# Part 3: Testing and Performance Evaluation

Evaluating with and without docker containers running locally and varying the number of clients from 2 to 6. Since, we ran into a lot of issues with running docker and executing the images on edlab, we had done the evaluation locally.

| Number of clients	Avg. lookup latency without Docker containers	Avg. lookup latency with Docker containers
2	0.01003010571	0.01517829299
3	0.01073301832	0.01630945007
4	0.01016162336	0.0168993324
5	0.009622436762	0.01675248742
6	0.01234346628	0.01926882565

Table 1
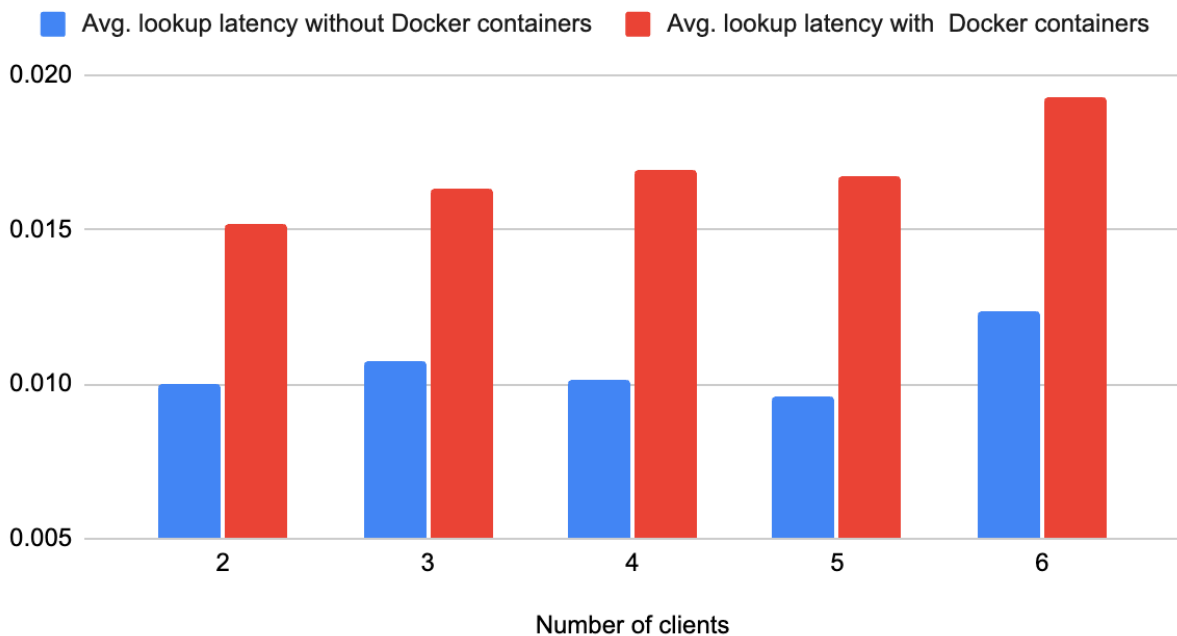
Plot 1

We have the maximum available threads to 2, and then compare with lookup and trade latency when concurrently running 2 to 6 clients at a time with edlab as server and our local machine as client.

Number of clients	Avg. lookup latency	Avg. trade latency
2	0.06313991547	0.06706789562
3	0.06458484529	0.07175017704
4	0.06687169844	0.07201856999
5	0.06378428956	0.07003805041
6	0.05882328252	0.07866902025

Table 2

Below plots show the average lookup latency when varying the number of clients:
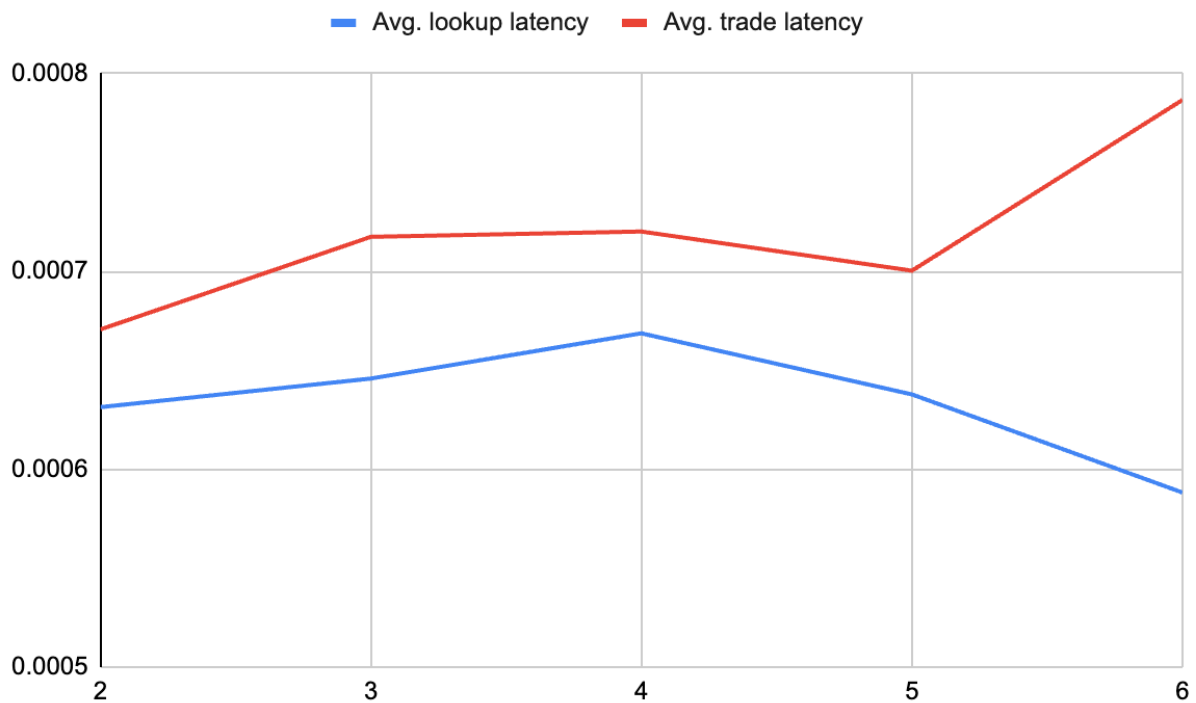
Plot 2

1. Does the latency of the application change with and without Docker containers? Did virtualization add any overheads?

Yes, as we can see in plot 1, we observe that latency values have increased when the application is packaged with docker containers. Therefore, it looks like virtualization has added overheads and we can witness a difference in the time taken with or without Docker containers.

2. How does the latency of the lookup requests compare to trade? Since trade requests involve all these microservices, while lookup requests only involve two microservices, does it impact the observed latency?

From the table 2 and the plot 2, it is clear that trade requests have more latency over varying client values when compared to the lookup latency. Trade latency have being more because the requests have being involved with all the microservices, while the lookup latencies were comparatively lower than since, it involved only 2 microservices.

3. How does the latency change as the number of clients changes? Does it change for different types of requests?

There is a partial increase in the latency values as the number of clients increases. The variations are different in the case of lookup and trade with observable difference in trade latency values as the number of clients go up.