

IBM Rational solutions for cloud-based quality management



Leverage the cloud to develop high-quality software

Highlights

- Enhances software quality management capabilities
 - Automates and streamlines quality management processes while enabling collaboration
 - Improves software testing practices, allowing for larger-scale testing
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The importance of software quality management

Even if you're not a traditional software developer, there's a good chance that software is an important part of the products you offer. Consider today's more advanced cars: It may take millions of lines of code for them to run. Yet just one bug can render an expensive system—such as a car or an airplane—unusable. In an increasingly competitive marketplace, optimizing the quality of your software has become a primary consideration, regardless of whether your organization calls itself a software company. Staying competitive means creating high-quality software but doing so as quickly and cost-effectively as possible. A key to successfully doing this? A life-cycle approach to quality management.

Many people think of software testing when they think of quality management, but these terms should not be considered synonymous. Testing is a phase within the software development life cycle (SDLC) that focuses on discovering defects that are already designed into the software. Quality management, on the other hand, is a mechanism to help quantify and manage risk to better control business outcomes and can be considered its own parallel life cycle within the SDLC. Its processes and activities take place across and are synchronized with SDLC processes.

This integrated, life-cycle approach makes quality a shared responsibility throughout the software development process, which in turn keeps it from becoming siloed and disconnected. Integrated, life-cycle quality management practices, which balance understanding and controlling sources of risk with pursuing time-to-market objectives, can enable organizations to achieve greater consistency, efficiency and predictability in their delivered solutions.



For years, organizations have relied on IBM Rational® processes and tooling for software quality management. Now they're finding a new opportunity to further improve their software quality management processes—making them more cost-effective, easier to perform (set up, execute and tear down) and more flexible—by moving them to the cloud.

Relying on a new approach

Just as homes and businesses plug into a centralized utility grid to draw power rather than try to generate their own electricity, companies no longer have to rely on their own resources to meet all their computing needs. Instead, they can connect to a cloud of servers, applications, information and resources. By plugging into centralized, shared computing, organizations can draw on considerable computing resources only when they are needed, helping to cut costs, reduce IT complexity, improve resilience, increase service delivery and enable innovation.

Interest in cloud computing is exploding, with organizations finding new ways to leverage its power. In a recent IBM survey of 2,000 IT professionals around the world, 91 percent said that they believed cloud computing will overtake on-premise computing as the primary way organizations acquire IT over the next five years.¹ And more and more, organizations are turning to the cloud to develop their software. They are using the cloud for a variety of software development purposes, including quality management.

Cloud-based software quality management helps organizations make several improvements:

- Enabling collaboration among the typically disparate groups across the SDLC
- Leveraging virtual resources to cost-effectively tap in to additional computing capabilities as needed
- Quickly setting up the necessary infrastructure for effectively implementing quality management processes

The result is a nearly instantly available, collaborative, cost-effective quality management infrastructure that can be used as needed to improve software quality and help deploy better software solutions sooner. To make this possible, IBM Rational software now offers a number of solutions for cloud-based quality management.

Using the cloud to integrate and automate quality management activities

With a traditional quality management infrastructure, teams responsible for ensuring the quality of software, such as its functionality, reliability and performance—the analysts, developers and quality professionals—often work in silos. Moreover, those teams can be geographically dispersed, making collaboration difficult.

Quality management processes themselves can also be complex and difficult to manage. For example, labor-intensive, error-prone processes can take a significant amount of time to set up, manage, run and tear down. In addition, quality assurance and test managers are often hampered by a lack of visibility into the health of the software project's quality.

IBM Rational cloud-based solutions can help organizations integrate and automate their quality management activities. By leveraging the cloud and IBM Rational tooling, organizations can enable collaboration and rapidly integrate distributed teams by offering a centralized, shared location for project artifacts that supports role-based access via the web. Organizations can also increase productivity and help control risks by automating manual, time-consuming processes. In addition, they can gain visibility into a project's quality progress through the solution's team-customizable reports and web-based dashboards, analytics and metrics.

Rational products include a number of cloud-based offerings that support the integration and automation of quality management activities:

- IBM Rational Requirements Composer software helps teams effectively define and efficiently manage requirements across the project life cycle to gain better business outcomes.
- IBM Rational Quality Manager software helps teams optimize project quality with a collaborative test management hub that provides integrated, life-cycle support across virtually any platform and type of testing.
- IBM Rational Test Lab Manager software helps teams configure, build and optimize usage of the test lab environment.
- IBM Rational Team Concert™ software provides a lean, collaborative life-cycle management solution that connects distributed development teams to help increase individual and team productivity, compress development cycles, and rapidly deliver high-quality software.
- IBM Rational Build Forge® software helps teams accelerate and streamline software and systems delivery.

Cutting costs and improving productivity with cloud-based performance testing

In traditional software development environments, comprehensive test coverage can be challenging and expensive to undertake, especially when considering the combinations of different hardware, software, operating systems and user interfaces that need to be tested for a web-based application. Test loads in particular are typically constrained by hardware availability, with more hardware required to run larger performance tests, leading to much higher costs for more extensive testing. In addition, these significant test hardware assets may end up remaining idle most of the time.

The IBM Rational Load Testing on the IBM Cloud solution helps organizations automatically provision virtual test agents and generate virtual users through the IBM Smart Business Development and Test on the IBM Cloud offering using

IBM Rational Performance Tester software on a pay-as-you-go basis. By leveraging the IBM cloud for performance testing, organizations can realize several potential benefits:

- Reducing the time and cost required to generate large loads for testing because dedicated hardware or additional virtual tester licenses are no longer required
- Affordably implementing large-scale testing that may otherwise not be possible because of budget or resource constraints
- Eliminating extensive up-front costs by leveraging the pay-as-you-go IBM cloud for both the agent infrastructure and virtual tester licenses
- Saving time on setting up a test platform by virtually eliminating the need for installing and configuring software each time a load test is run

The bottom-line benefits of cloud-based quality management

Leveraging the cloud to manage quality practices can help organizations in a number of ways:

- Cutting costs
- Streamlining processes
- Enabling collaboration
- Enhancing quality capabilities
- Increasing oversight
- Improving agility and flexibility

Why IBM?

Traditional software quality management processes have focused primarily on testing, but that's no longer enough. IBM Rational solutions for cloud-based quality management make it easier and more cost-effective for organizations to focus on quality throughout the SDLC. By leveraging the cloud and IBM Rational processes and tooling, organizations can improve how they manage their software quality management operations while also increasing their software testing capabilities.

For more information

To learn more about IBM Rational solutions for cloud-based quality management, contact your IBM representative or IBM Business Partner, or visit: ibm.com/rational/cloud

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Somers, NY 10589
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¹ IBM, *New developerWorks survey shows dominance of cloud computing and mobile application development*, Michael C. O'Connell, October 8, 2010, <http://www.ibm.com/developerworks/aboutdw/2010survey-results/index.html>



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