CS 677 S21 Lab 2 - Bookstore

Performance Evaluation Document

Submitted By

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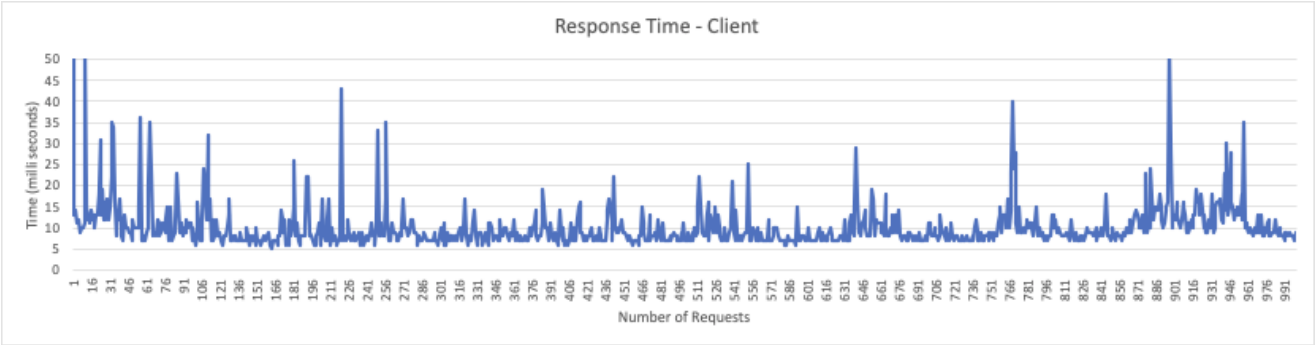
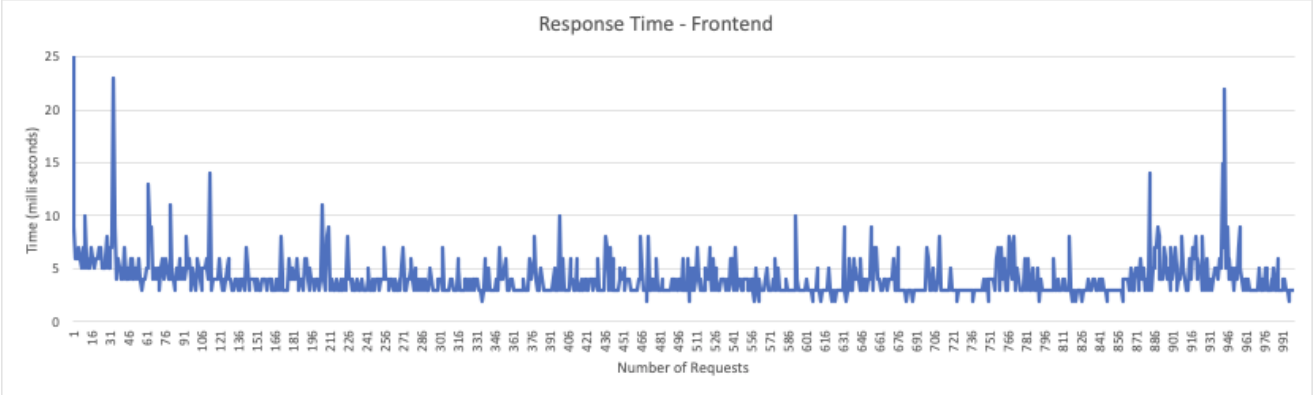
MILESTONE 1: Single Server, Single Client

We noted the response time observed by the client and each microservice to serve the http request. There is no wait time between two requests. Following are the observations:

