# Innovations in enterprise-scale requirements management, quality planning, and performance testing

What's new in HP Quality Center software
and HP Performance Center software

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# Improving quality and performance— and reducing risk

If your company wants to reduce business risk on a consistent basis, your IT organization needs to be firmly focused on delivering the highest levels of quality for the applications and services it provides to the business.

That's a problem for the many IT organizations that lack the right tools and processes for enterprise-scale quality management. Many organizations use stand-alone documents and disparate systems to track a multitude of quality and testing projects—all running simultaneously at various stages of completion. This leads to inevitable problems.

A lack of consistent, repeatable processes results in a proliferation of testing tools, inefficient and redundant testing procedures, excessive demand on resources, and poor capital allocation. Disorganization, shifting priorities, and rushed deadlines push user frustration to the limits. Visibility across quality projects is murky at best—making it difficult to prioritize efforts based on the objectives and needs of the business. The result, ultimately, is poor quality and increased business risk.

Many organizations also overlook the importance of application and service performance as a critical subset of quality. If an application passes minimum standards of quality, it is released for implementation.

But when that same application buckles and folds under unanticipated high loads—and customers take their business elsewhere—the connection between quality and performance is brought into stark relief.

At HP, we understand the critical business importance of effective quality and performance management. As the industry leader in this area, we have made a long-term commitment to innovation in this field. And we continue to make significant progress through ongoing innovations in HP Quality Center software and HP Performance Center software. Together, these offerings help you improve quality planning, enhance performance testing, mitigate business risk, and reduce costs.

# A foundation for your quality center of excellence

HP Quality Center enables your organization to capture requirements in an efficient manner and proactively plan quality activities in a way that mitigates risk to the business. HP Performance Center, in turn, allows you to run performance tests more often and with significantly higher productivity across an exceptionally wide range of application protocols and environments. These tests help you identify and address bottlenecks and obtain an accurate picture of end-to-end system performance before applications and services go live.

Both offerings run on a global, web-based platform that centralizes testing activities and enables enterprise-wide visibility of projects. These platforms provide a firm foundation for building a center of excellence (CoE) that drives efficiency gains across your enterprise. Rather than making quality assurance (QA) decisions within the limited context of particular lines of business, a CoE centralizes and consolidates your QA functions, staff expertise, hardware, software, and infrastructure, to enable standardized, repeatable processes and to optimize your use of resources.

Without necessarily bringing QA personnel into the same physical location, a CoE provides management and automation capabilities for application delivery processes, as well as leadership, consulting, and support services to help your company optimize application quality. A CoE also provides your entire organization with visibility into standardized quality metrics and key performance indicators (KPIs), helping to keep everyone informed, and keeping applications aligned with business objectives, while allowing "go/no-go" decisions to be based on quantifiable business risk.

Together, both HP Quality Center and HP Performance Center play a critical role in business technology optimization (BTO) initiatives that improve the business outcomes of IT. By enabling you to better align IT with lines of business, BTO makes sure that every IT dollar invested, every resource allocated, and every application in development or production meets your business goals.

# HP Quality Center can be integrated with a broad range of solutions across the entire application lifecycle.

## Innovations for HP Quality Center

HP Quality Center 10.0 combines test, requirement, and defect management into a single Web application with traceability across the entire quality lifecycle. This enterprise quality management platform gives you real-time visibility into project status and progress. It allows your QA teams, developers, and business analysts to manage and certify the quality of a wide range of IT and application projects and environments.

Powerful capabilities for proper quality planning, risk analysis, test management, issue tracking, and analysis of defect trends and requirements coverage enable you to more effectively manage the release process and make informed release decisions. And as an open platform with unmatched scalability and a flexible enterprise architecture, HP Quality Center can be integrated with a broad range of solutions across the entire application lifecycle. This makes it the solution of choice for centralization and standardization initiatives.

To help organizations like yours operate and compete more effectively in a constantly changing business environment, HP continues to innovate in areas critical for effective management of the quality lifecycle in an enterprise environment. Among these innovations are a new approach to HP Quality Center packaging, new product features and capabilities, and new integrations with complementary software products.

## A choice of three product versions

HP Quality Center is now available in three versions: HP Quality Center Starter Edition software, HP Quality Center Enterprise software, and HP Quality Center Premier software.

