

**Using load testing  
to meet  
strategic challenges**

a CIO White Paper  
from



**Original Software**

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## Why think about load testing?



When organisations open their business-critical applications up to internal or external users, it is critically important to guarantee that the applications they are using have been thoroughly tested.

Functional and regression testing is an essential part of the software validation process. Performed properly, this will prove whether or not a particular application works in isolation. But this is only half of the story.

In the real world it is vital to know how business-critical applications will perform when large numbers of users are working simultaneously. This will help to answer vital questions:

- **Unmanageable system load:** will your critical applications place unmanageable overload on systems resources when used en masse?
- **Unexpected/unnecessary load:** will your critical applications place unexpected or unnecessary load on the system when used in multiple instances?
- **Seasonal peaks:** if your business has seasonal peaks, will your systems continue to perform acceptably with the additional temporary load?
- **Structural change in the business:** if your business is going through structural change (eg merger or acquisition), will the system cope with the additional users?
- **Buying or upgrading hardware:** if you are buying or upgrading hardware, will the new processor capacity be able to meet anticipated demand?
- **Hardware costs:** ...and if not, what will the additional - unanticipated - hardware cost implications be?

Failure to address these issues adequately can jeopardise critical internal applications or customer-facing external applications when they go live. Releasing an application and not knowing the impact it will have on your infrastructure is a dangerous and unnecessary risk. This can mean:

- Infrastructure failures – and higher costs
- Loss of confidence in business-critical applications
- Loss of confidence in existing or incoming hardware
- Increased manpower costs
- Productivity compromises
- Implications for corporate compliance

**Downtime and slow performance caused by unmanageable load will irritate users and affect productivity – but it will drive away impatient customers or potential customers.**

**There are real bottom-line implications in both.**

**Effective load testing will highlight response time and record lock issues before an application goes into production, giving you the metrics to understand how systems and applications will perform under peak stress conditions**

**...safeguarding your organisation's image and reducing risk.**



Load testing complements functional testing by loading an application to look for breaking points or performance bottlenecks. It enables IT departments to measure and analyse the performance, scalability and reliability of mission-critical applications.

But an organisation has to test its system against real-life scenarios to produce practical and worthwhile results. Generally, load testing tools simply place artificial load on various points of the system at specific moments in time. But this just gives a 'snapshot' view of the system under stress, rather than the whole picture.

'Real-life' load testing involves simulating the actions of actual users. Companies need to simulate multiple users working with different parts of the application under test, entering different data, at what might be considered 'normal' data entry speeds – and simultaneously.

Metrics can then show clearly how the system responds as the levels of usage fluctuate, so you can decide whether or not this is within acceptable parameters. Ideally there should also be simulations of additional processes running in the background, creating additional load.

This will help you to decide whether the hardware resources are adequate, whether the application is running unnecessarily heavily on resource, at what point the load begins to impact system performance seriously. Analysis of the metrics can help your team pinpoint exactly where in the application any bottlenecks are occurring

Not only does this create an opportunity to fine-tune applications and system performance before exposure to the wider world. By building automated load testing into your organisation's regular testing processes, your team can run load tests on an application at any point during the development cycle. This means that potential problems are found faster.

And quite simply, the faster a problem is detected and fixed, the lower the cost to your organisation. Downtime and rework costs rise exponentially as the process moves forwards from development, through QA and into production.

## **The real-world solution – from Original Software**

To address these issues, Original Software has developed TestLoad - the only iSeries-specific automated load testing solution. Rather than placing artificial load on the network, it simulates actual system performance, monitoring and capturing Batch activity, server jobs and green-screen activity.

This means that you can create specific load test scenarios that are truly representative of real world activity, as opposed to simply capturing network traffic for a point in time, which may or may not be representative of the load you are trying to represent.

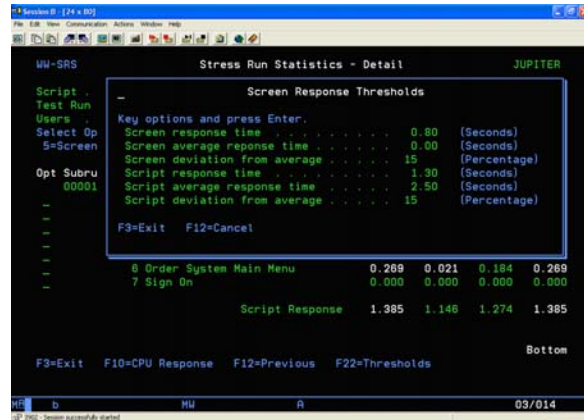
The TestLoad bundle includes services to help you to define your load testing requirement, set up and maintain your load testing 'pack', and deliver results that will help you determine the nature and scale of any hardware or software shortcomings.