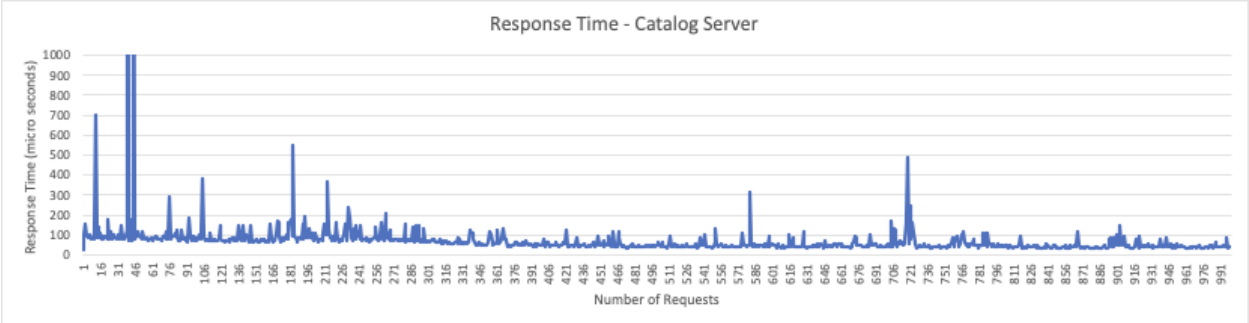
Lookup Request



Average response time = 10.67 milliseconds



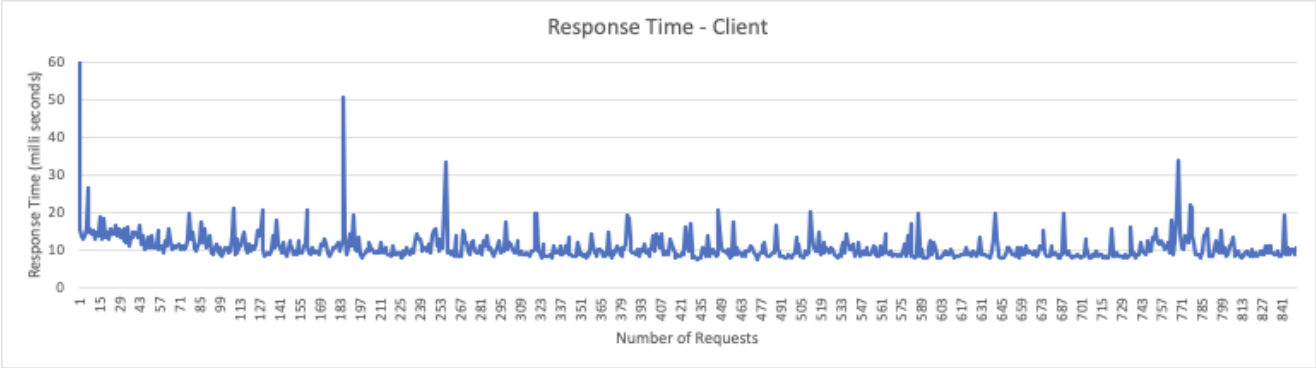
Average response time = 4.24 milliseconds



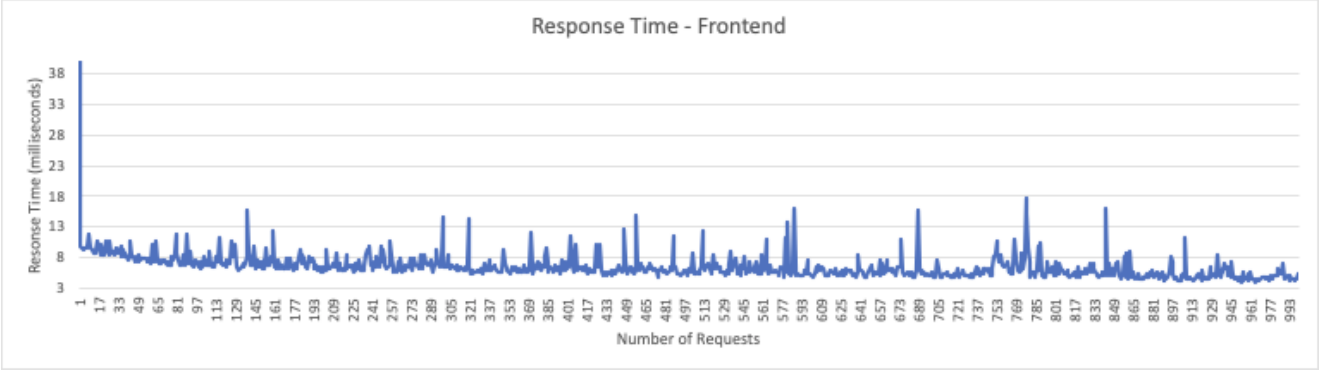
Average response time = 0.073 milliseconds

The first request on the server takes more time than the average observed. As the mapping of routes for microservice endpoints to application controllers is done. Also the data is fetched from the database to in-memory data structure. All the subsequent requests are served directly using hashmap. Client and Frontend observe more response time as compared to catalog server as network overhead will be considered.

