Objectives
- Enable and accelerate the application testing and development cycle
- Identify and eliminate testing bottlenecks
- Reduce the occurrence and cost of production defects

Solution
- Deep diagnostics to discover root causes of performance issues
- Virtual users and script development for simulating loads on processes
- Measurement of simulated results against key indicators and changes
- Retesting and change validation
- Support for a range of mobile and Internet of Things protocols

Benefits
- Increase efficiency and cut development costs
- Improve flexibility to adapt to changing business processes
- Reduce risk of software failures at times of peak demand
- Enable SAP HANA software deployments
- Speed planning and delivery of applications and devices

Learn more
To find out more, call your SAP representative today or visit us online at [www.sap.com/loadrunner](http://www.sap.com/loadrunner).