

CASE STUDY

Web Performance Testing for Brandeis University

Company Description

Trigent helped Brandeis University be prepared with adequate IT infrastructure to provide a great user experience for special registration events.

Project Objective

Brandeis offers special educational travel program that is promoted through multi-channel ad campaigns. The registration for these programs is limited and is open for a very short duration. There is a race for registration and the website experiences extremely high traffic loads during these events.

During the 2010 registration period, nearly 23,000 users accessed the web application in about 2 hours and caused the application to slow down and finally crash, presenting many visitors “site unavailable” error.

In 2011, with increased popularity of the program, it was anticipated that more than 50,000 users would access the application within the similar time frame. Brandeis needed to ensure that the application and the server infrastructure would handle the anticipated web traffic and avoid crashes that were experienced in the past.

Brandeis also wanted to measure the application response time under differing loads in an effort to meet certain user experience goals. They also wanted to measure the peak load beyond which the site may fail.

Customer Challenges

Brandeis had implemented a number of application changes leading up to the registration event and had a very short window to conduct the performance tests. Within 2 weeks Trigent had to prepare and execute test cases that would identify and remove performance issues.

Trigent's Solution

Trigent prepared an optimal test suite within 4 business days. Trigent performed 10 rounds of test execution, each identifying a number of issues. Once the issues were resolved, testing was repeated to ensure and record the improved results.

Trigent used Grinder, an open source tool, ideal choice for projects of this kind. The tool determines whether a target application, under heavy loads, performs as

Solution Highlights

- ✓ Simulate traffic from 100,000 users
- ✓ Tests to identify bottlenecks in all system layers
- ✓ Realistic traffic generation from multiple Geo locations
- ✓ Easily configurable traffic & operation mix to assess different scenarios

CASE STUDY

specified against defined response criteria. Trigent used cloud infrastructure from Amazon to simulate realistic web user traffic. The team designed scripts that simulated varying scenarios that were predicted. Trigent helped Brandeis identify & remove bottlenecks, and make performance improvements to the system.

The changes were then verified by Trigent to ensure they resulted in measurable improvements. Trigent simulated realistic traffic pattern by generating traffic from 8 different geo locations and number of different IP pools. A simple but effective model was used to predict load over the launch period and for a specific time period after launch.

Performance Test Highlights included:

- ❑ Optimization of the test tool driver configuration
- ❑ Optimal test cases that allows multiple cycles of execution
- ❑ Test cases that exercised all layers of the system - network, web server, application and database
- ❑ Working with the client team to identify optimal hardware changes to support the anticipated user traffic
- ❑ Run repeatable, well-defined tests, identifying errors, making configuration changes
- ❑ Identify both functional and system errors due to high traffic
- ❑ Recommend desirable performance levels for response time, page load time, etc.

Benefits to the Customer

Trigent helped Brandeis University be prepared with optimal server infrastructure to support the anticipated high user load for the event. Some of the benefits included:

- ❑ Identification of bottlenecks in application to help remove them in preparation for the event
- ❑ Creation of test suites that can be used to measure the performance levels as needed in future
- ❑ Ensuring high throughput and performance by making suitable infrastructure and configuration changes
- ❑ Keeping the test preparation and execution costs low by using open source software – “The Grinder”, and cloud infrastructure