Performance Report

To evaluate our implementation of Snapgram, a set of performance tests have been designed to assess two performance measures: response time and throughput of the main features of the system –login, upload and user feed. For the purposes of this test, only two variables were taken into consideration: the number of concurrent connections and the number of followers. A brief breakdown of the results of the test is provided below.

Login

The login process proved to be consistent with a response time averaging at 47.8 milliseconds for correct attempts and 120.2 milliseconds for incorrect attempts. Minimum response time was 17 milliseconds (correct attempt) and maximum was 265 milliseconds (incorrect attempt).

User Feed

The test showed a consistent but slow (~5sec response time) performance for a number of concurrent requests that is less than 10. The performance decreases, however, right after as the response time increases rapidly and as throughput reaches ~1.5 requests/second at 50 concurrent requests (Figures 1 & 2).

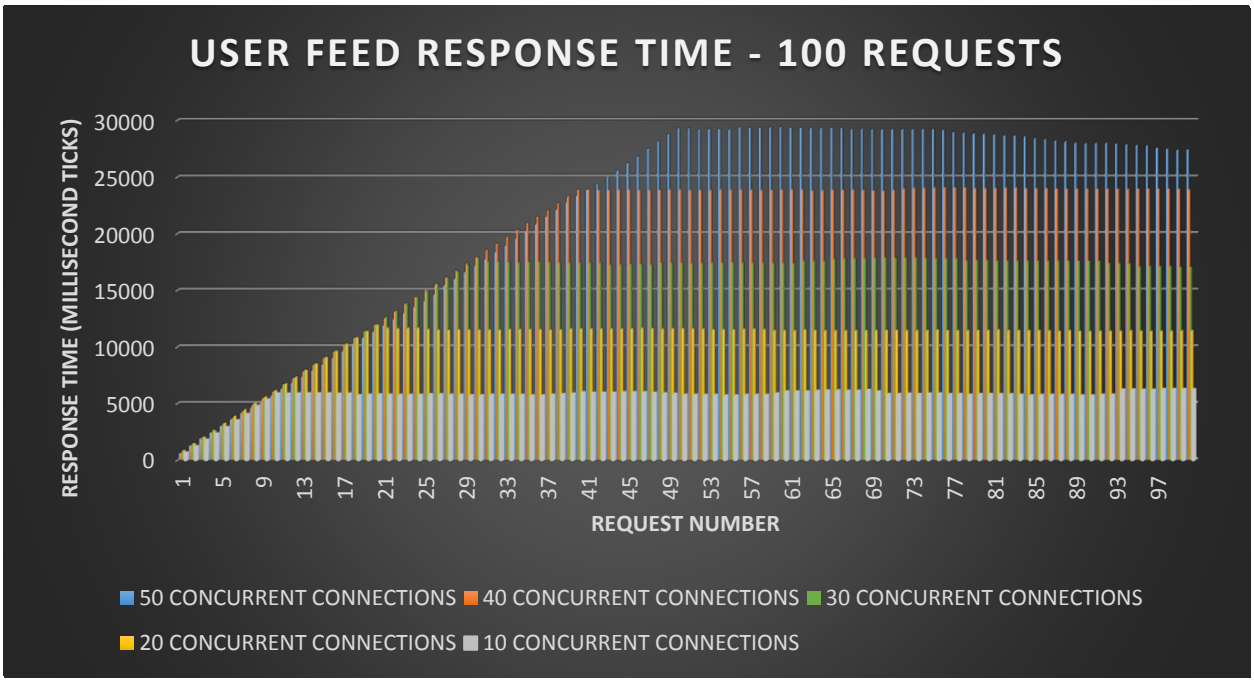

Figure 1 - User feed response time for 100 requests

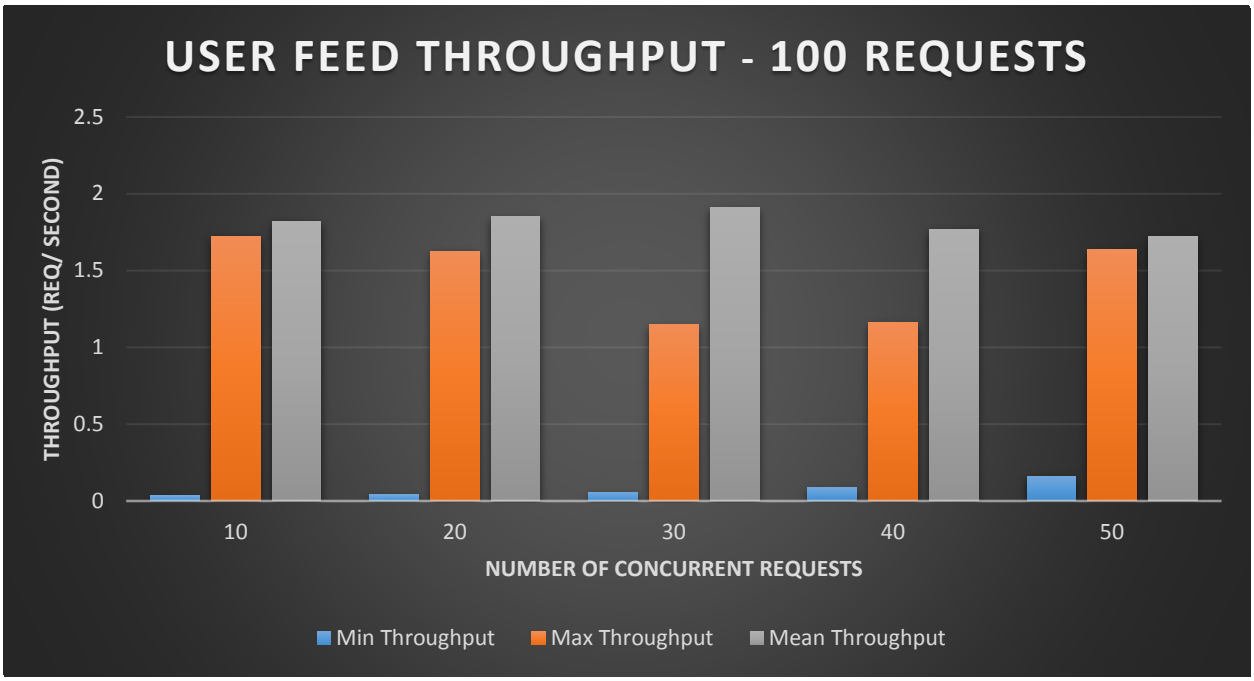

Figure 2 - User feed throughput for 100 requests

Photo Upload

The results of the test for the photo upload feature is detailed in figure 3 and 4 below. The breakdown of the response times for the various operations performed by the server illustrates a consistent performance for disk storage and database photo indexing operations. It, however, shows a spike in the response time for updating the followers' streams as the number of followers becomes greater.

