

## Case Study

# PERFORMANCE TESTING FOR A LEADING BANKING INSTITUTION

## PROBLEM STATEMENT

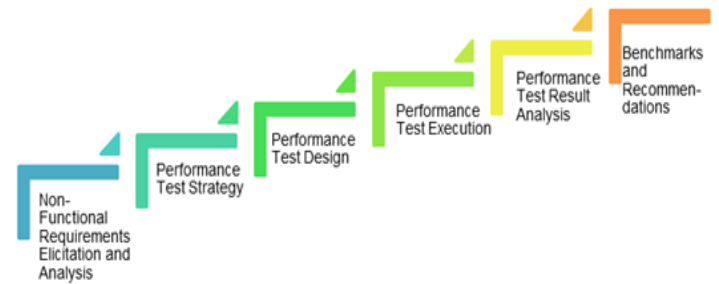
The banking client has developed new API's for 4 different banking brands. As per the NFR requirement these API's should have response time  $\leq 1.5$  Seconds

### SNAPSHOT

**Industry:** Banking  
**Business Unit:** Testing Services  
**Services:** Performance Testing Services

## SOLUTION

What Was Developed: Performance testing approach



## PERFORMANCE TESTING SCRIPTS AND WORKLOAD MODEL:

### Work Load Model - Load Test

API	Scenario#	Filters	Product List	Priority	Concurrent Users	TPS	TPH	Pacing (time between each interaction in seconds)	Think time (User think time between each transaction in seconds)
Get Products	SC01	No Filters	All Product	1	264	100	360000	1	0
	SC02	Some	All Product	1	264	100	360000	1	0
	SC03	Some	All Product	1	400	150	540000	1	0
	SC04	Some	All Product	1	400	150	540000	1	0
	SC05	Some	All Product	1	400	150	540000	1	0
Get Product Details	SC06	Product ID	Any Product	1	1480	550	1980000	1	0
Total					3208	1200	4320000		

### Work Load Model - Soak Test

API	Scenario#	Filters	Product List	Priority	Concurrent Users	TPS	TPH	Pacing (time between each interaction in seconds)	Think time (User think time between each transaction in seconds)
Get Products	SC01	No Filters	All Product	1	136	50	180000	1	0
	SC02	Some	All Product	1	136	50	180000	1	0
	SC03	Some	All Product	1	200	75	270000	1	0
	SC04	Some	All Product	1	200	75	270000	1	0
	SC05	Some	All Product	1	200	75	270000	1	0
Get Product Details	SC06	Product ID	Any Product	1	736	275	990000	1	0
Total					1608	600	2160000		

## KEY TOOLS USED

- JMeter 5.2

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Performance Defects Identified:

1 Defect found for high response time and internal server error (HTTP 500)

Fig: Test Results after initial assessment

## TECHNOLOGY STACK

- JMeter 5.2
- Azure
- WEB API

## EXECUTIVE SUMMARY:

Overall findings from performance testing:

- High response times were observed during the load test executed on 16/07/20 and the expected TPS (1200) was not achieved during this test.
- High response times were observed during the load test executed on 17/07/20 and the expected TPS (1200) was not achieved during this test. This test was conducted on a 50% of production infra size. HTTP 500 (Internal sever Error) was observed during this test and the network was chocked and other users experienced slowness in the application access. Two defects were raised one for the high response time and HTTP 500 error and other for network slowness.
- For the test executed on 21/07/2020, due to some unknown reason the request sent from JMeter did not reach the servers. Because of that this test was considered as a faultier one.
- The test executed on 22/07/20 with 3208 concurrent users and with 1 Master and 8 Slave machines was a successful one. Response times were <500 milliseconds and CPU and Memory utilization for all the servers involved were under the acceptable limit. The TPS achieved for this test is 1590 which is more than expected TPS (1200). For this test firewall encryption and IPS decryptions are disabled and Cloudflare platform was implemented.
- The test executed on 23/07/20 with 3208 concurrent users and with 1 master and 8 Slave machines was a successful one. This test was executed with the background Ultracs regression suite and internet banking load test. Since internet backing load test had 'Non HTTP response code: org.apache.http.NoHttpResponseException/Non HTTP response message: ib.test.test-tmbank.com.au:433 failed to response' error, this test was a failure from a internet banking perspective. No issues found from API load testing and functional regression test.
- Soak test was executed an 24/07/20 with 50% of concurrent user load. This test was executed for 8 hours steady state. CPU and Memory usage were under the acceptable limits during the steady state of test. Vlad confirmed that there is no memory leak and Garbage Collection was happening properly during the Soak test.
- The test executed on 27/07/20 and 29/07/20 are with internet banking load test running at the background. Observed 'Non HTTP response code: org.apache.http.NoHttpResponseException/Non HTTP response message: ib.test.test-tmbank.com.au:433 failed to response' error with the internet banking load test for the test executed on 27/07/20. There was a rate limit set on the server so that it will allow only certain limit of hit from any IP. This setting was removed for the test executed on 29/07/20 and 'Non HTTP response code: org.apache.http.NoHttpResponseException/Non HTTP response message: ib.test.test-tmbank.com.au:433 failed to response' were not observed during this test.

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