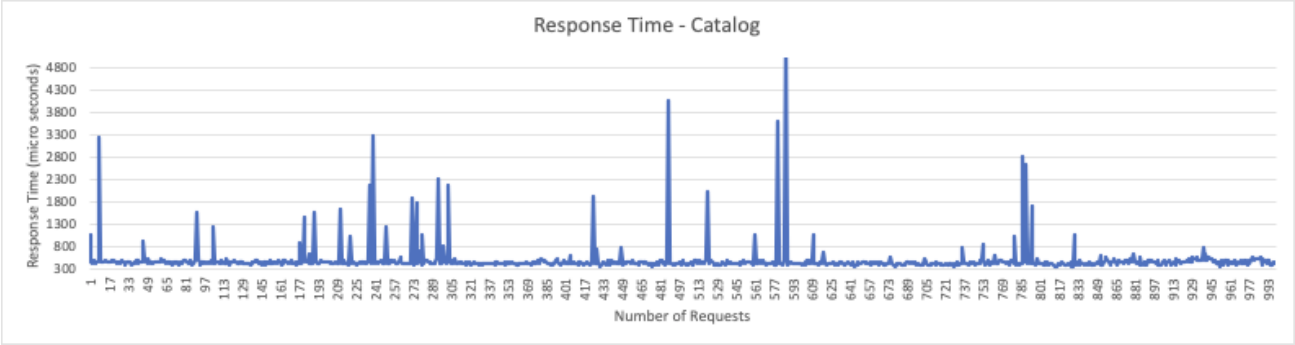
Buy Request



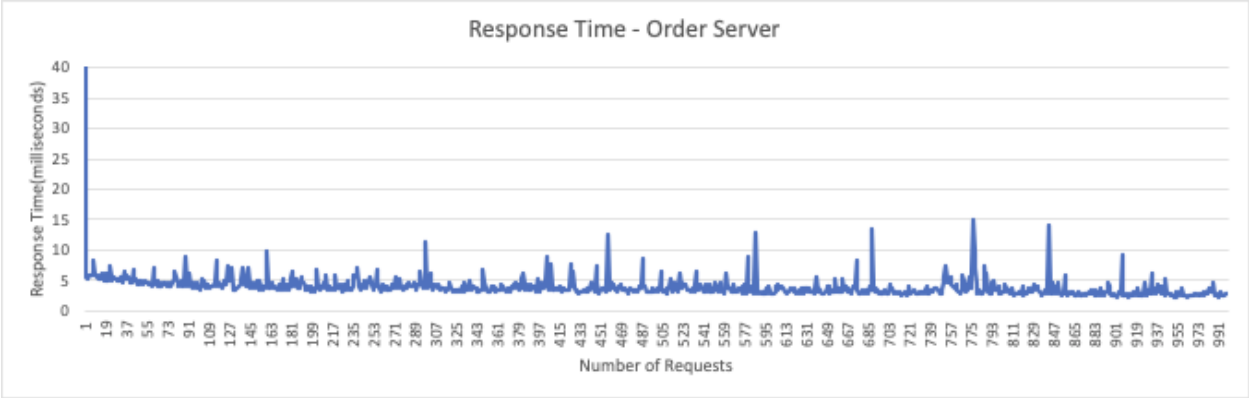
Average Response Time = 12.23 milliseconds



Average Response Time = 7.2 milliseconds



Average Response Time = 0.487 milliseconds



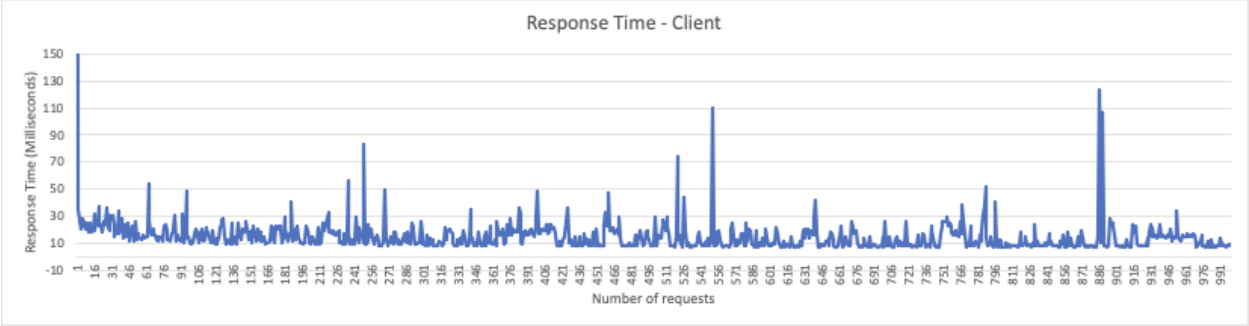
Average Response Time = 4.43 milliseconds

The overall response time observed by all microservices for but request is more compared to lookup request as it involves database update as well as additional checking for availability of items. Catalog server observes least response time as no network overhead experienced.