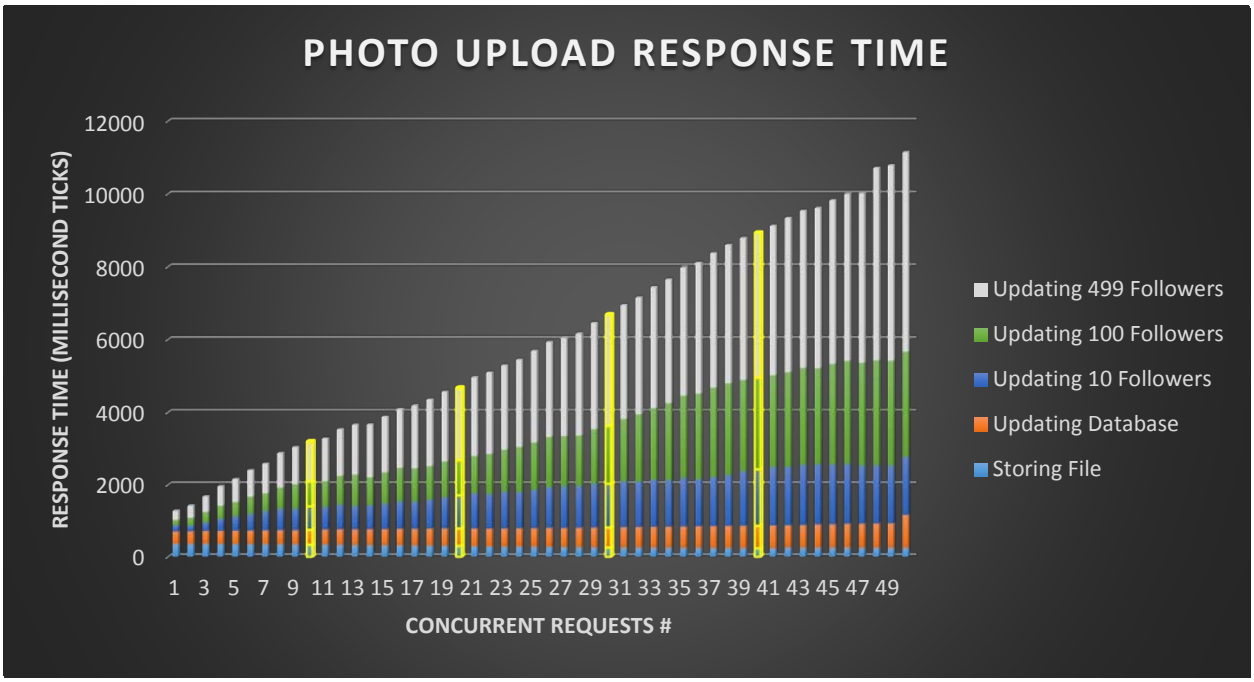

Figure 3 - Photo upload response time with 609 followers

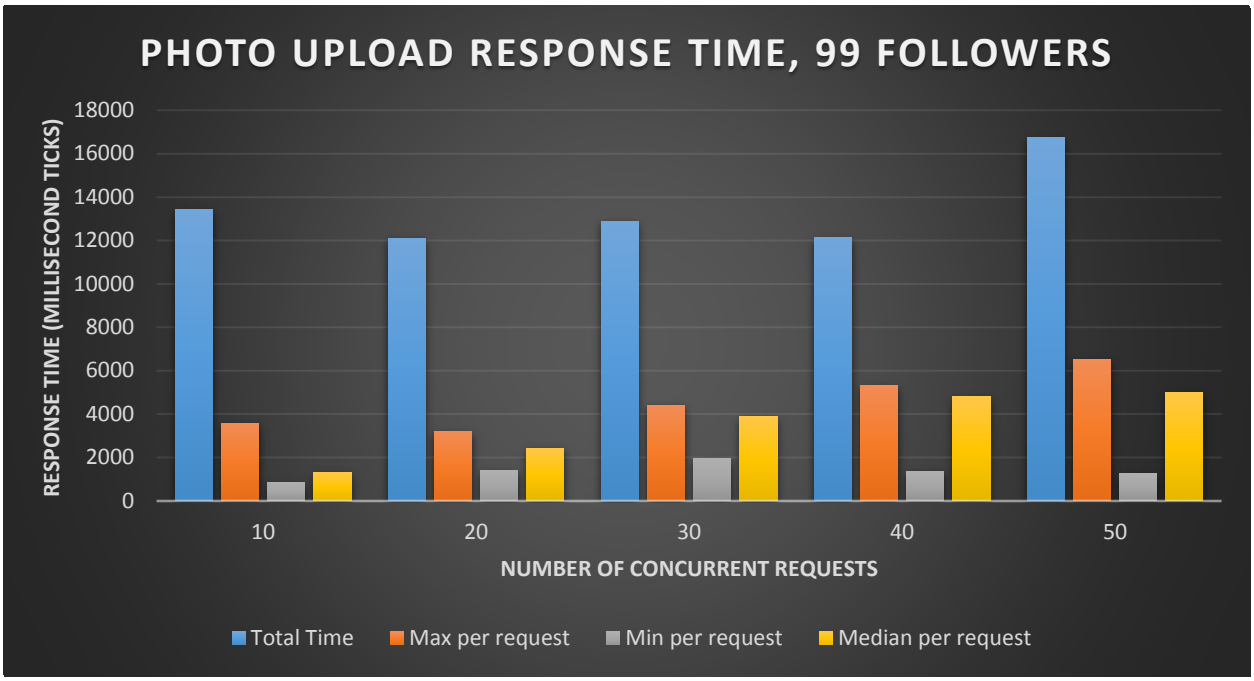

Figure 4 - Photo upload response time for 99 followers

Conclusion

Based on the results of these tests, it follows that the system will need to be optimized both for a better concurrency level and more scalable database operations. To achieve this, the team will look into utilizing the processing power of all –or most, of the cores of the server as well as into implementing a more efficient database schema for storing follower relationships.

Prepared By:

Alaa Azazi

Edwin Chan