SWE3033:
Database Project

How to Benchmark the Performance of MySQL using TPC-C

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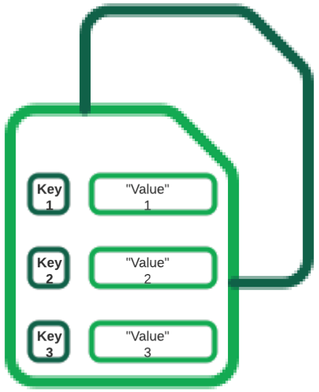
VLDB Lab.

DBMS and Workload

RocksDB



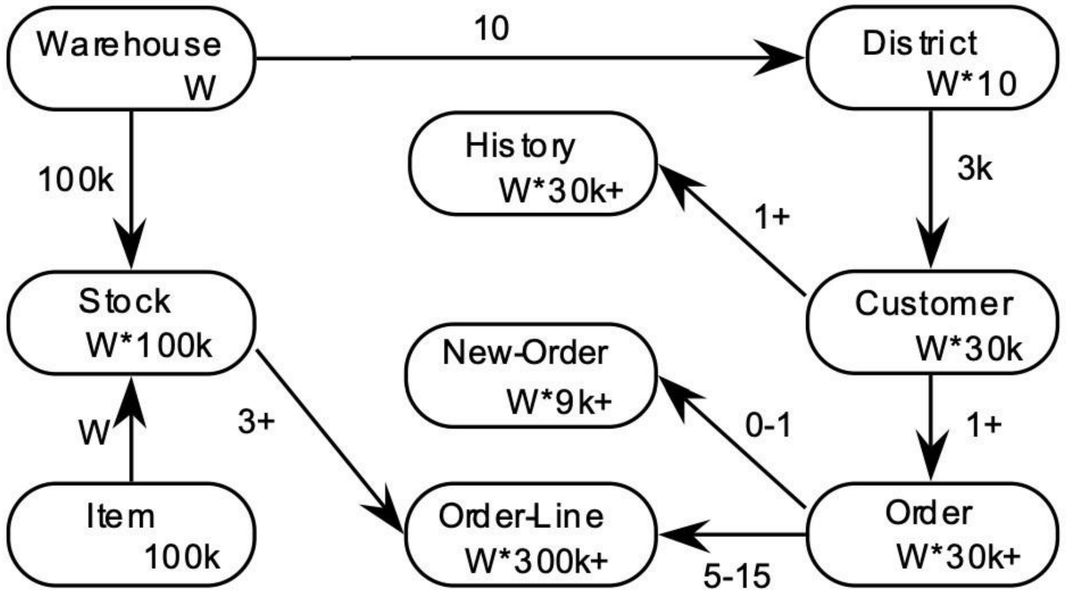
MySQL Server

- **Open-source** relational database management system (**RDBMS**)
- The world's most used RDBMS
- Optimized for On-Line Transaction Processing (**OLTP**)

TPC-C[2]

- A 29-year-old **OLTP benchmark used to measure the performance of databases**

- **5** types of well-defined transactions:
  - New-Order (Read/Write)
  - Payment (Read/Write)
  - Delivery (Read/Write)
  - Order-Status (Read Only)
  - Stock-Level (Read Only)

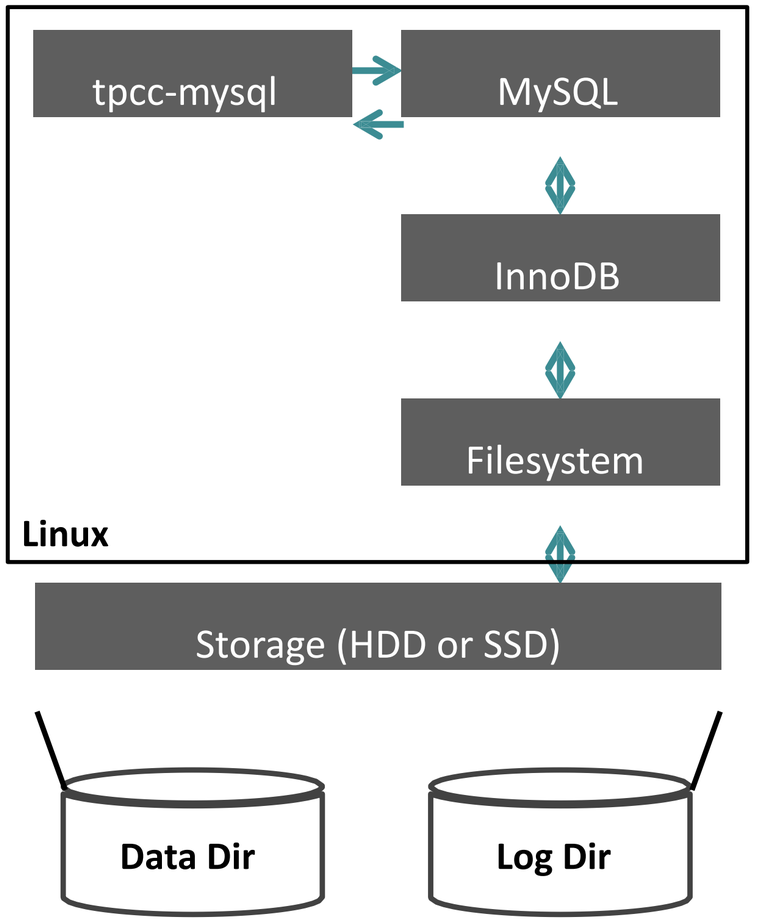


Entity-relationship Diagram[2]

- **Throughput of TPC-C** = The number of **New-Order** transactions executed per minute
  - Transactions per minute Count (TpmC)

tpcc-mysql[4]

- The open-source TPC-C implementation
- Developed by **Percona**
- Not 100% compatible with the standard



How to Install MySQL 5.7 and TPC-C

- Building MySQL 5.7 from the source code enables you to customize build parameters, compiler optimizations, and installation location

- Let’s install MySQL and TPC-C and run them on your own hardware:
  - Every lab installation guide will be linked in Schedule table at https://github.com/LeeBohyun/SWE3033-F2023

Reference

[1] MySQL, “MySQL Community Downloads”, https://dev.mysql.com/downloads/mysql/

[2] TPC, “TPC BENCHMARK C”, http://www.tpc.org/tpc_documents_current_versions/pdf/tpc-c_v5.11.0.pdf

[3] Veronica Lagrange, Changho Choi, Vijay Balakrishnan, “Accelerating OLTP performance with NVMe SSDs”, SDC2016, https://www.snia.org/sites/default/files/SDC/2016/presentations/solid_state_storage/VeronicaLaGrange_Accelerating_OLTP_Performance_V6.pdf

[4] Percona-Lab, “tpcc-mysql”, Github repository, https://github.com/Percona-Lab/tpcc-mysql