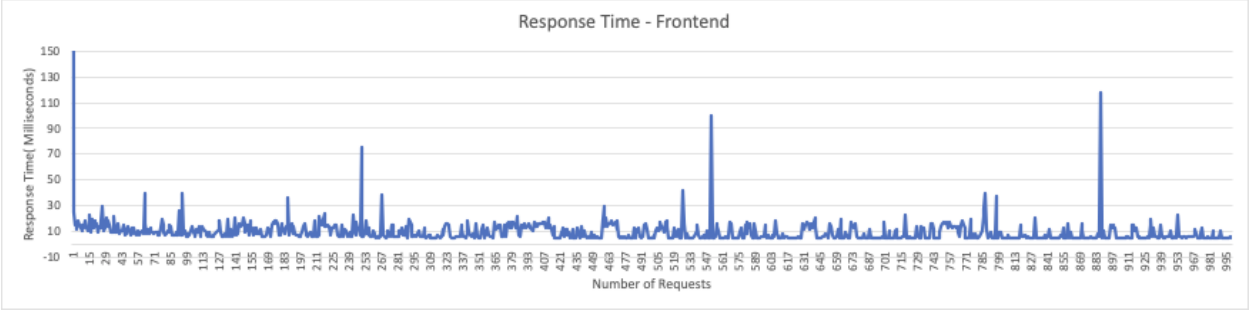
MILESTONE 2a: 4 Servers, 1 Client

In milestone 2, each microservices and client were deployed on different EC2 servers. Response time was noted for 1000 sequential requests with no wait time between two requests. Below are the findings:

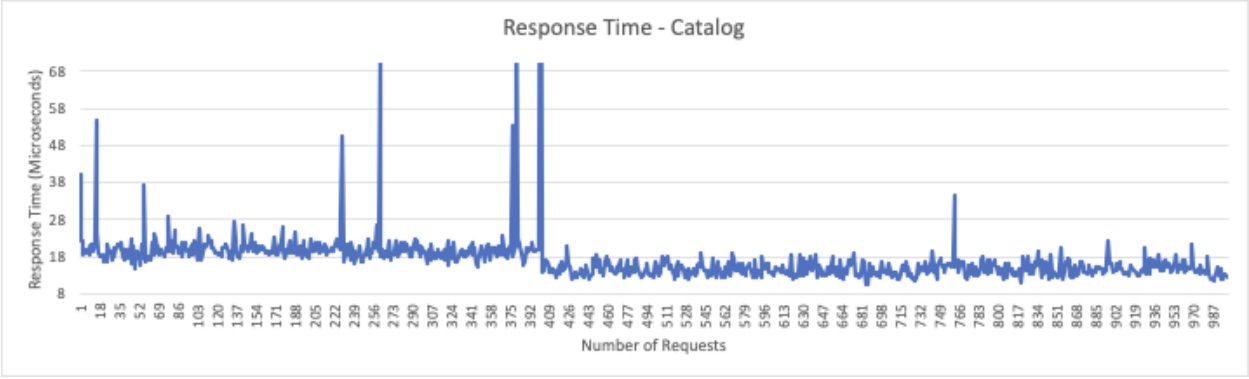
Lookup Request



Average Response time - 16.182 milliseconds



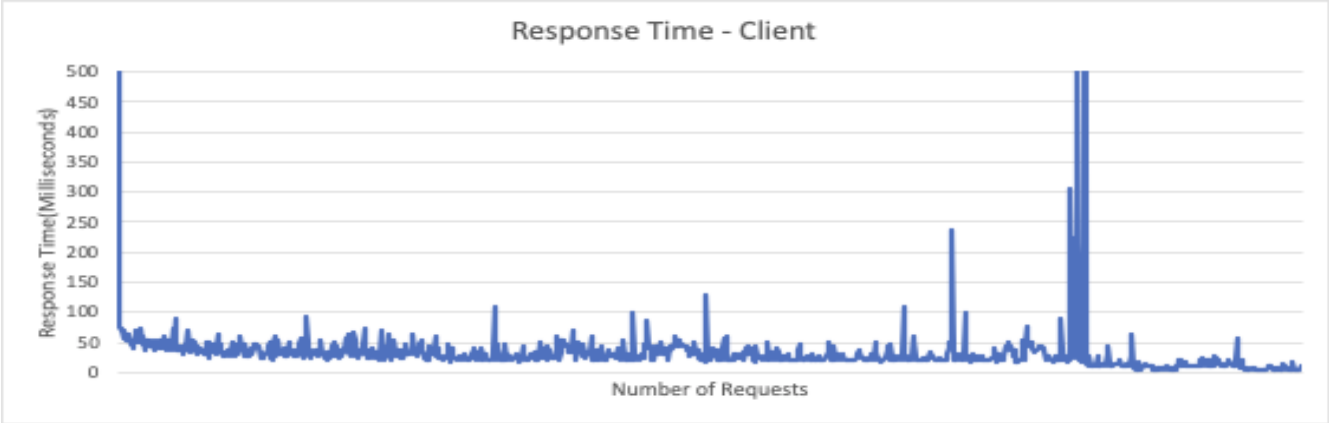
Average Response time - 10.455 milliseconds