**HP Quality Center Starter Edition**
HP Quality Center Starter Edition addresses the needs of entry-level QA organizations getting started with testing. It provides basic functionality and is available stand-alone or bundled with HP QuickTest Professional software in the HP Functional Testing software package.

**HP Quality Center Enterprise**
HP Quality Center Enterprise is suitable for more mainstream QA organizations that may not have expanded globally and may not yet be managing large, complex QA initiatives. It contains a full set of HP Quality Center modules, but not some of the advanced capabilities available in HP Quality Center Premier.

**HP Quality Center Premier**
HP Quality Center Premier expands on HP Quality Center Enterprise with enhanced functionality to address the needs of large, global enterprises with QA initiatives that span up to hundreds of applications and geographically distributed teams. This new edition of HP Quality Center is ideal for customers creating or strengthening a quality center of excellence (CoE).

# New HP Quality Center features and capabilities

## Process enablement

Process standardization across the enterprise becomes a necessity for enterprise-wide reporting and visibility. With HP Quality Center Premier, process enablement allows you to enforce standardized processes and best practices by creating template projects to push workflows and customizations across multiple projects.

You can configure and maintain the templates centrally with mandatory workflows and user-defined fields, and then propagate the template changes automatically to additional projects. The software allows you to assign dedicated administrators to maintain template configurations.

Enabling standardized processes is one of the key goals of a quality center of excellence. Standardization helps you reduce maintenance costs, enforce consistent workflows and customizations across all projects, and better manage complex, geographically distributed multi-application initiatives.

## Versioning and baselining

To support asset sharing and reuse, HP Quality Center Enterprise and Premier provide new version control capabilities for key test assets, such as requirements, tests, test scripts, and business components. Distributed teams can collaborate on joint development of test assets without the risk of overriding previous changes. Data is protected from accidental loss or changes through the ability to roll back to previous versions.

Versioning allows you to manage multiple versions of test assets, compare details, and retrieve previous versions, if necessary, to put a project back on track. Versioning provides a complete auditable history of changes and decisions throughout the project lifecycle.

Baselining allows you to capture a group of requirements, tests, or test assets at strategic points in the project lifecycle to mark specific milestones. You can compare baselines to assess the impact of changes and enable the rollback of assets, if required. You can control who can create and modify baselines, and use baselines in test execution.

## Reuse of requirements/tests across projects

While HP Quality Center Enterprise allows asset sharing and reuse within a project, HP Quality Center Premier adds the ability to share and reuse asset libraries and manage the impact of changes to requirements, tests, and test components across projects and initiatives.

Sharable libraries help you manage initiatives with multiple applications that need to be tested together, even though they may not be related, to verify that changes to one application don't negatively impact another application. Specific changes can be applied to the shared assets in the context of each project while allowing the library to maintain its integrity so that individual projects can re-synch with the library as required.

### Defect sharing

Analyzing defects and defect trends helps you make effective "go/no-go" decisions. The Defects Management module supports the entire defect lifecycle—from initial problem detection through fixing the defect and verifying the fix. Before any new defect is submitted, HP Quality Center checks the database for similar defects, reducing duplication and removing the need for manual checking. Building on this capability, HP Quality Center Premier allows defect sharing across projects.

### External resource management

HP Quality Center now includes the capability to store, trace, and manage external test resources, such as test assets. This feature, available in all versions of HP Quality Center, gives you the ability to assess the impact of changes to shared assets—such as object repositories, functional libraries, and QTP data tables—on QTP tests. With this capability, you can now easily make use of external test-related information in various parts of a test.

### Integrated dashboard module with cross-project reporting

The testing process generates large amounts of data. To help you better view and manage all of this information, HP Quality Center Enterprise and Premier provide an integrated dashboard module to centralize reporting and the associated tools, including standard reports, spreadsheets, and dashboards.

In a conventional organization, you might spend 10 to 20 hours to create a test-execution report or a release-status assessment. With HP Quality Center, all of this information is at your fingertips for making up-to-the-minute decisions on application status or team productivity. In addition, HP Quality Center can export a report source into Microsoft Excel, enabling your end users to perform ongoing data manipulation.