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# TestLoad

## Simulating the real world

- The only solution that runs natively on an iSeries
- Batch, server and green-screen activity all captured
- Complete response time analysis
- Integration with TestBench, the world's leading iSeries testing suite
- Single-project and ongoing 'best business practice' options available



Setting screen response thresholds

## Multiple versions of different test scripts

TestLoad is designed to deliver the most lifelike load testing possible with an iSeries. It synchronises, launches and monitors hundreds of virtual users concurrently, running multiple versions of different scripts to simulate how each might use different parts of the application, carrying out a range of different transactions, and entering different data. It can even create artificial background load as if other large, unrelated jobs were also running.

- Simulation of hundreds of virtual users
- Simulation of a range of simultaneous transaction types
- Variable data, for a range of different concurrent transactions
- Simulation of large, unrelated background loads for more accurate results
- Screen response thresholds, preset by users
- 'Think-time' delay built in for different applications types, to simulate real-life usage
- Detailed response time reports for individual tasks
- Reporting on highs, lows and averages for groups of tasks
- Deviation percentage from average across user load
- Capturing and monitoring of Batch activity, server jobs and green-screen activity

## Standalone or integrated modes

TestLoad will operate as a standalone module and deliver the functionality listed above. But it will operate most powerfully when it runs in integrated mode with the TestBench suite – the global leader in automated testing for the iSeries.

This gives it access to all of the complementary functionality within TestBench, including: data extraction, automated test case preparation, establishment of a library of reusable test cases, environment protection, data rules definition, file compare, full reporting facilities, and audit-ready reporting.

See below for further details.

## The complete load testing solution

TestLoad comes with consultancy and services included in the package price. This is intended to ensure that you can create the most relevant and realistic set of load tests possible, to produce the best possible simulation of the live environment. This will include:

- Establishing the objectives of load testing
- Analysis of the hardware/software that needs to be checked
- Analysis of numbers and types of users and likely user activities
- Appropriate allocation of virtual users to tasks
- Setting acceptable/unacceptable performance thresholds
- Creating/checking relevant test scripts and data, and variable data sets
- Relating test results to the initial objectives, and looking for process improvements

## Ongoing best practice

We know that Load Testing can often be a short term project rather than an ongoing activity. Therefore, as well as offering product purchase options for ongoing best business practice, we can let you take advantage of the TestLoad rental program to fulfil your load testing requirements for a specific project.

**In short, TestLoad will help you create the most realistic scenarios for load testing, enhancing the quality of your key applications testing:**

- Establish required processor capacity for acceptable performance
- Precisely measure systems resilience under peak stress conditions
- Reduce the costs and risks of applications or infrastructure failure
- Reduce downtime costs and productivity losses
- Improve systems efficiency and streamline costs
- Establish best business practice - in accordance with corporate compliance measures

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## Contact Original Software

To find out how real-world load testing can benefit your organisation, contact Original Software for details of product webinars, demonstrations and evaluations:

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Original Software's key products are:

## TestDrive-Gold

### The world's premier PC application testing solution

TestDrive-Gold brings you test automation that really works. It consists of a package of the world's highest quality, most penetrative, yet easy to use test automation technology, which is designed to test just about any GUI or browser application 'out-of-the-box'. The focus is on usability, accessibility and reusability, thanks to:

- **Code-free testing**, so no scripting language to learn
- **Self-healing scripts**, to minimise time 'wasted' on script maintenance
- Advanced **script control** technology, so capability is not compromised by ease of use
- **Central storage** of testing resources on a range of database types.

So with TestDrive-Gold, users are able to spend less time on testing, but test more. And the numbers of defects and the time spent fixing them is greatly reduced. So higher quality applications are engineered in shorter timescales and the whole development process becomes more productive.

## TestPlan

### Planning and test capability in a single solution - for Oracle, Microsoft SQL Server and IBM DB2

TestPlan is far more than just a test planning and defect tracking tool. It enables users to set up, manage and monitor all activity relating to testing plans. TestPlan offers the ability to control major elements of the testing process from within a test plan.

With TestPlan, testers can append documents, screenshots and data to a defect, to help developers understand the problem better. And, integration with other test modules from Original Software means test scripts, data cases and other test components can be launched automatically.

TestPlan reporting is designed with corporate compliance in mind, so you can easily document and prove your testing processes.

## TestBench for iSeries

### Complete automated testing for the IBM iSeries

The established global leader for automated testing on the IBM iSeries. Fully integrated database, screen and report test automation, designed specifically for IBM iSeries systems:

- Batch, interactive and service program coverage
- Advanced test planning, data creation and management
- Recording, playback and verification of scripts – Native, 5250, GUI & Web browser
- **Lotus Notes** testing - the only solution designed specifically to test Lotus Notes applications
- TestLoad, the only **iSeries-specific load testing** solution
- **Complete integration** with TestDrive-Gold and TestPlan.
- Also integrates with all the leading iSeries **change management** solutions.
- Full test results analysis and audit-ready reporting.



## Original Software

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