

University of Bristol - Data Centre Move



BACKGROUND

The University of Bristol wanted to migrate 800 applications from a mix of on-premise and externally hosted infrastructure, to two new data centres to provide redundancy.

The University of Bristol is a red brick research university in England. It is one of the most popular and successful universities in the UK, ranked in the world's top 60 in the QS World University Rankings 2021.

The University wanted to ensure that their infrastructure and business critical applications would continue to function once the migration had completed.

There was a need to carry out both network infrastructure and application performance testing before go-live, to establish whether the network, and the data centre and core applications, would perform in line with business requirements.

MANAGED TESTING SERVICE

Engagement

Throughout the process, we followed our established performance methodology to design an approach for and plan around generating production levels of load on the University's key ERP application.

First of all, our consultants identified a series of user journeys, volumes and test data which together could be used to prove the new infrastructure was capable of supporting the expected level of users.

The approach was agreed, so that detailed test preparation could begin. The ERP application was accessed via a web interface, and our team scripted the tests using LoadRunner Cloud, building a set of real-life scenarios to carry out normal, peak, soak and stress tests.

Prolifics Testing chose to engage Spirent, a close network services partner, to carry out testing on the network infrastructure prior to application performance testing.

Action

After a period of detailed network analysis, Spirent installed network traffic generation and monitoring hardware at various points in the network, including at the data centres, so that its performance could be measured.

A series of targeted network traffic tests were carried out, which were able to prove that the new infrastructure was capable of supporting the levels of expected network traffic.

Resiliency tests were also carried out at the network level, to ensure that traffic was re-directed to the correct end points after failure and that the inbuilt redundancy was configured correctly.

Performance testing

Once complete, performance testing could commence. Using LoadRunner Cloud, the project team was invited to view the tests in real-time, with the ability to see transaction timings and graphs throughout the test. These graphs and models were easily correlated to the network and system resources available.

Our **initial tests** verified that load balancing across the application servers functioned correctly, but that CPU and memory usage were quickly overwhelmed on the database server. The result was that more resources needed to be allocated, before tests were re-run to prove that changes were successful.

The **stress tests** identified the limit of the number of concurrent users / transactions on the application, which fortunately was within the expected limits on the application. This also validated that the performance of the application was better on the new infrastructure.

A series of **failover tests** were then run, a failover test being a simulated failure of one data centre, initiated in the middle of the tests. These tests were able to prove that the network was able to switch over to the alternate route with minimal user interruption.

Having completed the required tests, Prolifics Testing had provided Bristol University with the confidence they needed in their new infrastructure. All results were presented in a consolidated end of test report, which the University was able to take to the Project Board to justify the decision to go live with the changes.



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We have assisted our clients with testing on many different projects, including implementations and upgrades of major COTS applications, including integrations, testing of software developed from scratch, integrated with agile teams, digital transformations, Cloud migrations, and Windows desktop migrations.

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