

# Virtualization for better, faster, more cost-effective quality assurance

Extending HP Quality Center software with virtual lab management

White paper



# Table of contents

- Increased pressure on quality assurance teams** ..... 3
  - Advancing along the QA maturity path with virtualization ..... 3
  - Virtualization cannot do it alone ..... 3
- Virtual lab management: realizing the promise of virtualization for QA** ..... 4
  - A common foundation for managing the enterprise application lifecycle ..... 4
  - Self-service QA with technology controls ..... 4
  - Faster software testing and development ..... 5
  - Lower testing costs ..... 5
- HP Quality Center software with virtual lab management from Surgient** ..... 5
  - How it works ..... 6
- The real benefits of virtual lab management** ..... 6
- Real-world examples** ..... 7
  - Sisters of Mercy Health Systems ..... 7
  - Raymond James ..... 7
  - Insuresoft ..... 7
- Why HP and Surgient?** ..... 7
- Find out more** ..... 8

“Virtual lab automation helps organizations test faster, more thoroughly and more effectively through the reduction of lab provisioning time.”

Theresa Lanowitz

Founder, voke<sup>®</sup>, inc.

vokeStream<sup>®</sup> Market Snapshot<sup>™</sup>: Virtual Lab Automation,  
March 29, 2007

### Increased pressure on quality assurance teams

When it comes to software development, your organization knows full well the importance of quality assurance (QA). To ensure customer satisfaction, improved business performance and a positive user experience, any application or any change to an existing application needs to be tested in an environment that simulates the real world.

Yet despite the clear business case for thorough testing, pressure on QA teams continues to mount. Teams need to test more applications in less time while jockeying with multiple groups for scarce testing resources—all while keeping budgets within reasonable bounds. In this environment, QA groups are pressured to cut corners just to stay on schedule and within budget—often leading to the very business disruptions that QA is meant to head off.

#### **Advancing along the QA maturity path with virtualization**

Many HP customers have taken the first step toward rectifying this problem by implementing HP Quality Center software for improved application quality. This solution provides a consistent, repeatable process for gathering requirements, planning and scheduling tests, analyzing results, and managing defects and issues. It also adds structure to the overall QA process so that your testing teams approve only high-quality applications for release. But as organizations seek to advance further along the QA maturity path, many are looking to the promise of virtualization technology to address those testing challenges that still remain. These include long queues for scheduled tests, bottlenecks regarding the provisioning of limited testing resources, and the costs associated with setting up and tearing

down the physical environments required to simulate real-world, run-time conditions.

With virtualization technology, organizations can set up virtual testing environments that mirror real-world production environments in a fraction of the time and at a fraction of the cost. To the extent that they leverage virtualization, QA teams no longer need to set up physical boxes, install software and make connections to databases and networks—as is typically the case with traditional test labs.

Virtualization also promises to help QA teams maintain greater control over their testing environments and expand coverage wherever needed by enabling organizations to add additional resources from elsewhere in the technology infrastructure to the test environment. The aim here is to take demand off of the technology team who must otherwise respond to each change in the testing environment with additional resources. As virtualization technology itself has matured, furthermore, it has become easier to replicate the real-world environment in a virtual context than it is to do the same with physical boxes, network configurations, and manual software installations. For hard-pressed technology organizations and QA teams, this can save significant time and money.

#### **Virtualization cannot do it alone**

By itself, however, virtualization technology cannot deliver these benefits. In the context of QA, in other words, virtualization is necessary but not sufficient for speeding testing cycles, reducing costs, and enabling QA to test more in less time while maintaining the highest standards of quality. One problem is that virtualization requires technical expertise that QA teams typically lack—particularly in the area of application architecture and infrastructure

“The advantage to having an automated test management solution combined with a virtual test lab management solution is that Global 2000 and other organizations can supplement their actual systems resources with virtual machine technology. This means that those systems resources are less constrained, and a company can get better utilization out of its test management solutions as well as more effective and efficient management of systems configurations.”

Melinda Carol-Ballou  
Program Director, Application Life-Cycle Management, IDC

dependencies. Inevitably, the onus falls on the technology team to perform the networking and configuration tasks required to get the virtual testing environment up and running. How is this any different from traditional testing?

Another issue is “virtual machine (VM) sprawl.” After the technology team sets up the virtual test environment, it is easy for the QA team to save the configuration for future use. Many organizations see this as a significant advantage—and rightly so. But only when properly managed. Unfortunately, configurations tend to proliferate, filling up file servers with virtual machine disk files. This lack of management makes it difficult to determine if these virtual machines are in use, what is in them, and whether or not they can be safely deleted.

