



# Next-generation performance tests

– how to predict system behavior more accurately and effectively prevent breakdowns and unavailability

REMEK  
TEST DEVELOPMENT ENGINEER

Imagine that your new system has just been launched. More and more customers use your application, the number of registered users and sales, but also the consumption of network resources is growing. Customers start having difficulty using the system, and the pages are loading slower and slower. Negative comments appear on your social media profile. You're wondering why the system is overloaded. After all,

before the implementation, performance tests were carried out and no problems were shown.

Such situations prove that typical performance tests are not enough. A completely new, flexible approach to testing, modern methodologies and reliable tools are needed. In short – next-generation performance tests.

## Sii revolutionizes the performance testing process

To meet the market demand, Sii has developed a testing approach that takes system performance to a whole new level. The solution is based on three solid foundations:

- **Tools** – our tools guarantee success regardless of the solution tested, development method, technology stack, organization's size and financial resources.
- **Process** – we take care to ensure accuracy and independence in finding problems and preventing them, remembering that today systems can scale practically without a break, and the technologies used can be dovetailed or even interrelated.
- **Experience** – our experts have built their experience over the years, working for almost every sector and testing all popular technologies.



MATEUSZ  
TEST & ANALYSIS ENGINEER

# What was key for us when developing the next-generation testing solution?

## ✔ Innovative approach to testing

Investing in innovation means that performance tests are no longer tests that impede implementations, being carried out too late, at the final project stages. Performance tests can, or even should be carried out at every stage of software development, in every test environment and at every release, and system performance monitored all the time, also in production environments.

## ✔ Immediate availability of test results

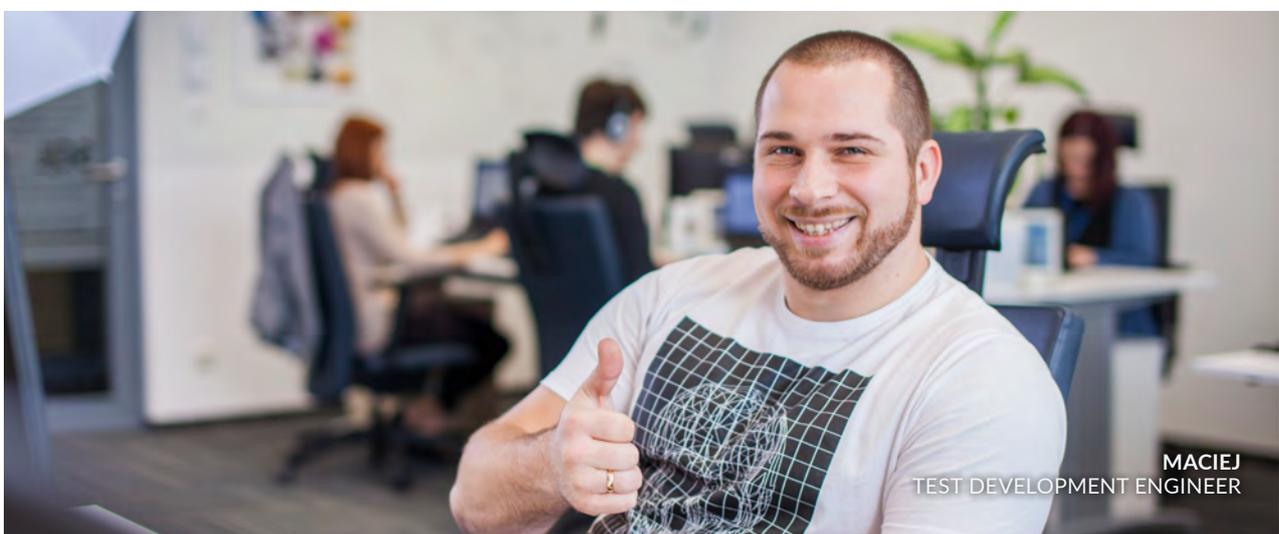
Typically, performance tests consist of several independent phases: preparation, execution and report. As a result, a report indicating potential problems or performance issues is available even a few days after testing. In the modern world, there is no time for this – tests should be prepared and performed much earlier, and the results should be obtained immediately.

## ✔ Flexible approach to all projects and development processes

Performance tests should be tailored to the specificity of each project and team, at the same time supporting every technology, but in a way that does not require continuous changes in testing tools and processes.

## ✔ One solution supporting all technologies

At present, the dynamics of development are so great that closing your mind to certain technologies can be risky. Therefore, tools supporting the performance testing process cannot be matched to the tested technology on a case-by-case basis.



Taking these aspects into account, Sii has developed a platform that:

- is regularly developed and offers more and more possibilities,
  - allows you to test any popular technology,
  - makes it possible to monitor the solution during tests, without the need to involve additional people,
- tracks performance problems on its own – when they occur, when they end and where they originate,
  - is very simple to configure and offers almost unlimited possibilities for integration with tools supporting the production and testing process.

## What next-generation performance tests look like at Sii

Sii works in close collaboration with leaders offering highly efficient solutions supporting performance testing – Tricentis, Dynatrace and Microsoft. Using state-of-the-art tools, it has become possible not

only to solve the key problems faced by companies carrying out performance tests but also to introduce a completely new quality standard.



