THE CLIENT

The client is a leading Australian multinational financial institution. Headquartered in Sydney, it also has its presence in the U.K., the U.S.A., New Zealand and parts of South-east Asia. With an annual turnover of over AUD 24 Billion, it serves more than 4.5 Million active online customers. The client is focused on retail banking, institutional banking, insurance and funds management.

The client has been voted the ‘Best Australian Bank’ for 3 consecutive years, and has been the number 1 primary lender.

CHALLENGES FACED BY CUSTOMER

The client was facing several challenges ranging from delayed performance testing to backend system dependency. The challenges varied from project to project, and were as follows:

- The client was facing challenges in ensuring its test environment readiness. The test environment had a lot of constrained applications, thereby making multi-vendor development and testing difficult.
- The bank payment hub (BPH) was to be system tested and performance tested, while the interfacing applications were unavailable. Thus, the testing and fine-tuning of the bank payment hub (BPH) was getting delayed.
- The bank had embarked to replace its legacy Foreign Exchange & Money markets platform to Wall Street Systems (WSS FX). Thus, the service integration layer (BSIP) was to be performance tested to ensure that it is able to support and process the additional throughput generated by the new WSS FX system.
- The bank’s payment, net banking systems and the middleware were heavily dependent on the SAP layer for integration and performance testing.

THE ABOVE CHALLENGES LED TO:

- Unmet performance SLAs
- High cost associated with hardware and product license
- Delayed testing
- Defect leakage into production
- High waiting time and high idle time
- Effort wastage in manual stub creation
HCL'S APPROACH & SOLUTION

HCL was already involved in providing performance testing services to the client. HCL further leveraged its expertise in the field of Service Virtualization, performance testing and especially in the usage of CA LISA. Having a vast banking domain knowledge and functional expertise in creating virtual assets for similar other banking clients in the Australian continent, HCL comfortably participated in this assignment and pulled it through successfully. HCL got involved in the client's Service Virtualization Centre of Excellence (COE) and eliminated its bottlenecks by following the below approach:

- **Induction**: HCL studied the ways of working and the process of the Service Virtualization COE in the client organization. HCL also studied the technical dependency and key constraints associated with the main application under test.

- **Strategy Definition**: Based on the results of the study, and also based on the technical feasibility, the best-suited virtualization strategy and method were defined, be it through Live Recording or using Request-Response pairs. Virtualization strategy for the enterprise level adoption was also defined as a part of this phase.

- **Asset creation**: The behaviour and performance characteristics of the constrained applications were captured based on the chosen strategy, and encapsulated into a CA LISA virtual asset.

- **Isolation (Silo mode)**: Firstly, the service integration layer (BSIP) was performance tested in isolation and so was the Wall Street System (WSS FX). Submission of data through injection point was emulated using CA LISA. Any backend calls were virtualized using CA LISA.

- **Integration (End to end)**: After the silo mode testing, the end to end ecosystem of service integration layer (BSIP) with the Wall Street System (WSS FX) was performance tested. Data submission was emulated through CA LISA, and any unavailable component was replaced by CA LISA virtual services.

- **Dependency Elimination**: The SAP was a constrained system, while the payment, net banking and middleware system were dependent on it for integration and performance testing. Using CA LISA, all the major SAP dependencies were eliminated by simulation of backend calls to SAP. These virtual assets were further fine-tuned to scale well for a high load to simulate production issues.

- **Value Adds**: HCL leveraged certain components of its in-house Accelerated Service Virtualization (ASV) Framework, and developed a utility to convert Load Runner scripts to equivalent CA LISA Test scripts. The same framework was leveraged to create a tool to extract Request-Response pairs from the application logs and flat files.

**Service Virtualization Tool & Version**: CA LISA version 5.0.24
**Performance Testing Tools**: HP LoadRunner
**Technological Landscape**: SAP, IBM WebSphere 6.1, Oracle 11g
**Protocol of communication for virtualized components**: SOAP over HTTP(S), RESTful Services, MQ
**Framework**: HCL's in-house customizable Accelerated Service Virtualization (ASV) Framework
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BENEFITS

As a result of HCL’s full-fledged dedicated involvement in the bank’s Service Virtualization COE for more than 4 years, the bank achieved the following benefits:

- AUD 3 Million savings through virtualization of SAP and other constrained components, leading to efficient and effective testing
- 30% effort reduction in environment provisioning and stubbing
- AUD 375,000 savings through early time to market
- Meeting Performance SLA of 100 Transaction Group per Second (TGPS) for the Bank Payment Hub
- Lower environment cost for Non-Functional Testing through elimination of dependency on real systems
- Higher test coverage: Covered 100+ additional test scenarios involving payments system and SAP, with the use of virtual services

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