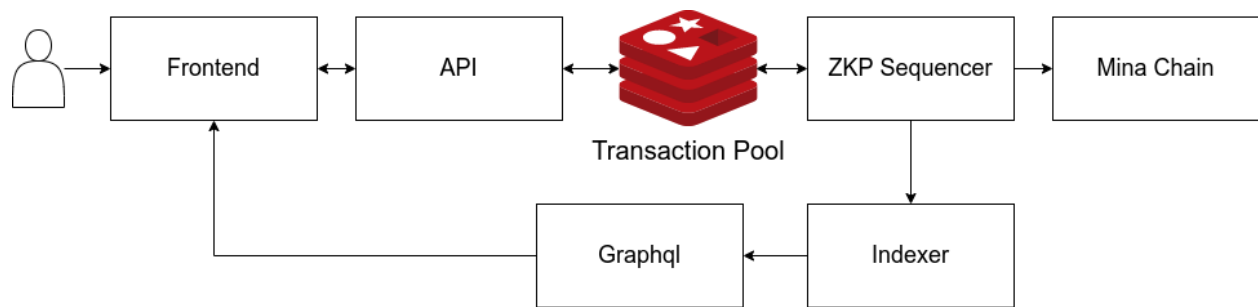


Product Overview

Overview

- ZKP rollup enabled decentralised exchange based on constant product AMM model

Components



- Frontend - User will use the frontend to interact with the exchange. This will be a react frontend.
- API - Receive requests from the frontend and add transactions to transaction pool. It will also communicate results of transaction execution to react frontend client.
- Transaction Pool - Stores transactions for the rollup sequencer and transaction results
- ZKP Rollup Sequencer - Process transactions and produce rollup proofs
- Mina Chain - Rollup proofs will be periodically sent to the mina chain
- Indexer - Index data generated when processing exchange transactions
- Graphql - Expose indexed data to frontend client

Technology

- All components will be written in typescript
- Components will be containerised using docker

- docker-compose will be used to orchestrate local development
- Kubernetes used for compute container orchestration in production
- Off-chain storage solution required - TBD
- Hasura will be used for graphql
- Indexer will use a postgres backend

Component Overview

Frontend

- Written using React
- Provides simple interface for swapping tokens and managing LP (inspired by <https://app.uniswap.org/#/swap>)
- Connects to API via websocket
- Integrates with browser wallet for signature generation
- Submits swap transactions and listens for response over websocket

API

- Provides a websocket API
- Listens for requests containing swap transactions
- Validates requests
- Adds swap transactions to transaction pool
- Communicates results / errors to client

Transaction Pool

- Pool to store pending transactions and transaction results

ZKP Rollup Sequencer

- Responsible for executing transactions
- Responsible for rolling up proofs into a single transaction proof
- Responsible for communicating result of transaction

Mina Chain

- Rollup proof is periodically sent to mina chain

Indexer

- Index data generated by exchange
- Aggregate data to generate important insights
- Expose data via graphql for frontend

Graphql

- Graphql component will expose indexed data to client