

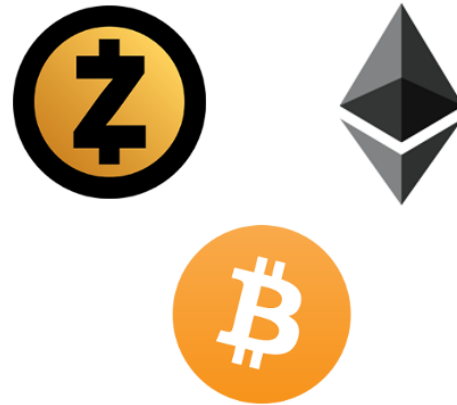


Bachelor Thesis Description

Implementation of a Fast Cryptocurrency for Micropayment Channels

Blockchain and cryptocurrencies are hot topics nowadays and banks want to be part of the game as well. Today's systems for transferring money between banks are slow and expensive to use. A cryptocurrency with support for micropayment channels would help to solve these issues. Decentralized solutions like Bitcoin are limited in scalability and speed.

In this project a new system will be developed that combines features of cryptocurrencies and centralized solutions. For redundancy and availability there will be several servers storing the ledger, where each server could receive transactions (mainly to open and close channels between banks) from any participant in the system. One problem that now arises is that there needs to be consensus between these servers about which transactions are executed.



Outline

The goal of this project is to implement a software that is running on the nodes maintaining the blockchain. The nodes will run a consensus protocol to maintain a fault tolerant database of balances with the additional features to enable micropayment channel networks.

The project will consist of the following steps. The stars correspond to the time allocated to each step.

- Choosing a reliable database system to use for data storage and synchronization of the nodes. (*)
- Implementing a basic cryptocurrency. (**)
- Extending the cryptocurrency to support transaction replacement to enable payment channels. (**)
- Producing a written report of the results. (*)

Extensions

- Adapt the system to synchronize nodes with a byzantine fault tolerant algorithm.

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