

Week#2 Run TPC-C and Analyze the Results

Hyuksoo Yeo
2016312761

1. INTRODUCTION

Run the TPC-C benchmark on MySQL. Then analyze the results.

2. METHODS

For this experiment, I want to know the TPC-C performance such as the number of transactions completed per minute(TpmC). Also want to know the performance change over time. We can get this information by starting MySQL server and running the TPC-C test. We can observe values related to performance per rampup time.

3. Performance Evaluation

3.1 Experimental Setup

System setup:

Type	Specification
OS	Ubuntu 20.04.3 LTS
CPU	Intel® Core™ i3-9100F CPU @ 3.60GHz
Memory	16GB
Kernel	5.11.0-27-generic
Data Device	Western Digital WD Blue 500GB
Log Device	Western Digital WD Blue 500GB

Benchmark setup:

Type	Configuration
DB size	1GB (10 warehouse)
Buffer Pool Size	250MB (25% of DB size)
Benchmark Tool	tpcc-mysql
Runtime	1200s
Connections	8

3.2 Experimental Results

10, trx: 268, 95%: 301.839, 99%: 419.920, max_rt: 492.000, 266|242.119, 27|120.585, 26|902.995, 27|1102.273

20, trx: 297, 95%: 269.708, 99%: 334.677, max_rt: 378.080, 294|138.524, 29|141.002, 30|785.011, 29|848.613

610, trx: 207, 95%: 395.399, 99%: 641.000, max_rt: 679.099, 208|310.805, 21|144.880, 22|1588.395, 22|3049.288

620, trx: 269, 95%: 321.614, 99%: 431.386, max_rt: 597.446, 268|299.888, 27|130.087, 26|768.072, 26|865.518

1190, trx: 223, 95%: 323.448, 99%: 517.186, max_rt: 605.457, 224|296.522, 23|111.982, 23|726.821, 22|1135.699

1200, trx: 241, 95%: 360.683, 99%: 530.991, max_rt: 772.940, 241|407.524, 24|88.369, 24|1146.333, 24|1006.355

Completed transactions, and 95%, 99% response time go up and down in a big range. In case of max response time, it takes longer as time goes by. In case of throughput and max response time for the other kind of transactions, throughput goes smaller as time goes by. Also max response time goes bigger as time goes by.

Runtime: 100s → Tpmc: 1522.800

Runtime : 400s → Tpmc: 1547.400

Runtime : 800s → Tpmc: 1581.450

Runtime: 1200s → Tpmc : 1563.100

As time goes by, Tpmc rises in a parabolic shape and then descends slightly.

4. Conclusion

Among the results, the change of Tpmc was as expected. Because it is natural that performance rises slowly and then becomes stable. However, it is not expected that 95%, 99% response time go up and down in a big range.

5. REFERENCES

[1]