

Design and Implementation of End-to-End Testing Services for a Global Banking Major

Business Impact

- ▶ Performance Testing process standardized across the bank
- ▶ 10-step test automation framework improved upon the efficiency and cost effectiveness of the overall QA process in the bank
- ▶ Pre-empted from additional investments on hardware up gradation hardware and related costs such as AMC
- ▶ Integration testing with third-party applications and exchanges were major value-adds
- ▶ Detailed user-oriented knowledge base for existing technical architectures
- ▶ Efficient and effective process for pre-empting the impact of changes in application behaviour for distributed user-base

Perspective

Rated as the most complete and competitive online banking service provider, the client often sets benchmarks in successfully adopting IT into their business, thus allowing its customers harness the power of technology translating into 'ultimate' online experience. Processing over a million banking transactions every month, anticipating multi-fold growth in their user base they decided to aggressively invest in their online account management functionality making it easier for customers to do business with them.

In addition the technology vulnerabilities posed by online systems prompted the management to offer services that are 100% available and scalable. The company realized that software glitches could hinder service uptime and QoS ultimately undermining consumer confidence. They entered into a strategic partnership with CSS to validate and verify their applications spread across diverse business units, revolving around improving functionality and performance. They believed this would streamline expenses, optimize operations, and improve customer satisfaction.

The Company

The client is one of the largest global financial conglomerates with operations across consumer, corporate, investment banking and insurance. In a highly competitive market, the client enjoys significant presence across most segments of global financial markets with a diversified services portfolio, addressing multiple classes of customers.

Business Challenge

- ▶ Technology environment is very complex arising from its distributed nature, magnitude of operations and very high performance and scale requirements
- ▶ Strategic demands on technology necessitate innovation across all business segments. This lead to constant change and needs management
- ▶ Non-adherence to quality standards has

potential for very adverse consequences

- ▶ The above led them to look a strategic testing partner who could test their applications spread across diverse business units, for functionality, reliability and scalability. This exercise would help them streamline expenses, optimise operations, and improve customer satisfaction

CSS Solutions

Over the past five years CSS has been providing independent QA services to the client, partnering with them on their development and testing initiatives. Over 50 software validation and performance engineering engagements have been executed by CSS for the client. Further, CSS has tested applications used by over 5000 enterprise users, for load, stress, endurance and end-to-end transactions to attain improvements in load bearing capability.

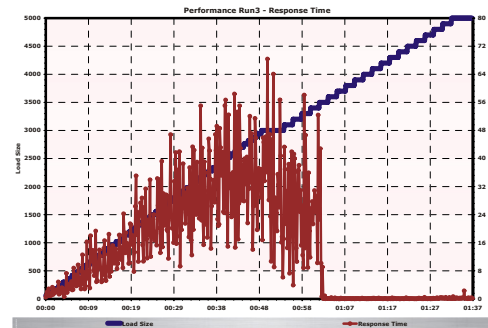
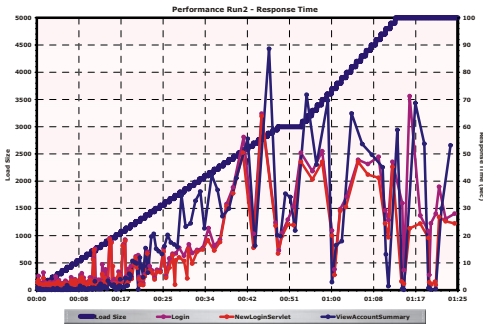
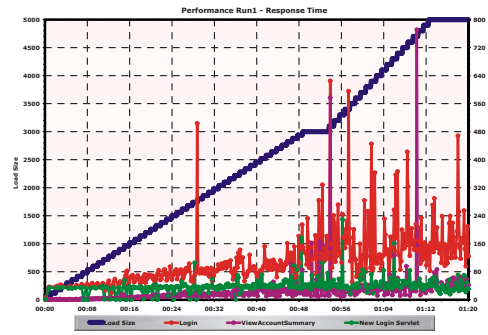
Engagement Snapshot of a Performance Engineering Project

- ▶ The client's portal application and its associated online banking application were expected to handle a user load of 2500 concurrent users. The client was very confident about the application's scalability. However they wanted an independent opinion on its application's performance, pre launch.
- ▶ The initial results obtained after testing the application's performance was shocking. The baseline run scaled only to a level of 20 concurrent users, beyond which the application was clearly unstable.
- ▶ CSS tested the online banking portal for load, stress, endurance and end-to-end transactions to attain greater understanding of the bottlenecks resulting in the scaling the load bearing capacity. A set-up of monitors deployed across all standard application configurations to collect test data for analysis achieved this
- ▶ Mercury's Load Runner was used to simulate virtual users while CSS built a proprietary tool



to critically analyse the database components

- ▶ A strong knowledge transfer process enabled efficient transfer of application knowledge to the test engineers
- ▶ Two test runs were conducted for each module. Parameters such as CPU, memory and network utilization were monitored and measured. At the end of the final run the application scaled to over a 5000-user load, improving significantly upon the initial requirement of 2500 concurrent user load



“We have had a long-standing relationship with CSS and hope to grow this relationship further. Thanks to CSS, we have managed to roll our applications with more confidence and pre-empted performance related problems”

VP, E-Commerce

The following is a brief summary of the process framework that CSS uses for executing testing projects for the client.

End-to-end Testing Lifecycle

