The Business Case for On-Demand Test Services

The traditional QA service delivery model is stifling organizations with high incidents of defects, inefficiencies and delays. On-demand services offer a superior alternative by providing a pay-per-use approach to optimize QA activities, enabling greater operational agility.

Executive Summary

The changing business landscape and challenging economic conditions have placed tremendous pressure on IT departments to optimize the transaction costs related to releasing software. On-demand services offer organizations much-needed financial flexibility in the form of utility-like, usage-based pricing. By switching to an on-demand service, organizations can more effectively eradicate quality issues before releasing new software.

The rapid pace of technological advancement and competition, not to mention business's ever-increasing dependence on technology, is forcing companies across industries to release new applications and updates much more frequently. Testing centers are struggling to keep up by reducing cycle times and defect leakage before the software enters production. As a result, the current mandate for IT organizations is to quickly build test environments that closely approximate real-time scenarios, which makes testing a complex and costly affair. As such, the traditional QA delivery approach often fails to meet today's complex testing requirements.

An on-demand testing service offering (also known as testing as a service or TaaS), delivered either through a cloud-based environment or the existing on-premise environment, offers faster provisioning of services with reduced capital outlays. With "on-demand" access to a range of tools, assets and frameworks, test environments of any scale – closely resembling real-life scenarios – can be quickly assembled, thereby optimizing cycle times. Further, the costs and risks of technology ownership are transferred to the service provider, enabling organizations to shift from a resource-heavy Cap-Ex model to a more flexible Op-Ex approach.

With benefits far outweighing costs, on-demand testing allows IT organizations to meet growing business demands and testing requirements. To realize sustainable benefits from on-demand testing, organizations must find a partner that understands the attendant delivery challenges and has proven experience in providing managed testing services.

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Moving Beyond Traditional QA Delivery

Organizations across the globe invest more than €50 billion ($66 billion) annually on testing and QA activities.[1] Yet they continue to face issues with software failures, budget overruns, delays in application rollout, etc., which cost them dearly, operationally and beyond.

The reasons are manifold. Testing has traditionally been an in-house activity, with organizations building their own test labs. However, the rapidly changing technological landscape and growing business demands have increased the scope of testing, creating new challenges for testing teams and raising the cost threshold of managing testing in-house.

Innovations, increasing customer demands and stiff competition have pressured organizations to bring new products and updates quickly to market, reducing the product development lifecycle. This requires testing teams to accelerate the testing process and deliver defect-free products faster than ever before. Further, given the seasonal nature of testing and the sporadic requirements of various business units, teams must be able to test applications whenever they need to, and in environments that closely resemble real-world scenarios. Providing such flexibility in-house using traditional approaches consumes significant capital.

The testing function already accounts for roughly 40% of overall project costs. As economic uncertainty continues and organizations seek to cut costs, QA teams have been forced to optimize transaction costs. Further, regulations such as the Sarbanes-Oxley Act[2] mandate strong IT controls to ensure accurate financial reporting, putting renewed emphasis on the quality of business applications and the testing process. This means QA teams must control costs by doing more with less while maintaining high quality standards even more stringently.

Virtualization efforts have met with limited success, while other deterrents – such as the cost of automation tools and lack of skilled resources to use them – have discouraged many companies from making tool investments. The challenges inherent in the traditional testing approach refer Quick Take inhibit organizations from meeting ever growing business demands, optimizing costs and developing much needed agility.

Optimizing Testing

Organizations are experimenting with various alternatives for optimizing the cost of testing and improving infrastructure utilization. According to a June 2011 study by Pierre Audoin Consultants, one-third of survey respondents have begun optimizing their testing activities, while 36% plan to start the process within a year. The primary

≡Quick Take

Traditional QA Delivery Challenges

- **Test environment vs. production environment:** Test environments are not aligned with the production environment in terms of operating systems, patch levels, software versions, configuration, etc. The wider the gap between the two environments, the greater the chance of application failure after deployment or defects leaking into the live system.

