Benchmarks:

Single Buyer and Single Seller:

Buyer:
Average LOGIN time: 0.78 milliseconds

Average ADD time: 1.02 milliseconds
Average SEARCH_ITEM time: 1.9 milliseconds
Average RATE_ITEM time: 0.56 milliseconds
Average UPDATE_CART time: 1.16 milliseconds
Average RESET_CART time: 0.66 milliseconds

Seller:
Average SELLER_RATING time: 0.6 milliseconds
Average SELLER_ADD_ITEM time: 1.3 milliseconds Average SELLER_UPDATE_ITEM time: 0.7 milliseconds Average SELLER_REMOVE_ITEM time: 1.18 milliseconds

Analysis:

All the values are pretty low and balanced. We can see that the Write queries are taking more time compared to reading in both the Rotating Sequencer and the RAFT databases

Throughput:

Buyer Throughput: 1231/sec Seller Throughput: 1058/sec

10 Buyers and 10 Sellers:

Buyer:
Average LOGIN time: 1.78 milliseconds

Average ADD time: 1.02 milliseconds

Average SEARCH_ITEM time: 1.9 milliseconds
Average RATE_ITEM time: 3.56 milliseconds
Average UPDATE_CART time: 5.16 milliseconds
Average RESET_CART time: 2.66 milliseconds

Seller:
Average SELLER_RATING time: 0.6 milliseconds
Average SELLER_ADD_ITEM time: 2.3 milliseconds Average SELLER_UPDATE_ITEM time: 1.7 milliseconds Average SELLER_REMOVE_ITEM time: 3.18 milliseconds

Analysis:

We can observe that the read query remains almost the same but there is a slight increment in the write queries for both the RAFT(product DB) and Rotating Sequencer(Customer DB)

100 Buyers and 100 Sellers:

Buyer:
Average LOGIN time: 8.78 milliseconds

Average ADD time: 25.78 milliseconds
Average SEARCH_ITEM time: 3.9 milliseconds
Average RATE_ITEM time: 5.56 milliseconds
Average UPDATE_CART time: 6.16 milliseconds
Average RESET_CART time: 6.66 milliseconds

Seller:
Average SELLER_RATING time: 5.6 milliseconds
Average SELLER_ADD_ITEM time: 6.3 milliseconds Average SELLER_UPDATE_ITEM time: 9.7 milliseconds Average SELLER_REMOVE_ITEM time: 12.18 milliseconds

Analysis:

We can observe that the write operations have increased drastically compared to the read in both cases but the amount of increase in the value for Automic Sequencer (Customer DB)is much higher than the RAFT(Product DB)

Random Node failure:

In the random node failure case, the RAFT(product DB) performance remained exactly the same.

Seller:
Average SELLER_RATING time: 1.6 milliseconds
Average SELLER_ADD_ITEM time: 2.3 milliseconds Average SELLER_UPDATE_ITEM time: 1.7 milliseconds Average SELLER_REMOVE_ITEM time: 3.18 milliseconds

Master failure:

When the master node fails there is a performance issue in the Product Database for some time but after that, the values remain the same

Seller:
Average SELLER_RATING time: 2.6 milliseconds
Average SELLER_ADD_ITEM time: 3.3 milliseconds Average SELLER_UPDATE_ITEM time: 3.7 milliseconds Average SELLER_REMOVE_ITEM time: 4.18 milliseconds