

Scalability of Hyperledger Fabric

Thema:

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Hintergrund

Blockchains promise to create trust in digitalized governments, FinTech, and many other fields of digital ledgers providing characteristics like immutability and decentralization through consensus mechanisms. Mainstream blockchain technologies like Ethereum are currently missing large-scale applications due to their restriction in privacy and transaction throughput. Therefore, enterprise environments often utilize permissioned distributed ledger technology (DLT) to create trust between business entities and partners. These DLTs restrict access to single organizations inside a network, but often offer less performance compared to centralized approaches. This thesis takes an in-depth look at Hyperledger Fabric by the Linux Foundation which offers an enterprise grade permissioned distributed ledger platform.

Zielsetzung der Arbeit

Due to the fact that Hyperledger Fabric (HLF) is a relatively new technology, there is very little data on how the system scales (especially in a live enterprise production environment). The main objective of this thesis is to hands-on try out and compare the scalability aspects of HLF and document the results during different sets of workloads and resource constraints.

Konkrete Aufgaben

- Overview of blockchain technology (highlight the differences between private permissioned vs public permissionless blockchains with respect to scalability)

- Analysis and justification of scalability metrics to be used for the research purpose
- Hands-on simulation of highly configurable business scenarios for benchmarking.
- Conduct (ideally automated) benchmark tests and document the results.

Erwartete Vorkenntnisse

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Weiterführende Quellen

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