



PerformanceLab
Software testing company



TEST AUTOMATION

A solution to save time
and money on testing





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Modern business is inconceivable without the continuous improvement of products and associated information systems. The speed at which software products are coming to market is rising. As a result, less and less time is allocated to testing. But the number of tests is only growing. All of this is pushing people to find new solutions.

Quite a lot of testing is dedicated to regression testing, i.e. verifying that existing functionality still works. This type of testing is generally longer and more labor-intensive, so its quality often suffers due to mistakes made by testers. Automation stabilizes regression testing quality and significantly reduces the time required, thus freeing the team's resources to perform more complex tests.

Business advantages

Moving from manual to automated tests can cut testing time by a factor of 5-10



Test automation lets organizations accelerate testing, cut costs, and increase product quality. This is achieved by solving two key challenges.

Challenge No. 1: On the one hand, the speed and quality of testing must increase, but on the other hand, costs must be reduced.

Time limitations do not have the best impact on regression testing quality. Testers are forced to reduce the number of tests per iteration, and they frequently make mistakes because of deadline pressure.

Moving from manual to automated tests using special tools can cut testing time by a factor of 5-10. Significantly, automated tests can be run any time of the day or night.

Increasing testing speed yields many advantages:

- There is no longer a need to sacrifice the number of regression tests when time is limited.
- Tests can be run more often, resulting in bugs being found at earlier stages of development.
- Products make it to market faster.

Switching to automated testing can significantly increase your test coverage (the number of test

cases with different data) and thus increase testing quality.

Finally, by reducing the quantity of manual tests, the total cost of each iteration of regression testing decreases.

Challenge No. 2: High costs to update automated tests after changes are made to the software being tested.

Some organizations have seen all the advantages of test automation vanish after developing a new version of their software. Using a half-baked automation strategy to update automated tests cases may prove to be extremely labor-intensive, and the return on the investments in automation does not live up to expectations.

A well-planned test automation strategy will help solve the problem of adapting tests to changes in the system being tested. Formulating a strategy starts with defining objectives: Do you need to increase testing speed in order to reduce the product's time to market? Or do you want to run more tests in the allotted time? Maybe both?

Performance Lab offers a highly-customizable proprietary test automation solution with broad test management capabilities. The solution lets you separate the logic

Our test automation service lets clients focus on doing more important work



for test execution from the tests' technical implementation.

Performance Lab provides its clients with an interface to configure test automation settings. This

lets them easily and independently configure the solution for different test environments or new test data. Testing will keep pace with changes to applications.

Performance Lab's solution

Our test automation services help clients achieve the following results:

- Test more often. For example, you can run automated tests after every code change.
- Test more reliably. Automated tests eliminate the human factor, so tests are always run in exactly the same way.
- Start testing earlier. Automated tests can be run on different targets and environments, e.g. in the development environment as part of continuous integration.
- Test more effectively. By automating regression testing, you will be able to limit manually testing to new or modified functionality.
- Control the cost of testing. After automating regression tests you will have more flexibility in managing the load on the team performing manual tests.

Performance Lab offers clients two engagement models: project-based and service-based. Our deliverable to customers in a project-based relationship is a customized test automation framework. Our service-based option frees customers from the need to perform any testing.

A test automation project will help:

- Define the objectives, scope, and strategy for test automation.
- Integrate test automation into the software life cycle.

- Configure and deploy a test automation framework.
- Choose automation tools, develop automated tests, and arrange for system maintenance.

Performance Lab offers the best tools for the job, but we also consider the ability to use customers' existing automation resources. Customers receive a finished and fully configured solution along with detailed documentation, which helps them to be able to develop and update the solution on their own.

Our **test automation service** helps clients free their employees from performing work to configure and maintain the test automation system. This lets them focus on doing more important work. All automation work is performed by engineers from Performance Lab's Center of Excellence for Test Automation in accordance with the approved objectives, scope, and strategy. Automated tests are started precisely when the customer needs them to be.

Getting started with test automation

If you've decided to hire us for test automation work, then we propose the following 4-stage plan



If you've decided to hire us for test automation work, then we propose the following 4-stage plan, regardless of whether you want the project-based or service-based option.

Stage 1: Initiation

The purpose of this stage is to define the scope of the test automation. Performance Lab analyzes existing test cases and software functionality to identify the best areas for and amount of automation.

This stage also includes development of a test automation strategy, which provides a detailed description of the project's business objectives and plan.

Stage 2: Create a test automation prototype and procedure

In this stage Performance Lab selects tools and prepares a test automation procedure. The document describes in detail the process of deploying the automation and contains a description of the business processes being tested, approach to technical implementation, evaluation criteria, and limitations.