- **Test environment availability:** Sharing of test environments by multiple testing teams causes delays in the environment availability and forces managers to conduct non-functional testing in scaled-down environments and/or functional testing that relies on stubbed environments. This results in projects being approved with numerous caveats and application problems in production. On the other hand, environment downtime can disrupt testing schedules and cause significant monetary loss as testers are paid for idle time, as well as for the additional time they have to work to finish the tasks.

- **Cost of managing test centers:** Dynamic business requirements that give rise to sudden spikes in testing and QA requirements often result in test lab/environments remaining idle for short but frequent periods, adding to costs.

- **Automation costs:** Automating testing involves significant upfront costs, as these tools are expensive. Test automation experts who can provide an overall test automation strategy, including the right framework, are very expensive, as well.

reason cited for optimization was to improve product quality (see Figure 1), and the primary means to achieve optimization was to partner with an independent testing service provider. Some organizations, especially in North America, have turned to external testing service providers. Initiatives such as consolidation of QA activities and investments in testing centers of excellence (TCOE) are also increasing.

Some organizations are exploring cloud-based testing services to dramatically cut infrastructure costs and gain instant access to ready-to-use, customizable and scalable test environments. Enterprises, especially large ones, are keen to build private clouds to use their internal testing infrastructure and arm themselves with security and greater control over data. Small and medium-sized businesses (SMBs) are adopting public as well as hybrid cloud models for application testing.

While the cloud can solve infrastructure issues, a major challenge for many organizations is finding skilled testers. On-demand testing can solve this problem, as the service provider manages the entire testing activity.

Enter On-Demand Testing Services

On-demand testing is a delivery model capable of packaging application testing services, associated tools and the required infrastructure, through a consumption-based approach. On-demand services, delivered via cloud or the existing on-premise environment, provides instant access to testing resources. The combination of faster provisioning of services and lower capital costs allows organizations to meet niche and sporadic testing needs, while optimizing turnaround times.

The pay-per-use model allows companies to shift to a flexible operating model, since they no longer need to make high upfront investments in test infrastructure, tool licenses, hiring and training people, etc., or incur huge maintenance costs. Users can choose from a range of testing tools, ready-to-use configurations and solution accelerators to conduct various tests, such as performance testing, specialized testing, mobile testing and last-mile testing, around the clock. Making testing tools – both commercial and open source – available on a multi-tenancy basis enables cost optimization.

On-demand testing allows rapid automation of test cases at lower costs. On-demand service providers maintain automation scripts as the changes are made to the application. Automated test cases can be run within various environments – development, system integration test and production environments – using the same scripts, resulting in increased test coverage and reducing defect leakage into production.

Reasons for Optimizing Testing Activities
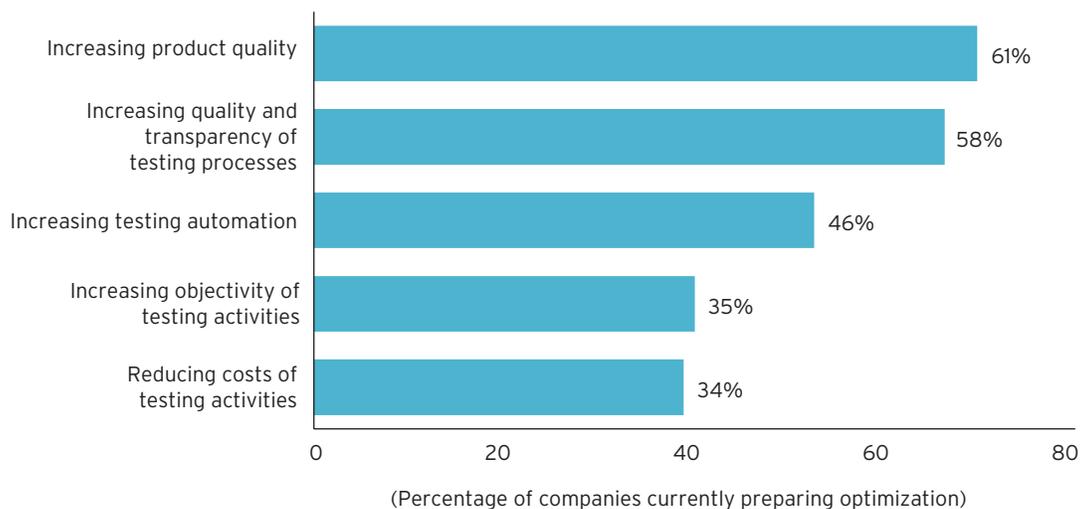
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Source: Pierre Audoin Consultants and SQS Software Quality Systems, June 2011

