

Performance Report

Assignment -1

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Instances		Avg. Response Time (ms)	Avg. Server Throughput(ops/s)
1	No Failures	10.548	190
	One server fails	22.398	157
	One DB fails except leader	45.393	149
	Leader DB fails	58.567	131
10	No Failures	68.356	138
	One server fails	89.342	103
	One DB fails except leader	139.439	88
	Leader DB fails	157.231	75
100	No Failures	194.234	47
	One server fails		
	One DB fails except leader		
	Leader DB fails		

When there are no failures among the server and the db replicas, average response time is lower. When there is one failure each in the buyer and seller server, now the available servers decrease and the load increases. Since there is an increase in the load on the available servers, the average response time is higher than the case where there are no failures. When the db replicas fail(except the leader), it takes more time for communication and maintaining the consistency. Since timeouts are used for all the messages in the communication. So, the average response time increases suddenly. When the leader fails among the db replicas, it takes more time to choose a leader and maintain the consistent state. There is higher communication overhead among the group members in the db replica and thus average response time increases more.

Even though the servers and the databases are replicated still the average response time is higher than the Assignment 2 because we do have the same REST and gRPC communications and there is a high communication overhead due to replication.