In addition, HP Quality Center Premier adds the ability to do cross-project and cross-module reporting to provide visibility across multiple initiatives that are under way in your enterprise and monitored through a center of excellence (CoE).

### Requirements management enhancements

Many organizations use stand-alone documents or a collection of disparate systems to define and keep track of requirements. This can result in incomplete requirements, inaccurate requirements, and wasted time and effort associated with locating and editing requirements.

A new Requirements Management module in HP Quality Center 10.0 enables you to avoid these and other issues related to fragmented requirements management. This module enables you to create a central location for requirements management, versioning, and reuse.

The Requirements Management module, which is also available via a stand-alone requirements-only license, is an ideal tool for business analysts and non-technical users who want to help distributed teams collaborate on requirements definition and management.

## New HP Quality Center integrations

### Third-party integrations with advanced requirements definitions

HP Quality Center offers enhanced integrations with third-party requirements definition solutions. Should you require advanced requirements definitions techniques, these tools allow you to leverage external tools to add the additional level of detail you require. Once the requirements are captured, you can then import them back into HP Quality Center to be managed with other requirements, tests, defects, and more.

### HP Center Management for Quality Center software

Integration with HP Center Management for Quality Center software enables your efforts to create or strengthen your quality center of excellence. HP Center Management for Quality Center supports the CoE model by allowing you to initiate, manage, and track multiple projects to completion with a single dashboard view. Quality engineers, developers, and business analysts have a consolidated view of tasks and work items across all projects. This centralization—along with powerful tools for matching skilled staff to the right projects—increases efficiency, enhances coordination, and improves the project delivery process.

### HP Service Management Center software

The integration between HP Quality Center and HP Service Manager software bridges the divide between applications and operations. This integration uses HP Quality Center Synchronizer software to synchronize HP Quality Center defects and requirements with HP Service Manager changes and problems.

This integration supports three key use cases:

- HP Service Manager changes can be synchronized with the HP Quality Center defect module so that defects found during the change process can be systematically tracked by the applications team.

- HP Service Manager changes can be synchronized with the HP Quality Center Requirements Management module so that "requests for changes" that are categorized as "requests for enhancements" can be automatically logged as requirements for the applications team.

- HP Quality Center defects can be synchronized with HP Service Manager problem management so that any defects still open at the end of the QA cycle, and which are not going to be fixed, can be logged as known errors for the operations team and the help desk. Known errors can be a source of informal knowledge articles in the knowledge database.

### Microsoft® Visual Studio/Team Foundation Server

Integration with Microsoft Visual Studio/Team Foundation Server, distributed and supported by Microsoft, enables you to synchronize HP Quality Center requirements and defects with Team Foundation Server work items.

### HP Quality Center Synchronizer 1.2

Integration with HP Quality Center Synchronizer 1.2 gives you the ability to develop third-party integrations to synchronize HP Quality Center requirements and defects with other applications. This helps you improve the scalability, performance, and maintainability of integrations.

### HP Business Process Testing software

HP Quality Center now offers tighter integration with HP Business Process Testing software, a combined quality management and test automation solution. HP Quality Center stores, manages, and executes all HP Business Process Testing test assets. The entire HP Business Process Testing user interface is integrated into HP Quality Center, with full traceability between components and test assets, such as test cases and defects, as well as versioning, baselining, asset sharing, and reuse of business components. The integration yields a one-stop, web-based location for complete test management, from requirements through tests to defects, with real-time traceability and analysis.

### HP QuickTest Professional software

HP Quality Center now offers enhanced integration with HP QuickTest Professional software, our advanced automated testing solution for building functional and regression test suites. With its innovative, keyword-driven approach to structured automation, HP QuickTest Professional enables you to use natural language to build tests that verify user interactions and confirm that business processes work as designed. Enhanced integration with HP Quality Center enables more test and asset management versioning, baselining, and other capabilities, all supported with automation.

# Innovations for HP Performance Center

## Increasing quality and reducing risk

Performance testing is a critical component of the application lifecycle—and HP offers solutions that set the standard for application performance validation. At the heart of these solutions are HP Performance Center software and HP LoadRunner software.