To realize the advantages of virtualization for software testing, organizations need a better way to manage the technology. The goal should be one of moving QA from a position of dependency on the technology team to one where it enables QA with self-service capabilities. This is where the idea of virtual lab management comes into play.

## Virtual lab management: realizing the promise of virtualization for QA

Virtualization technology itself is nothing new. Data centers have used it for years to access excess server capacity where needed. More recently, however, the technology has come into its own—making headlines as the next wave in Internet-based corporate computing where local installations of hardware will become a thing of the past. Yet still, the tools that exist for managing virtual machines do not address the unique needs of QA teams attempting to leverage the technology for virtual testing. This is why organizations

that seek to leverage virtualization for QA are turning to virtual lab management solutions.

### **A common foundation for managing the enterprise application lifecycle**

With virtual lab management, organizations can establish a common, centralized testing platform that extends across the entire enterprise—even in a distributed context. This helps to solve the problem of different testing groups hoarding physical resources. Because testing infrastructure is accessed and managed centrally, there is nothing to hoard. To the contrary, virtual lab management actually makes it easy for groups to share. For example, groups can save specific virtual configurations in a central library for later use by any other team as deemed necessary. And when you deliver your virtual lab through a centralized portal accessible to all testers and developers, it is easier to enforce testing process compliance throughout the enterprise.

### **Self-service QA with technology controls**

Virtual lab management helps you strike the proper balance between the requirements of the technology team and QA. On the technology side, it empowers a test lab administrator to centrally manage your heterogeneous test infrastructure and test configurations—including the policies by which resources are allocated and consumed by multiple groups. On the QA side, it allows testers and automated scripts to safely reserve test lab capacity without conflicts and to provision test configurations on a scheduled or on-demand basis with no manual intervention on the part of the technology team. This delivers self-service capabilities to your QA teams, resulting in better resource utilization and allowing your teams to consistently execute testing processes regardless of configuration or software complexity.

“Since testing usually happens late in the cycle when applications are already due to be completed and released out to the users, it’s a big challenge getting IT organizations to share effectively and to prioritize resource allocation both for the human and the systems resources involved in testing.”

Melinda Carol-Ballou  
Program Director, Application Life-Cycle Management, IDC

#### **Faster software testing and development**

One of the most time-consuming aspects of any test project is waiting for the technology team to set up and configure the physical test environment. By reducing or even eliminating the need for this, a virtual lab can accelerate testing and development cycles by as much 50 percent. This is surely one of the more dramatic benefits of virtual lab management—but there are others as well. Testers, for example, can capture the system state at the time of defect and rapidly communicate any issues to the development team without halting testing progress. For organizations working with distributed teams, this is especially useful because it gives offshore teams a snapshot of the same configuration used by local teams—putting the testing and developing group on the same page. Virtual lab management can also remove the problem of VM sprawl by supporting a centrally managed library and imposing policy limits on resource usage—on an individual, group or project basis. Finally, it is also important to point out that a virtual lab management solution can automatically tear down the virtual environment upon test completion—saving yet more time while ensuring that resources remain available for other testing requirements.

#### **Lower testing costs**

If time is money, it goes without saying that automating the provisioning of test infrastructures and reducing wait times help to bring down testing costs. But more significantly, virtual lab management helps you save on the servers and other physical assets that teams would otherwise require to do their jobs. In traditional test environments, QA teams often attempt to mimic the complexity of real-world production environments by adding server after server to whatever limited space they may inhabit. This leads to the kind of server sprawl that results in spiraling cost overruns. With

virtual testing environments, organizations can significantly cut down on the number of physical assets they need to purchase and maintain—while also freeing up physical office space for their testing teams.

### **HP Quality Center with virtual lab management from Surgient**

The combination of HP Quality Center and the Surgient Virtual QA/Test Lab Management System (VQMS) is a real-world solution available today that can allow your organization to leverage virtualization technology for faster, better, more cost-effective QA. Pre-integrated for a smooth implementation and rapid time-to-value, this combined solution helps eliminate a wide range of persistent barriers to effective testing—including insufficient or unavailable test infrastructure and the excessive time required to deploy and configure today’s test environments.

