Implementing a Distributed Reliable Database

Description

piChain is a fault-tolerant distributed state machine which inherits features of Paxos [1], providing strong consistency, and of a blockchain [2], providing eventual consistency and simplicity. The goal of this thesis is to implement the proposed algorithm and make it available to others in the form of a library. For example, the library can be used to keep replicas of a distributed data storage consistent in case of failures.

Project Outline

- Implementing the basic algorithm in a fully connected network ⭐⭐
- Reducing the number of messages by flooding in an overlay graph ⭐
- Implementing a reliable replicated database utilizing the library ⭐⭐
- Evaluating the results in form of a written report ⭐

Organization

Duration: 6 months
Professor: Prof. Dr. Roger Wattenhofer
Supervisor: Conrad Burchert

References