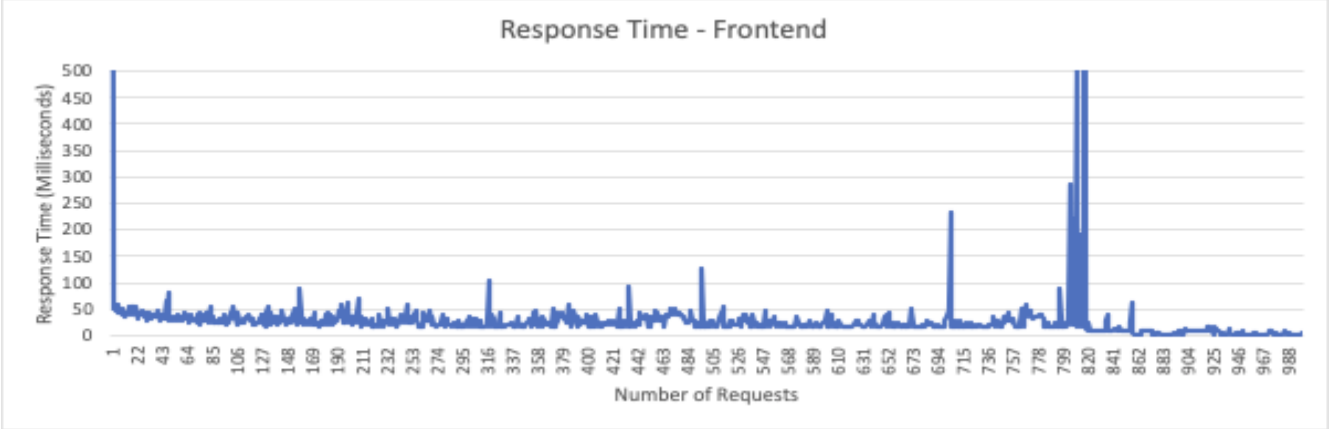
Average Response Time - 0.017 milliseconds

The response time observed is more for each server compared to milestone 1 findings. As network overhead is involved.