While validating the applicability of a particular tool, we analyze a large number of characteristics, for example, how well user interface elements are recognized. In the end, a prototype is created: sample automated tests that credibly demonstrate that the chosen tools are suitable to achieve the project's objectives.

If needed, we also offer customers a list of suitable tools and a comparative analysis of the tools, based on specified criteria.

Stage 3: Deployment

This stage includes revision and deployment of the test management system, which contains

- the logic for running the automated tests,
- the automated tests themselves (source code and test data sets),
- and additional components (modules for starting tests, exception handling, logging, etc.).

The system's off-the-shelf components substantially reduce the time and cost of test automation.

An exception handling module analyzes the state of the system being tested, preventing engineers from receiving false errors when the system simply needs more time to respond.

An error logging module, also developed by Performance Lab, distinguishes discovered defects based on their source, significantly simplifying the customer's work to fix them.

To ensure the guaranteed code quality of the automated tests, we use our patented development environment, which lets us perform multilevel code verification. Each line of code is currently run through 20 different checks and a heuristic scan, analyzed for troublesome constructs.

Stage 4: Maintenance

In this stage, changes to the tested software are analyzed in order to keep the test automation system up-to-date.

Performance Lab offers services to set up a maintenance process, which may include both comprehensive support of the test automation system as well as training the customer's employees.

Why Performance Lab?

Performance Lab has many years of experience in automating the testing of a wide variety of software products. We have automated testing of the very first text-based terminal interfaces that are still encountered in some banking apps. As for today's popular web apps, Performance Lab tests not only the functionality but also the performance of the client side, and makes recommendations on how to improve it.

Besides our services to set up well-known tools, such as Test-Complete, Selenium, QTP, RFT, SoapUI, Ranorex and others, our Center of Excellence develops tailor-made solutions for testing complex multi-component systems.

When working with us you can be certain that

- Testing quality will improve substantially.
- The time required for regression testing will fall by a factor of 5-10.
- Test coverage will increase significantly (thanks to running the same automated tests in different environments, operating systems, browsers, and apps).
- We will save considerable resources (by using the ready-made components in our test management system).
- Your product's time to market will shrink significantly (thanks to accelerating the find/fix/retest bug life cycle).



**We understand testing
and know
how to automate it**

Case Study: Top-10 bank

One of this customer's most critical business processes is issuing personal loans. The IT architecture upon which this process is based is a collection of interrelated information systems that support the process, from the submission of a credit application to the making of a decision on the application and the issuance of money to the customer.

Changes to the IT systems in the loan processing system affect the bank's other systems. Accordingly, to the extent possible, the bank needed to reduce the time required to test the loan processing system.

The bank's problem was that different IT system components that required testing were developed using different technologies, and there is no tool on the market that is equally suited to testing them all.

Performance Lab's solution

Our project included the creation of a unified test automation system for the entire lending process.

A business-logic module made it possible to store the test execution logic separately from the tests' technical implementation. This module lets bank employees change existing tests and add new tests, without the need for special technical skills.

At a technical level, the system uses several tools, such as TestComplete and SQA Suite. The system launches a particular tool based on the technology employed at each step of the testing.

One of the project's tasks was for Performance Lab engineers to develop a TestComplete extension that would allow it to be used to test Oracle Service Bus technology.

Customer benefits

Thanks to the automation of more than 200 tests, the time required for regression testing the lending business processes shrank from two days to two hours.

The project allowed the bank to raise the overall effectiveness of the testing process. For example, the test automation module responsible for preparing test data found application in many other testing projects.

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About Performance Lab

PERFORMANCE LAB is global company specializing in software testing and quality assurance. We are among the world's top-30 QA companies.

Since 2008 we have worked in the financial and government sectors, retail, and telecommunications, helping our clients achieve substantially higher quality in their mission-critical IT systems. In 2014 our annual sales exceeded 10 million dollars.

Performance Lab has been recognized in the field of IT and telecommunications by the "Indeks Liderstva 2013" [Leadership Index 2013] russian employer ranking. This means that more than 300 of our employees in Moscow and Izhevsk gave us a high rating. We are proud to be one this list with companies such as IBM, Microsoft, Yandex, and MTS.

We perform the large number independent testing projects worldwide, thanks to our huge Center of Excellence, which is always growing.

Our customers are industry leaders, such as Illumina, Splunk, MTS, VimpelCom, VTB and VTB-24, Alfa-Bank, Raiffeisenbank, Leto Bank, Rosbank, X5 Retail Group, M-Video, El Dorado, Lenta, and major government organizations, e.g. Pension Fund of the Russian Federation, Moscow City IT Department, and many other organizations.



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