

CASE STUDY

UTILITIES INDUSTRY

How a leading energy infrastructure business was able to empower its staff thanks to KJR's automated performance testing

Project: Networks GIS Upgrade



KEY OUTCOME 1

Go Live with Confidence that the GIS infrastructure upgrade will not degrade application performance



KEY OUTCOME 2

Improved User Experience by better understanding on how business decisions impact the GIS end user experience



KEY OUTCOME 3

Empowering Staff to make informed decisions on how to optimise the GIS application performance

BACKGROUND

A leading energy infrastructure business in Australia is upgrading their GIS infrastructure. The GIS applications included GSA Lite and ME Web, are built on GE's Smallworld Geospatial Information System (GIS) platform. They provide access to a variety of spatial and non-spatial data from distributed systems across the customer enterprise and enable users to visualise, query, analyse, and generate reports to empower staff to make informed decisions and optimise energy infrastructure management.

WHY KJR WAS ENGAGED

To mitigate the risk of introducing performance degradation from upgrading their GIS system, the customer engaged KJR to develop and execute a set of automated performance tests as part of the GIS upgrade project. This involved creating a set of JMeter automated tests, executing a baseline performance tests on the non-upgraded GIS system to establish metrics for the existing systems and re-executing the same tests on the upgraded GIS system to assess any performance impacts introduced by the upgrade.

CHALLENGE

Creating automated tests for GIS (Geospatial Information System) applications presents unique challenges related to the complex nature of spatial data, caching strategies and calculating quadkeys/rows and columns for identifying the required tiles.

SOLUTION

KJR developed a series of JMeter automated scripts designed to simulate end-users logging in, searching for points of interest, and retrieving relevant tiles within both the GSA and ME Web GIS applications. These scripts incorporated custom Groovy code for calculating Quadkeys and column/row references from longitude and latitude coordinates. This methodology successfully replicated the process of retrieving targeted tiles within the two GIS systems, accurately mirroring real-world scenarios and ensuring accurate performance testing.

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DELIVERABLES

The project deliverables included a set of reusable JMeter automated scripts, a baseline performance test to provide quantitative as-is performance, a set of comparison performance tests to verify the performance of the GIS systems did not degrade after the systems were upgraded, and reports on the test outcomes and recommendations for improving the GIS applications performance.

To ensure the reliability and efficiency of the two GIS systems, KJR carried out a comprehensive suite of performance tests including:

- **Baseline Test:** To establish a quantitative performance benchmark.
- **Comparison Test:** To assess performance impacts from the GIS infrastructure upgrade.
- **Peak Load Test:** To evaluate the GIS systems behaviour under maximum load.
- **Soak/Endurance Test:** To analyse the GIS systems performance over an extended period.

KJR concluded the performance testing with a comprehensive performance test summary report. This report detailed the outcomes of the GIS performance testing and offered valuable insights into the caching strategy and impact of a recent business decision to alter the default search zoom level.

TOOLS & TECHNOLOGIES

JMeter, Groovy Scripting, GSA Lite and ME Web