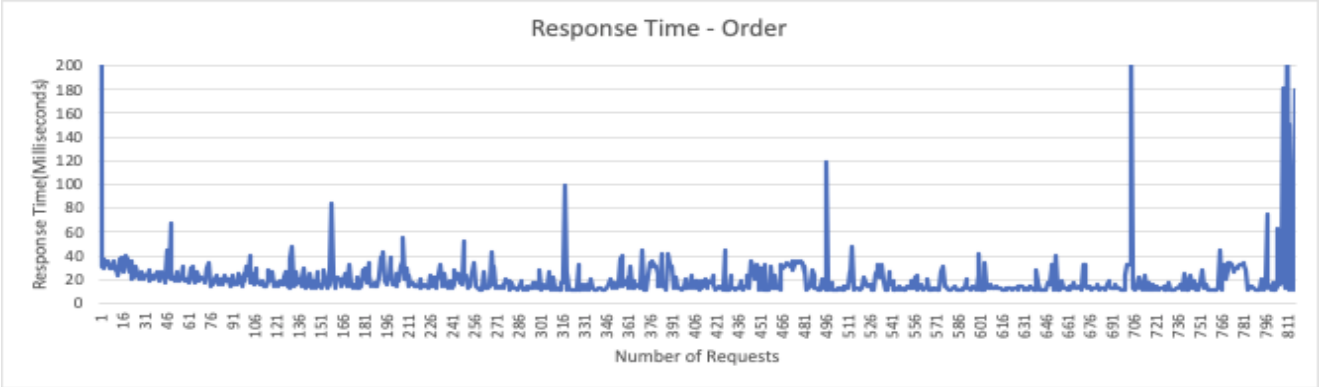
Buy Request



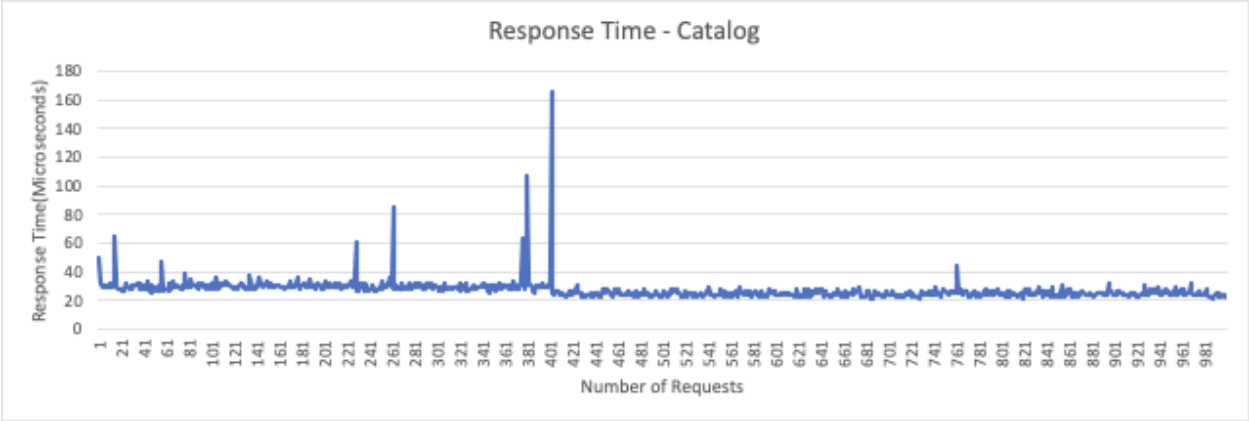
Average Response Time - 35.871 milliseconds



Average Response Time - 29.979 milliseconds



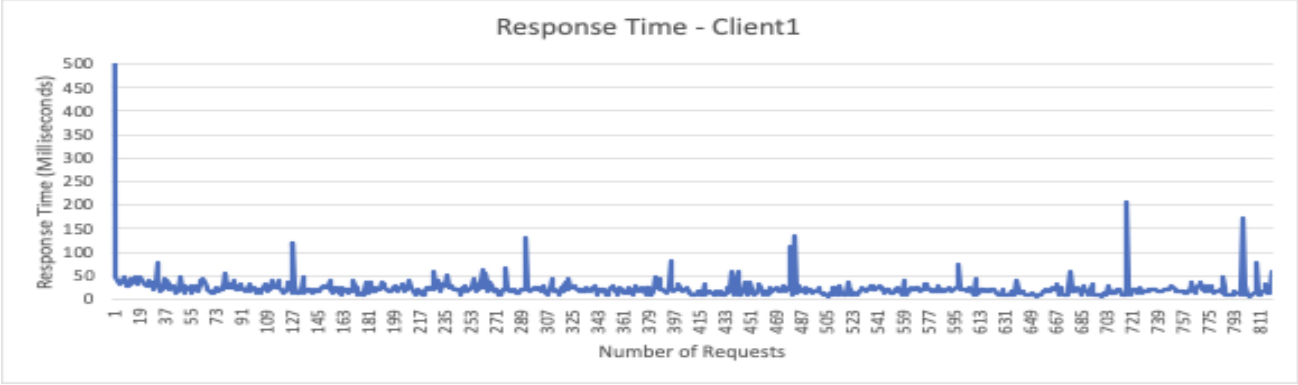
Average Response Time - 21.493 milliseconds



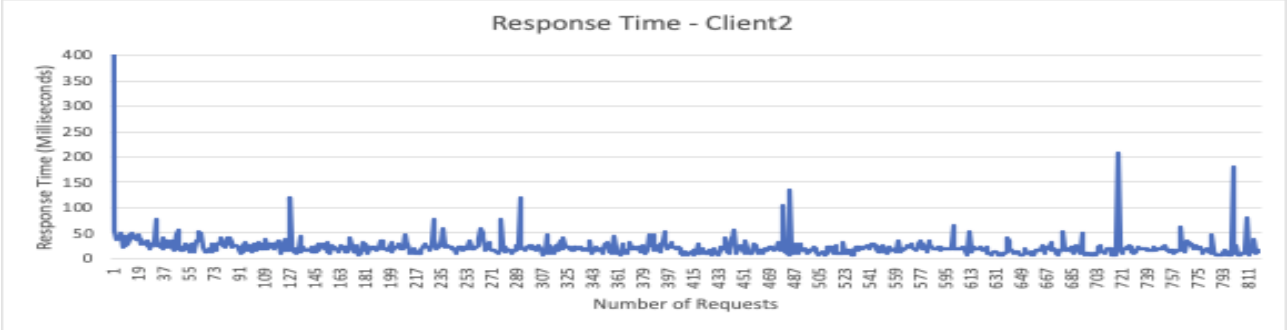
Average Response times = 0.029 milliseconds

