Course IV:

DeFi Risks and Opportunities

3. Scaling Risk

(v) Rollups

Risks: Scaling risk

Optimistic rollup

- As Ethereum's transaction fees have risen to record levels, layer-2 usage has remained stagnant.

- The space has been developing slowly and many live solutions lack support for smart contracts or decentralized exchanges.

- One solution in development is an *Optimistic Rollup.*

- An optimistic rollup is a process in which transactions are aggregated off-chain into a single digest that is periodically submitted to the chain over a certain interval.

Risks: Scaling risk

Optimistic rollup

- Only an aggregator who has a bond (stake) can combine and submit these summaries.

- Importantly, the state is assumed to be valid unless someone challenges it.

- If a challenge occurs, cryptography can prove if the aggregator posted a faulty state.

- The prover is then rewarded with a portion of the malicious aggregator's bond as an incentive (similar to a Keeper mechanism).

Risks: Scaling risk

Optimistic rollup

- Optimistic rollups have yet to deliver functional mainnets and require expensive fraud proofs as well as frequent rollup transaction posting, limiting their throughput and increasing their average transaction costs.

- Many approaches aim to decrease the scalability risks facing DeFi today, but the field lacks a clear winner.

- As long as DeFi's growth is limited by blockchain scaling, applications will be limited in their potential impact.