

Final Project

Introduction to DBMS

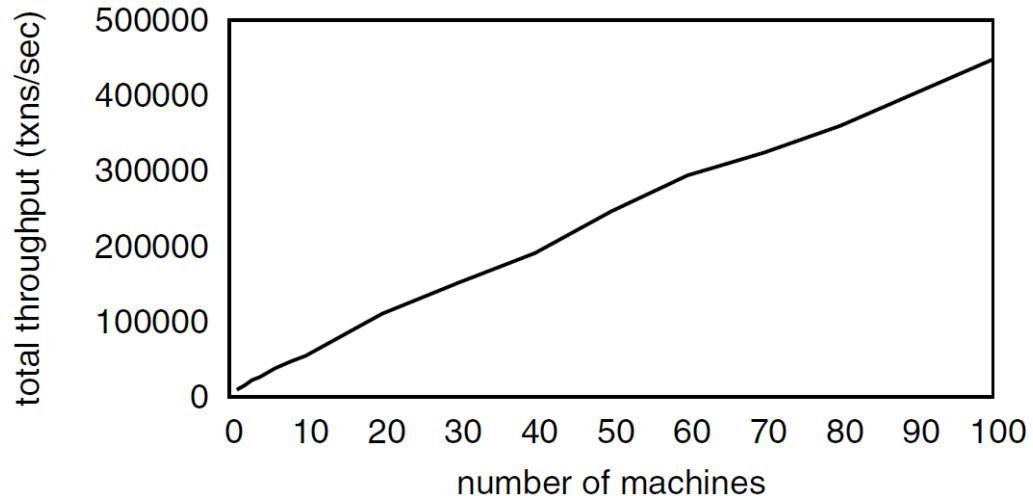
CS, NTHU

Objective

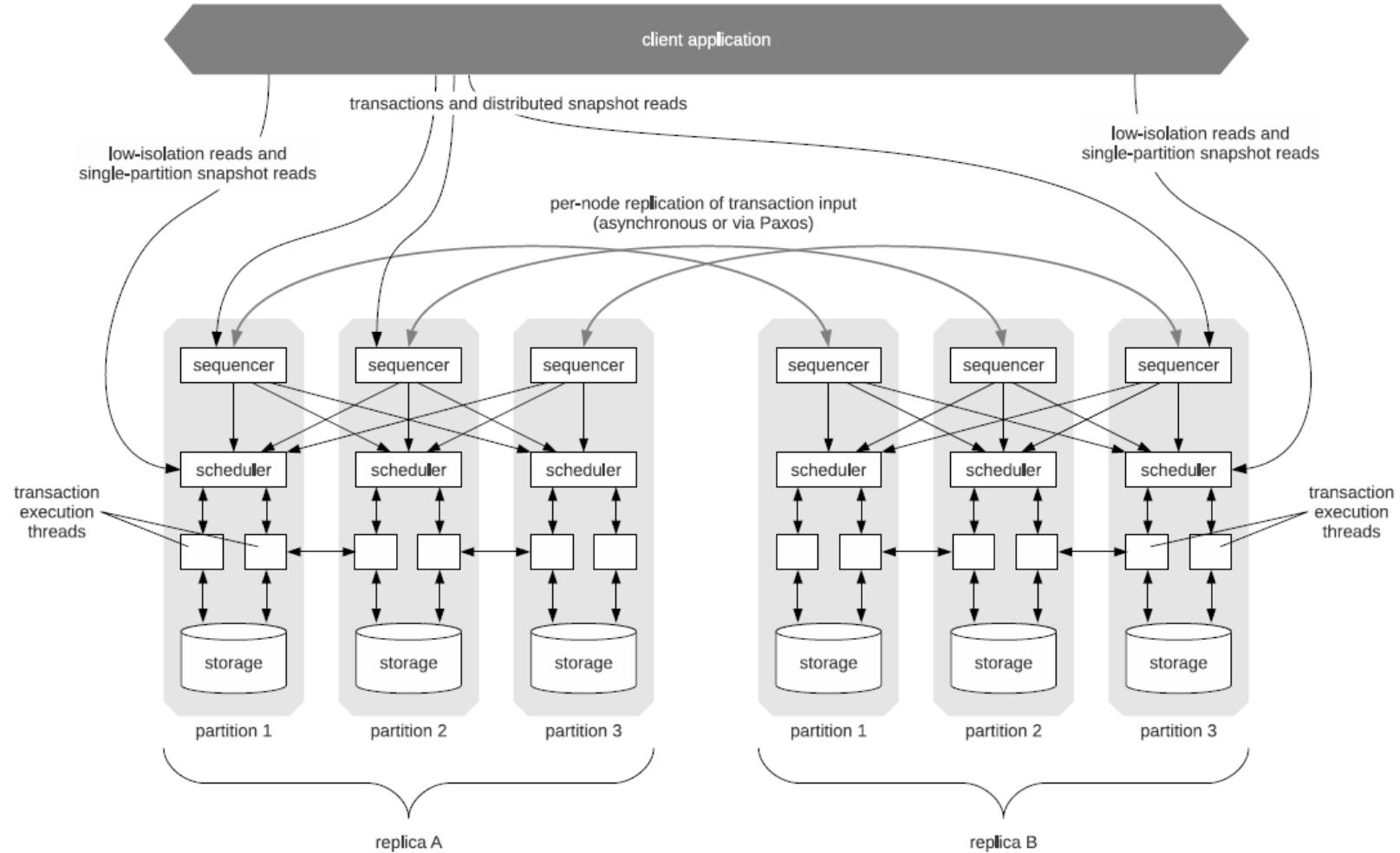
- This final project tests whether you are capable to realize a complex distributed DBMS.
- Two Phases
 - Calvin Implementation
 - Calvin Optimization

Calvin

- A distributed and relational DBMS that focuses on
 - High performance (high throughput)
 - High scalability
 - High availability



Architecture of Calvin



Assigned Reading

- Thomson, Alexander, and Daniel J. Abadi. "The case for determinism in database systems." *Proceedings of the VLDB Endowment* 3.1-2 (2010): 70-80.
 - To understand the theory of applying determinism on distributed database systems.
- Thomson, Alexander, et al. "Calvin: fast distributed transactions for partitioned database systems." *Proceedings of the 2012 ACM SIGMOD International Conference on Management of Data*. 2012.
 - To understand the architecture of Calvin, a deterministic database system.

We Provide

- Codebase
 - VanillaCore
 - VanillaBench
 - VanillaComm
 - A group communication module that is designed for distributed database systems

Phase 1

- Requirements
 - You have to demonstrate a distributed database system by running the TPC-C benchmark with at least 3 servers.
- The details for submission will be on our GitLab.
- Deadline: **2020/6/21 23:59**

Phase 2

- Requirements
 - You have to optimize the given Calvin codebase for higher performance.
 - We will assign a performance goal to each group before Phase 2 starts.
- Final Presentation: **2020/6/29 on the class**
 - Present how you optimize the system and what you found

A close-up photograph of Arnold Schwarzenegger as John Rambo. He has long, dark, wet hair and a determined, slightly grimacing expression. He is wearing a dark, possibly black, t-shirt. His right arm is extended forward, showing a large, purple and swollen bruise on his bicep. He is giving a thumbs-up with his right hand, and his left hand is partially visible, also showing a bruise. The background is a soft-focus green, suggesting an outdoor setting.

Good Luck !