# Why we use Tricentis NeoLoad

## Technology support

One of the key problems in the case of performance testing is the need to constantly look for tools supporting the tests of newer and newer technologies in which applications are built. The challenge is to find the tool itself, to verify its compliance with security, team collaboration and reporting requirements, but also to learn a new programming language.

Each of these problems is solved by NeoLoad, which supports all modern technologies, whether we are talking about websites, online stores, mobile applications, VOD, IoT, WebSocket, SAP, Flex or Citrix technologies.

## Development process support

Another challenge, particularly noticeable in agile organizations, is the enormous diversity and autonomy of teams, which have a great deal of freedom in choosing technologies or tools. As a result, each team uses development microprocesses that fit into the general process, but at the same time differ in terms of tools, among others.

NeoLoad integrates with most of the tools supporting the development process, and in addition, has an open API that allows you to build your own integration. NeoLoad also creates a testing platform in which each team member has the opportunity to work in their own way – from designing and executing tests to exchanging knowledge, reports, performance requirements or even test scripts.

## License sharing

NeoLoad allows sharing licenses, at the same time making it possible for multiple teams to perform automated tests and work simultaneously, without having to buy separate licenses for each of them.

## Mapping the actual use of the system

The tested application behaves quite differently when we connect to the network using an optical fiber, and differently when we use the mobile network on a train. NeoLoad allows you to simulate a specific type of device, but also the quality and type of network connection, which helps to map the real use and behavior of the application.

## Universality and comprehensiveness

NeoLoad can be used in any organization, regardless of their activity type, technologies or processes. It is not just a testing tool, but rather a comprehensive solution that allows you to prepare tests, plan and perform them and collect requirements. Also, it facilitates team collaboration and enables integration with tools supporting their work.

The latest version of Neoload proves effective in next-generation performance tests because it:

- supports the DevOps methodology by working with the code repository, allowing multiple team members to work simultaneously, e.g. on scripts, requirements or SLAs,
- allows you to start tests automatically in conjunction with the software development process,
- gives the opportunity to prepare tests using the „Code-less“ and „Test as a Code“ methods, thanks

to which everyone can prepare tests according to their preferences,

- enables using ready-made automated functional tests to perform performance tests,
- broadly covers technologies which it is able to test without the need for using add-ons and third-party tools.

## Why we use Dynatrace

### Identification of the reasons for the application's behavior

When talking about next-generation performance tests, you should not forget about the tools that allow the determination of the reasons for specific behavior of systems under a given load. Dynatrace, which enables fully automatic instrumentation, technology recognition and monitoring of the behavior of individual application components, is perfectly suited for this role. The Dynatrace agent tracks every user action at every stage, from sending a request to receiving a response. In addition, data is not sampled or averaged, so we can be sure that it is complete.

Dynatrace supports monitoring at the infrastructure level, collecting statistics on both applications and microservices. It checks the system for vulnerabilities, measures user experience and provides data for business analytics. It also supports monitoring of monolithic applications, as well as multi-layer and distributed systems, being compatible with more than 500 technologies. It is highly effective in cloud environments, working with all key cloud service providers.

### Access to data

The full data package collected by Dynatrace is available right away, properly grouped and ready for analysis. Collected metrics, logs and information about the environment are stored and displayed in one place. There is also a possibility to build your own views, which thanks to the creators is intuitive and does not require technical skills.

### Artificial intelligence support

When starting the agent on the server, the systems fall into the hands of Davis – artificial intelligence which learns the typical operation and behavior of the application and monitors it for anomalies. Thanks to this, we can be sure that even if something escapes our attention, Dynatrace will detect the problem and indicate the cause of its occurrence.

## Why we use Microsoft Azure

### Testing from many places in the world

Microsoft Azure delivers cloud services from over 70 locations worldwide and offers unlimited scaling possibilities. The tool allows you to freely and flexibly perform tests from anywhere, at the same time enabling integration with the development

process and automation of the testing environment preparation. What is important – it is also compatible with NeoLoad and Dynatrace. With Microsoft Azure, you can quickly prepare an environment generating almost unlimited test traffic from a selected location.

## Full support of performance tests offered by Sii

The combination of well-chosen tools of the highest quality and many years of experience of Sii experts makes it possible to raise tests far above their standard form, enabling continuous testing of the

developed product, as well as monitoring and scaling of the tests. Thanks to this, we are able to predict system behavior even more accurately and, as a result, effectively prevent breakdowns and unavailability.

Sii offers full support of the process, including:



**new approach  
implementation plan**



**dedicated training conducted  
by specialists**



**tools and assistance  
in their integration**



**ongoing support during  
execution and analysis of  
performance issues**

Would you like to learn how next-generation performance tests can revolutionize your organization's testing processes?

**Arrange a consultation with our expert.**

Arrange a consultation

With 5 000 specialists, Sii is the largest technology consulting, digital transformation, BPO and engineering services vendor in Poland. Sii experts carry out projects for leading companies operating in the automotive, banking and financial, hi-tech, healthcare, retail, logistics and utilities sectors. Sii Poland has 14 offices in Warsaw, Gdansk, Wroclaw, Poznan, Cracow, Lodz, Lublin, Katowice, Rzeszow, Bydgoszcz, Czestochowa, Pila, Bialystok and Gliwice. More information about the company: [www.sii.pl/en](http://www.sii.pl/en)