MILESTONE 2b: 4 Servers, 2 Client

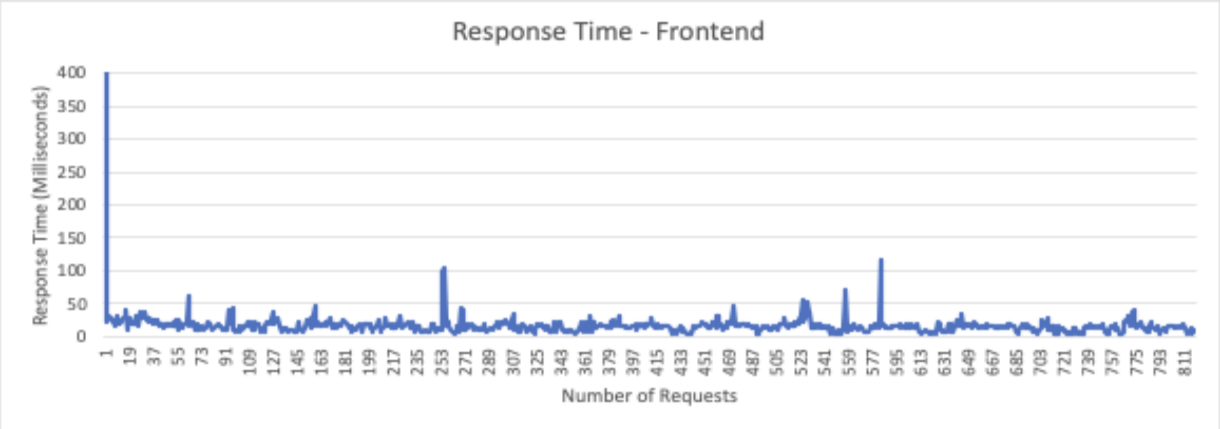
Lookup Request



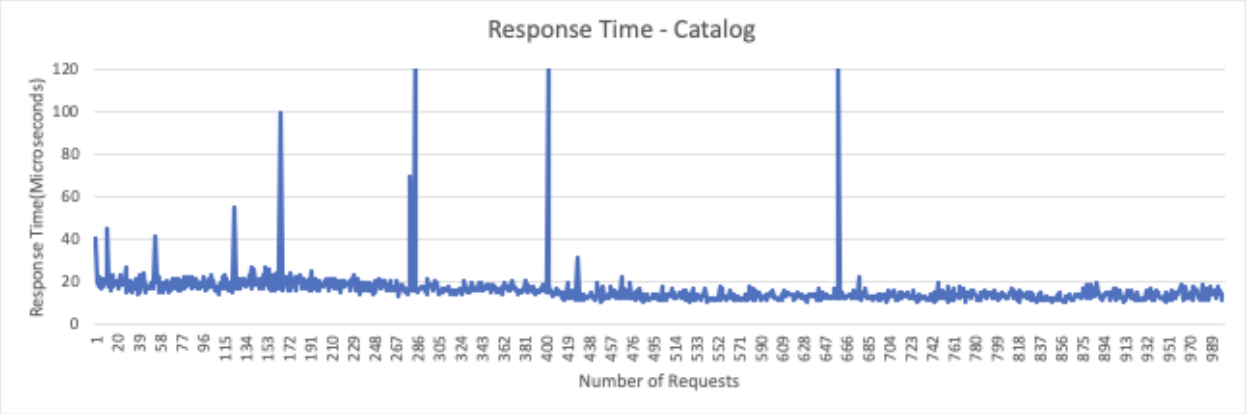
Average Response Time = 24.261 milliseconds



