Prolifics®

PERFORMANCE TESTING AND ENGINEERING SERVICES
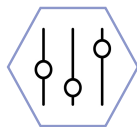
ENSURE YOUR CRITICAL APPLICATIONS CAN SUPPORT YOUR BUSINESS

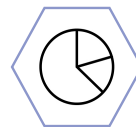## END-TO-END SOLUTIONS

TESTING
Accurately simulate load to find breaking points

PERFORMANCE
Ensure applications can cope with expected user levels at normal and peak load

FLEXIBILITY
The best tool for the job is paired with each project to reach the targeted outcome

METHODOLOGY
Comprehensive five-step approach prepares your business for success

Application Testing: A Necessity

Having confidence in the functional behavior of an application or website is vital—yet proving your systems work functionally is only half the battle. In today's competitive digital space, websites and mobile apps are your shop window, and user experience is everything. How do you know that your systems can support the intended number of users, especially at go-live, or after marketing activity?

Our performance testing services can identify how your applications perform under load prior to going live. The performance testing of any new or changed applications that are subject to large user numbers is vital in today's business and consumer-facing environments. It is difficult to be sure that systems will support anticipated levels of users without carrying out testing that takes in all variables and accurately simulates application usage while measuring response times and system resources.

Prolifics offers an expert performance testing service to accurately simulate applications and find their breaking points. This can be achieved through a range of enterprise testing solutions or open-source tools, depending on the nature of your requirements and technical architecture.

The Benefits of Performance Testing

The ramifications of failed applications can be lasting and damaging. Organisations recognise the pivotal role performance testing plays in the launch of applications with high transactional value, and there are now several trusted options to successfully perform this task with varying budgets. Some of the key benefits and objectives of performance testing are:

► Ensuring that applications can cope with expected user levels at normal and peak load while keeping response times within acceptable levels.

► Ensuring that applications can cater to extended load (soak) and sudden increases in load (spikes) during normal operation.

► Ensuring that application performance is not affected when being accessed by a range of different configurations—browsers, operating systems, mobile devices, etc.

Increasingly, we are working with clients who are keen to integrate testing into software development as part of agile deployments and regular releases.

This approach drives an ongoing level of confidence, linking agile development to continuous testing in the same way as functional regression testing. A subset of performance tests is commonly identified against the key functionality of an evolving application.

This is added to during subsequent sprints, so that over time, coverage expands with the application and any performance problems are identified at the source.

Tests are run automatically alongside functional tests using continuous integration servers. Prolifics has particular expertise in designing and delivering performance test suites based on the JMeter open-source platform and integrating with Jenkins. Depending on the availability of a clone of the production environment, these tests can be low volume or full scale. Here we can assess the true performance of an application that is twinned with a realistic infrastructure.

By running these tests regularly, confidence in application performance can be maintained throughout the development process. This largely reduces the likelihood of application rework further down the line, when inevitable performance problems are discovered.

Performance Testing Tools

Prolifics excels in open-source performance testing solutions. Our team has significant expertise in using Apache JMeter on a wide range of projects for many different customers. In addition to our confidence with open-source solutions, we are partnered with leading enterprise tool vendors, including IBM RPT, HP Enterprise, Radview, and SOASTA. Additionally, we offer JMeter training and workshops, which bolster skills transfer through our engagements and enhance ROI as test assets are handed over and integrated into projects.

Performance testing can be performed either onsite or remotely, or, as is most common, using a combination of the two. Initial scoping on client applications ensures we recommend the best tools for the job, which are supported by our own custom injectors and reporting server from the cloud. Using cloud infrastructure helps ensure we keep our costs low, benefiting our clients.

Where cloud-based injectors are not suitable for a client (i.e. security concerns or on-premise systems), we are able to utilise machines on customer networks so the whole test infrastructure is kept within their private infrastructure. Prolifics has an established performance testing practice that is staffed by experts who are deeply experienced in performance engineering and testing.

As a testing practice that is not tied to any one testing tool provider, we offer our clients an impartial service that pairs the best tool for each project with the client's desired outcomes.

Our standardised methodology for performance testing includes questionnaires for information gathering, coding standards for scripts, and structured templates for plans and reports. This allows our consultants to deliver each engagement to universally high standards.

Process Overview

Prolifics' dedicated performance testing team has a broad base of skills and experience with leading technologies. This can be deployed across either web or client servers, small or large-scale systems, and internally or externally facing systems. We have carried out performance testing for clients in a range of industries, including financial services, non-profit, telecommunications, media, legal, and government.

Step 1: Plan

The first stage of a performance test engagement is to document a comprehensive test plan, detailing the scope of testing, transaction details and frequency, the number of users, transaction times, assumptions made, load generation environment, testing objectives, entry and exit criteria, test data, reporting structure and frequency, defect management, schedule, and contact details for all personnel on the project.

Step 2: Build

Once the plan is agreed, user journeys can then be recorded through the application under test using the selected tool. Session variables need to be correlated to ensure valid activity is simulated and data items are parameterised in order to allow the entry of different data for each user journey through the system. Doing so maximises the realism of the simulation. User journeys are then grouped together to form scenarios to measure the expected use of the system.

Step 3: Environment

Server monitors are put in place and data is populated in the target database to realistic levels. Once complete, dry runs are carried out using the generated scenarios to ensure all elements of the test are working before proceeding to the next step.

Step 4: Execute

The tests that were laid out in the planning stage are run. This is likely to include normal load, peak load, soak, and stress tests. Typical problems at the unit level are identified, such as deadlock detection, memory leaks, query optimisation, architecture issues, etc. The team ensures that API response time meets the associated e2e SLA requirements.

Step 5: Analysis and Reporting

The final stage in the process is analyzing the results, including transaction times, server resources, and network and database statistics, to provide a final report. Note that interim test results are also normally provided after each test run, in order for any bottlenecks or defects to be fixed and for the application to be fine-tuned.

Contact us at uktesting@prolifics.com to schedule your load and performance testing services.

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