By adding Surgient VQMS to HP Quality Center you can:

- Centrally manage and allocate test lab resources from HP Quality Center across multiple and distributed teams according to business policies and quotas
- Link test cases and test sets from HP Quality Center to the corresponding test lab resource to enable execution on the relevant environment
- Automatically and reliably provision complex, multi-machine test configurations from HP Quality Center on a scheduled or on-demand basis
- Maintain a comprehensive library of known-good test configurations and customer/production environments
- “Snapshot” the environment when a defect is detected and allow other teams (such as developers) to re-provision the environment to diagnose the issue

“To provide the best possible support to Mercy, we need to have information and technology systems that are stable, standardized and easy to access through a system like our ERP implementation. With Surgient VQMS, we will be able to test and rollout our ERP application quickly, not only improving the quality of our deployment, but also cutting the cost of implementation. Surgient’s virtual lab solution is helping us provide the assurance of an ERP system that offers performance and reliability, enabling us to quickly realize those benefits across the entire organization, passing that level of care directly on to our customers.”

Chris Marr

Lead Systems Engineer, Sisters of Mercy Health System

- Securely request, access, save and restore testing environments from any browser
- Leverage standard reports, or author custom reports, to accurately measure and track test lab resource use

In addition, Surgient VQMS and HP Quality Center support an advanced model for resource pooling, scheduling, provisioning and networking that is highly effective when it comes to managing a mixed physical/virtual-testing environment. This is no small benefit, as many organizations will make the transition to virtual testing environments gradually over time.

#### How it works

Based on the needs of your overall organization—and your technology and QA teams in particular—you can set up Surgient VQMS to work with HP Quality Center in various ways. You can log into the Surgient VQMS portal and set up test configurations in a self-serve manner, or you can use the Surgient VQMS Quality Center Add-in to automatically launch test sets against dynamically deployed test configurations if so desired. You can also use HP QuickTest Professional software or HP WinRunner software to request test configurations programmatically using Surgient VQMS advanced programming interfaces (APIs) or command-line interface (CLI).

In any of these cases, the end result is that Surgient VQMS receives a request to reserve a test configuration, controlling access and availability according to security policies that you define. Whether it is at a scheduled time or on demand, Surgient VQMS then automatically provisions the requested configuration from a central library onto shared resources. It then configures the test environment and makes it available for use—accounting for all technical details such as networking connections, isolation and remote access.

At this point, any other software—such as specific builds or patches—may be manually or automatically installed until the environment reflects the system under test. After testing is complete, or when a problem or defect is discovered, you can request Surgient VQMS to snapshot—or save—the environment in its current state for additional testing or analysis. Thereafter, Surgient VQMS “tears down” the virtual configuration, freeing up lab resources for other requests.

## The real benefits of virtual lab management

With HP Quality Center and Surgient VQMS working together, your organization will be able to quickly and easily leverage excess computing capacity to set up test environments, improve testing collaboration and speed testing cycles. The return on investment can be significant. You will be able to:

- **Centralize critical test infrastructure and control usage.** Employ centrally managed policies to determine which teams or projects can consume resources, thus enabling safe self-service capabilities without losing control over infrastructure.
- **Reduce capital expenses.** Dramatically cut the number of hardware purchases your organization makes to support testing—and get more utility out of existing hardware through re-use while increasing the number of people who can take advantage of it.
- **Cut operating expenses.** Automate the work of setting up and configuring test labs, substantially reduce wait cycles, and free QA staff up to focus on more high value activities.

“Fifty percent of organizations using virtual lab automation are able to identify more defects prior to production. Eighty percent of organizations using virtual lab automation have more stringent quality practices in place.”

Theresa Lanowitz  
Founder, voke®, inc.  
vokeStream® Market Snapshot™: Virtual Lab Automation,  
March 29, 2007

- **Increase productivity.** Empower QA teams to do more with less while enhancing collaboration between QA and development teams so they can quickly work out bugs and rapidly release high-quality applications on a consistent basis.

## Real-world examples

The advantages to be had by adding Surgient VQMS to HP Quality Center are not just hypothetical. Take a look at some of the organizations that have already realized the benefits.

### Sisters of Mercy Health Systems

Sisters of Mercy Health Systems (Mercy) is the ninth largest Catholic healthcare system in the United States. Established in 1986, Mercy consists of 18 acute care hospitals, a heart hospital, outpatient care facilities, physician practices, skilled nursing and long-term residential care facilities, clinics, a managed care organization, and other health-related services. When Mercy implemented a new enterprise resource planning (ERP) system in 2006, the project forced a rebuild of 15,000 workstations and 2,000 client applications. The test load—estimated to take six years of total testing time under traditional methods—jeopardized the ERP rollout schedule.