Average Response Time = 25.131 milliseconds

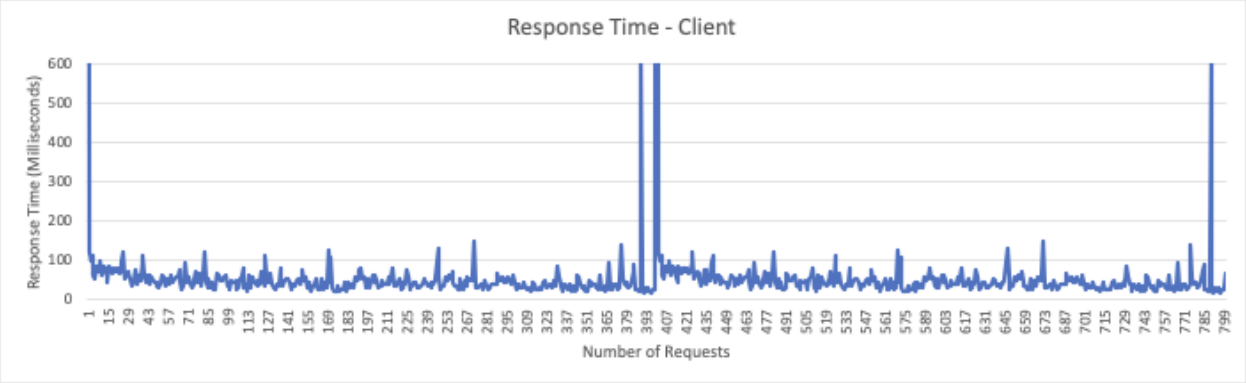


Average Response Time = 19.556 milliseconds

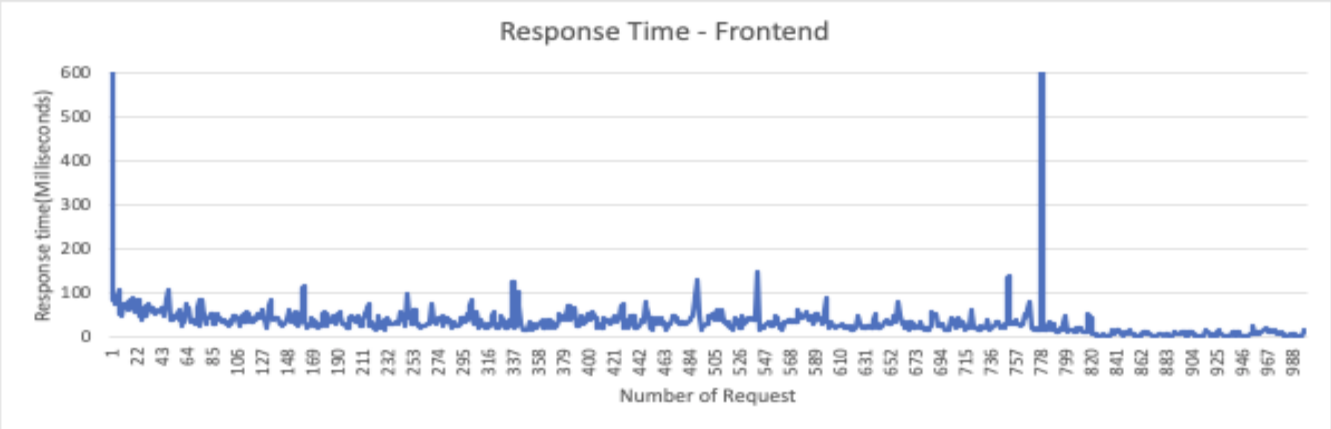


Average Response Time = 0.0239 milliseconds

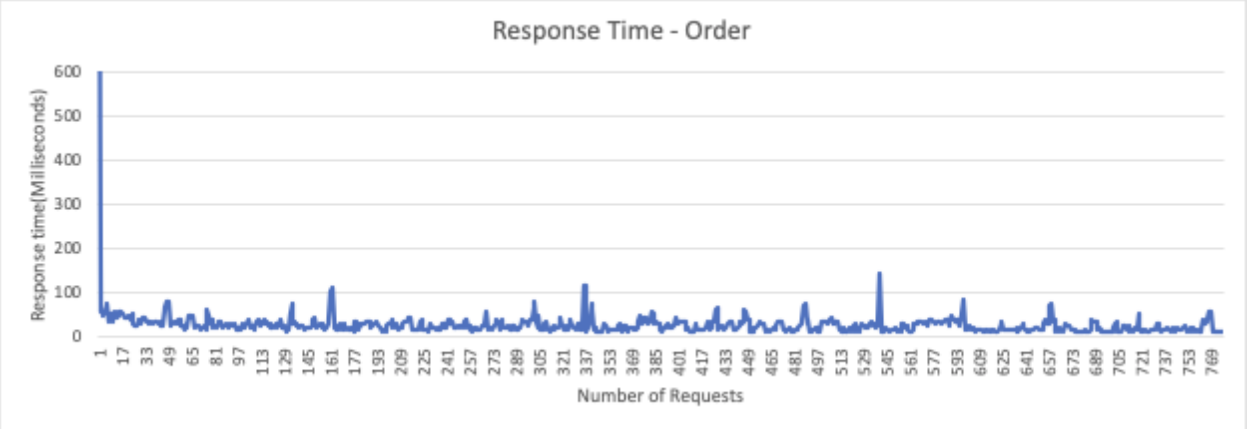
Buy Request



Average Response Time = 54.76 milliseconds



Average Response Time - 44.56 milliseconds



Average Response Time = 27.96 milliseconds

The response time increased for multiple clients as request load will increase for each microservice.