Figure 1

The Benefits: Costs and Beyond

Cost Optimization
The pay-per-use model offers financial flexibility, while providing the information necessary to forecast potential expenses in a transparent manner. As the service provider manages the entire testing process, it frees up internal resources that can be deployed for other core activities.

While overall testing costs can be lowered by about 10% to 35%, in some cases they can be lowered by as much as 75%.[3] Factors that weigh into the realization of cost efficiencies include the ability to choose the right service provider, collaborate with the provider, and understand and utilize on-demand testing services to minimize costs.

Other Key Benefits
While cost efficiencies can be a major force driving organizations to embrace on-demand testing, the advantages go beyond costs:

- Dynamic and scalable provisioning reduces provisioning time drastically, from several months to a few days, making it suitable for meeting dynamic and seasonal testing demands.
- Organizations can create test environments of any magnitude and test applications in environments that closely match real-life scenarios. This makes on-demand testing ideally suited for load, performance testing and last-mile testing that require thousands of concurrent users spread across different geographies.
- High environment availability allows organizations to plan and execute test schedules without delay, thus optimizing test cycles and reducing time-to-market of new products and services by up to 30%.
- Standardized infrastructure and pre-configured software images can reduce configuration-related errors that creep into production.
- Service level agreement-based provisioning of testing tools, infrastructure and resources prevent QA dependencies, reduce idle time and boost automation.
- Organizations can achieve greater business agility and can respond to business changes effectively, as they are virtually shielded from the complexities of the technology landscape.

- Crowd-testing – a form of testing where professional testers from across the globe test an application thoroughly – can be integrated into the overall testing strategy. This innovative form of testing can be delivered as a complementary add-on prior to production release, enabling detection of residual UI and configuration defects quickly and effectively. Crowd-testing is best suited for software used directly by end-users, such as Web sites and business-critical applications, as well as for performance testing.

Embracing On-Demand Services
Businesses today are embracing technologies that deliver state-of-the-art solutions to enhance customer experience and enable faster delivery of software solutions. This transition to digitization requires IT to explore alternate delivery models such as on-demand testing that will help shield them from market fluctuations.

On-demand testing is suitable for the following types of testing scenarios:

- Fractional tests (e.g., performance, security, usability and browser compatibility testing).
- Complex infrastructure requirements (e.g., device and mobile testing).
- Niche testing skill requirements (e.g., acceptance, last-mile, security and mobile testing).

Organizations can partner with an experienced service provider that can manage end-to-end testing requirements and deliver a high level of quality.

Undoubtedly, cost savings is the key to selecting a service provider; however, other aspects play a major role in determining the effectiveness of the partnership. Partners must own a large pool of test assets, offer the requisite test automation expertise, enable data security, automated backup and recovery, and allow the choice of either discrete or bundled services.

To effectively transition to an on-demand testing model, organizations should partner with a service provider that can help them reap the full benefits of on-demand services on a sustainable basis. As the use of on-demand testing services becomes a key imperative, proactive movers stand to gain a competitive edge over their less aggressive peers.

Footnotes

[1] "Growth Market: Software-Testing," Pierre Audoin Consultants and SQS Software Quality Systems, June 2011.

[2] The Sarbanes-Oxley Act of 2002 is a U.S. law, enacted in response to corporate and accounting scandals. It holds the CEO and CFO liable for accuracy and completeness of financial reports.

[3] Cost benefits depend on the current level of virtualization and test automation, as well as application compatibility with cloud technologies.

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