To overcome this challenge, Mercy decided the ideal solution was HP Quality Center integrated with Surgient VQMS. The results have been impressive. The test automation capabilities of the new system reduced single application testing time from five to three days, while test lab automation further reduced application-testing time from three days to four hours. Total testing bandwidth increased ten times enabling Mercy to test 80 applications per week instead of eight—all without any increase in test resources. Mercy also estimates they can

achieve total test coverage in six months (instead of six years)—time savings that are critical to meeting its ERP rollout schedule. Finally, Mercy has experienced a boost in team productivity and morale because testers are spending time on more important tasks (such as planning and strategy, test case development, documentation, running and analyzing tests) instead of wasting time on building and maintaining test environments.

### Raymond James

Raymond James is a diversified financial services holding company with subsidiaries engaged in financial planning, investment banking and asset management. A critical part of the company’s business is providing specialized financial applications to its spectrum of independent financial advisors. Facing an increase demand to test numerous software changes per month, Raymond James was looking for a solution that would streamline the software test process without committing additional server hardware. What it needed was a more efficient way to test changes with a cost effective infrastructure to support the test process.

To meet this challenge, Raymond James added Surgient VQMS to its HP Quality Center platform. The company liked the solution in part because it allowed it to continue to leverage its investment in HP Quality Center while making a much needed leap in test environment capabilities. The addition of Surgient VQMS helps Raymond James maintain better efficiency in finding and fixing software issues before its applications make their way to its financial advisors. Faster testing turnaround has resulted in cost savings and has contributed to successfully meeting software release timelines.

### Insuresoft

Insuresoft is a leading software provider for the property and casualty insurance industry. The company offers a suite of products and services designed for managing general agents and insurance carriers in North America. With aggressive release cycles for its full suite of insurance process automation solutions, Insuresoft needed to reduce QA inefficiencies to meet demand.

To more effectively test its new software solutions, Insuresoft implemented Surgient VQMS on top of its HP Quality Center software. Now testers can quickly choose a test environment, and the solution takes care of the configuration and deployment details automatically. In addition, Insuresoft uses Surgient VQMS to track the actual performance of its applications, drastically reducing software delivery cycles and improving customer satisfaction. With Surgient VQMS and HP Quality Center, Insuresoft analysts and developers now have more time to focus on higher value activities in their areas of expertise.

“Organizations using offshore teams should consider virtual lab automation a requirement to work with the team.”

Theresa Lanowitz

Founder, voke®, inc.

vokeStream® Market Snapshot™: Virtual Lab Automation,  
March 29, 2007

## Why HP and Surgient?

### HP Software

- HP, through its acquisition of Mercury Interactive Corporation, has driven innovation in the Software Quality market since 1989
- HP is the clear market leader, with 56.8 percent market share in distributed automated software quality, according to IDC<sup>1</sup>
- HP Quality Center, together with HP BTO portfolio, enables a unique, integrated approach to quality management across the application lifecycle, spanning IT Strategy, Applications, and Operations
- HP Quality Center's unmatched scalability, environment coverage, and enterprise architecture make it the solution of choice for Center of Excellence initiatives
- Quality Center provides a web-based solution to support today's global application delivery model, with distributed teams and projects
- HP Software and HP Services have created the HP Quality Model, based on best practices from thousands of customer engagements and the latest technology, which provides a roadmap for customers to achieve excellence in quality management across their enterprise

### Surgient

- Surgient pioneered virtual lab management in 2003 and has more expertise using virtualization to accelerate the application lifecycle than any other vendor
- Surgient is dedicated to virtual lab management, focusing exclusively on creating the best lab management platform, rather than on trying to create separate virtualization or testing tools
- Leading Fortune 200 companies from the multiple industries including financial services, retail, and healthcare/pharmaceuticals all use Surgient VQMS to accelerate testing and improve quality
- The 5 largest enterprise software companies all use Surgient VQMS on a daily basis to provision their software applications—which means that Surgient VQMS can work with any enterprise software configuration including, for example, SAP, Microsoft Exchange 2007 and applications deployed to IBM WebSphere
- More than 1,000,000 enterprise applications have been delivered successfully using Surgient VQMS making it the most proven enterprise-class virtual lab management solution available
- With heterogeneous virtual and physical lab capabilities—and support for multiple virtualization platforms and bare-metal provisioning into blended lab configurations—Surgient VQMS is the best solution for duplicating real-world production application configurations

### Find out more

To learn more about how you can use HP Quality Center and Surgient VQMS from Surgient to leverage the benefits of virtualization and speed testing time, improve quality assurance and reduce testing infrastructure costs, contact your HP representative today. You can also visit [www.hp.com/go/quality](http://www.hp.com/go/quality)

<sup>1</sup> IDC, Worldwide Automated Software Quality 2007–2011 Forecast and 2006 Vendor Shares: Growing Up in a Smaller World

To learn more, visit [www.hp.com/go/quality](http://www.hp.com/go/quality)

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