HP Performance Center is an enterprise performance testing and validation platform that stores and manages all test assets and results in one central location, while using HP LoadRunner software to perform the individual performance tests. HP LoadRunner is widely recognized as the standard for performance testing, commanding more than 60 percent market share.

In the latest product releases, HP introduces innovations in enterprise-scale performance testing, accelerated performance testing, and protocol support. These innovations enable you to test more applications and services, more often, and with greater productivity. This helps you dramatically increase overall performance and reduce risk to the business.

## Next-generation applications and protocols

Protocol support is one of the keys to successful performance testing. This is particularly true in a time when packaged applications are often customized beyond supported configurations. Yet too often, custom applications aren't validated to meet performance requirements because of inadequate protocol support.

HP helps you overcome these barriers. Already supporting more than 60 protocols, this release of HP Performance Center and HP LoadRunner delivers improvements and innovations for the following new environments and protocols:

### Action Message Format (AMF)/Real Time Messaging Protocol (RTMP)

As an integral part of the streaming architecture for Adobe® Flash server, the RTMP protocol defines several channels on which packets may be sent and received, and which operate independently of each other.

HP's new support for RTMP allows for very easy testing of Rich Internet Applications that include the Flash Player components. It also supports multiplexing of data as well as audio/video streaming.

### Action Message Format Externalized Objects

HP has added support for external objects by allowing the introduction of custom callback functions in recording and replay processing. You can now write your own functions for custom processing of proprietary protocol parse formats. This capability is useful in the process of decoding and deserializing calls to external remote objects.

While expanding our AMF testing capability, these enhancements enable you to define the custom logic required to support new externalized object functionality, such as BlazeDS Data Source and Services. You can also define custom processing of network protocol traffic for both record and replay. This capability enables customized encoding/serialization support.

### Oracle® Remote Method Invocation (ORMI)

For Oracle's latest products there is a proprietary Remote Method Invocation architecture, named Oracle Remote Method Invocation, which has been gaining adoption across several Oracle Retail applications. This special set of methods is now supported out of the box with HP, enabling a full record and replay solution for testing Oracle's latest applications.

### Improved Remote Desktop Protocol (RDP) and Citrix protocol support

A new RDP agent now enables record and replay to be done on the server side. This significantly enhances current synchronization capabilities (additional to the image processing synchronization). It also makes the scripts more intuitive and readable, and allows for new script functions that didn't exist before (e.g. rdp_sync_on_window, rdp_object_synced_mouse_click).

Improvements to RDP image processing facilitate dynamic calculation of the "changed area." This makes synchronization more accurate, since it is now based on image processing

Improvements to Citrix protocol support include enhanced text and image processing algorithms required for proper synchronization and checkpoint functionality within the performance testing scripts. This allows for more successful replays and the testing of Citrix scripts with fewer errors. These enhancements also make testing faster and more successful. For a complete listing of available HP LoadRunner protocols, visit our **Web site**.

## Accelerated performance testing

Your business cannot gamble on the performance of mission-critical applications. Yet too often, serious performance defects in application code aren't tested or resolved before applications go into production. In cases like these, performance testing efforts aren't producing actionable, meaningful results.

One of the keys to better testing outcomes is automation. The use of automated performance testing tools helps you more easily detect bottlenecks before new systems or upgrades are deployed—so you can avoid costly performance problems in production.

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To further increase performance testing productivity, HP has added new automated testing capabilities to HP Performance Center and HP LoadRunner.

### Protocol Advisor

With the rise of Web 2.0 and more complicated Rich Internet Applications, it has become more difficult to figure out which protocols are needed for performance testing. Additionally, if you are testing throughout the application lifecycle you may be misled when re-using existing scripts from the previous version, where new protocols may have been introduced into the new version of the application.

Through the HP LoadRunner Virtual User Generator (VuGen) application, HP performance testing software can automatically interrogate the application under test to discover the protocols that may be required to accurately load test the application.

This feature greatly reduces the discovery time of protocols, and thus reduces the overall time to create scripts. It also helps you reduce the risks of false positives in cases where an application's full implementation of client-side protocols is going untested.

### Analysis API

Performance testing data is often combined with other monitoring and systems data for custom reporting purposes. The new application program interface (API) for Analysis makes it easy to export data from Performance Center and LoadRunner for custom needs.

