PERFORMANCE TESTING

CASE STUDY

India's Leading Broking House

Presented by

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Table of Contents

1.0 Snapshot

1.1 Industry Type

Our Client is one of India's leading Financial Services Groups, with operations that span more than forty different lines of business and subsidiaries.

1.2 Business Challenges

- ✓ The application under test was a newly developed application by a vendor for the client which was to be used for its employees.

- ✓ Application had the features for :
  - Community Portal, Post message, Post pictures, Search members, Travel plan, Check groups and various group sites.

- ✓ The client wanted to test the application. It was found that when the user level increased more than 200 the application response time degraded and the system crashed hence, the business challenge was to simulate and capture response time under various user loads i.e. 100, 200.....500 users.

- ✓ To identify the bottlenecks, validate hardware architecture, simulate environment and predict response times.

- ✓ The business challenges are to perform Capacity Planning, Performance Testing, Performance Monitoring and Hardware Sizing.

1.3 AQM Solution

- ✓ The system architecture was studied & documented.

- ✓ The critical business processes and business transaction were identified in the application.

- ✓ The typical usage patterns were documented.

- ✓ Suggest code level changes at application level and configuration changes at server level.

- ✓ The result sets were compared & analysed to pinpoint the bottlenecks.

1.4 Business Benefits

✓ Performance testing as a process was effectively established.

✓ The response time profile was not up to the mark for certain areas of the application. The same was notified to the Project Management. These areas were then optimized by the development.

✓ Key pointers were given on hardware resource utilization resulting in less utilization.

✓ Viability of the application for current and forecasted business volumes was assessed and established.

✓ Application is running live in the current hardware while the business usage has continued to grow.

✓ Optimization needed at application layer was identified & documented.

✓ Huge upfront infrastructure cost was reduced due to right hardware sizing.

✓ Improved the quality from a user's perspective, by forecasting the load and stress on critical systems for various bandwidths to assure performance, scalability and reliability.

2 Client Overview

Client expected a large number of users to use Intranet application in the future. This application would be slowly shared to various branches across India. Company developed an Intranet Portal with the help of external vendor as per their requirements and was delivered through the intranet portal, based on different access control employee of companies using system credentials. This module is accessible over LAN. The users from various branches can access community portal, share thoughts, post pictures, travel plan etc.

3 Business Challenges

The application performance and scalability is the vital aspects that had to be measured. Hence the job of identifying the bottlenecks and the root cause of them was essential and challenging. Also, the capacity requirements of the application in terms of Hardware and Bandwidth for connectivity were essential parts of this project. The major challenge was to identify the bottlenecks, validate hardware architecture and simulate environment and predict response times.

4   Technology Challenge

The application used LDAP authentication which made it very difficult to automate using standard test automation tools. Applicability of low cost performance testing tools out of the box was not conducive as the results were not structured enough to reflect the performance parameters required to certify the product. Due to varied platforms collection of resource utilization, statistics and performance data through a manual process was a time consuming process. Collation of this data in a proper structured and reportable format was also a tedious and time consuming process.

5   AQM Solution

The team of testers studied the application to gain a complete knowledge of application; the system architecture was studied & documented. The critical business processes and business transactions were identified in the application. The typical usage patterns were documented to simulate the test as close to the real life scenarios as possible. The application usage scenarios were recorded for a single user for the identified transactions. These scenarios were used for injecting load onto the application. The resource profiling at the application server and the database server were done. Captured scripts for the various activities to be used as part of the load injection was identify and enable data pooling for diverse user behaviour. The results gathered were analysed for breakdown in the application response times and were seen in comparison to the resource utilization on the application server and the database server. A second round of performance tests was then run on the application. The two result sets were compared & analysed to pinpoint the bottlenecks. Using the tool, the scripts were recorded and engineered to run for multiple users. Data pools were used to provide unique and actual data for each virtual user, hence emulated a real live like environment for testing. The team tested and engineered each script to run with multiple users. Different scripts were created to simulate different user behaviours and the load was injected into the application at various speeds. Once all the scripts were executed the team captured entire data and did comparative analysis, wherein user response time, application Throughput, Memory utilization, CPU utilization etc. were analysed and reported.

6   Business Benefits

- ✓ At the very first execution the team of testers has found that application cannot stress for 500 VU after analysing root cause and suggesting changes at the application layer and server layer, system can now stress 500 simultaneous users and meets 5 sec average response time for 500 simultaneous users.

- ✓ With Performance test suite, there was early identification of some major application defects and architectural issues and hence reducing cost of change and system cost.

- ✓ Improved the quality from a user's perspective, by forecasting the load and stress on critical systems for various bandwidths to assure performance, scalability and reliability.

7   About AQM

AQM is a quality management specialist with expertise on software quality assurance. Our company includes experts in areas of banking, financial services, insurance, risk and compliance, technology effectiveness, investigations and quality assurance. Our consultants have deep insights on par with the thought leaders of the world. We are more accessible, adept and cost effective than any competitor in delivering value for our clients.