## Enterprise-scale performance testing

In today's enterprise environments, there are too many cases where business objectives are compromised and revenue is lost due to poor system performance and unacceptable response times in business processes. And too often corporate service level agreements (SLAs) are violated due to poor application performance and quality standards for performance that are missed or ignored.

HP Performance Center 9.5 and HP LoadRunner 9.5 respond to challenges such as these. These complementary software offerings enable you to standardize performance testing on a single platform and establish a performance center of excellence as a shared service for all lines of business across the enterprise.

Building on this base, recent HP Software enhancements for enterprise readiness make it easier for your organization to deploy enterprise-wide load and performance testing solutions.

### Performance results trending

To work proactively to maintain the performance of business services, you need to understand performance trends across your enterprise. This is one of the keys to addressing issues before they become problems.

HP Performance Center helps you achieve this objective with new capabilities for trending and comparison of historical performance testing results. This information, presented via an online interface, gives you solid information on performance trends in terms of averages, maximums, minimums, and standard deviations.

While this information helps you detect potentially troublesome performance trends, it also strengthens your ability to validate the quality of your services. You can compare test results and report back to management and line-of-business executives with solid metrics on the performance quality of applications.

The existing HP LoadRunner Cross-Results Analysis feature also offers improved summary reporting and several graph enhancements to include more meaningful and accurate representation of the results comparison.

### Secured channels for load generators

To help you meet increasingly stringent corporate security standards, the communication between the controller and load generator components now have the option to be secured with 128-bit Advanced Encryption Standard (AES) encryption via a shared key/pass phrase solution. The administration of the key system is enabled both locally on each component and also at a central key administration utility.

This enables your organization to increase test data security and compliance with corporate security standards, particularly when implemented in combination with other operating system security configurations (such as IPSec, NTFS, Group Policy) and with physical security solutions.

## New HP Performance Center integrations

### WAN emulation

To maintain the performance of applications in a large enterprise, you need to understand the performance of the applications from different regions. New wide-area network (WAN) emulation integrations in HP Performance Center and HP LoadRunner now make it possible to incorporate the impact of WANs in the application load testing process.

The WAN emulation integration leverages technology from HP Software partner Shunra. This technology allows HP Performance Center and HP LoadRunner users to define regions and assign them to load generators. The load generators then act as if they were in those defined regions. This means you can now emulate testing from multiple regions without having to deploy load generators in those regions.

This is a great solution for gauging WAN performance in regions that were previously too inaccessible or too costly to warrant the deployment of load generators. What's more, you can leverage the WAN emulation capabilities to compare test results based on regions.

## Key takeaways

As the market leader in enterprise quality and performance management, HP is constantly focused on developing innovative ways to help IT personnel do their jobs more easily and effectively. By enabling you to centralize on a single platform based on HP Quality Center and HP Performance Center, we help you take control of quality and performance testing activities so you can get the job done right on a consistent basis.

To enable higher quality applications and services that mitigate business risk, HP Quality Center helps improve collaboration between IT and the business with improved functionality for capturing, managing, and tracing requirements—even as these requirements and their dependencies change over time. Our platform also supports proactive quality planning to help you prioritize testing activities based on a thorough analysis of business risks and trade-offs.

Innovations in HP Performance Center help your organization increase performance testing productivity so that your staff can test more applications and services in less time. New enterprise-scale performance testing capabilities, accelerated performance testing tools, and expanded protocol support extend the reach and effectiveness of our offering and enable greater testing flexibility, improved insight, and significant reductions in time, effort, and resources.

Both HP Quality Center and HP Performance Center are exceptionally suited for use at the enterprise level as well. With centralized management of processes, enterprise-wide visibility over your portfolio of projects, improved security, and a host of other enhancements, HP makes it far easier for you to establish quality and performance centers of excellence that operate as shared services. The end result is unparalleled capabilities for managing quality and performance activities throughout the enterprise so that you can enable smooth operations, mitigate risk to the business, and improve the ways in which you interact with your customers.

For more information on the latest versions of HP Quality Center and HP Performance Center, visit our **Web site**. View white papers, data sheets and download product trials.

## Technology for better business outcomes

To learn more, visit www.hp.com/go/software