4 Dimensional Blockchain Scaling with Cosmos and Tendermint

Adrian Brink

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AGENDA

- INTRODUCTION TO SCALING / INTEROPERABILITY
- SCALING / INTEROPERABILITY
- SECURITY MODELS
- RECAP

GOALS

1 UNDERSTAND THE DIFFERENT SCALING APPROACHES

- Consensus Scaling:
Using Tendermint Consensus
- State Machine Scaling:
Cosmos-Sdk || Ethermint
- Interchain Scaling:
IBC || Peggy
- Social Scaling:
Governance || Developers

2 KNOW THE AVAILABLE SECURITY MODELS

- Sovereign
- Hosted
- Plasma

3 SCALING IS EVERYONE'S RESPONSIBLITY

- You have to be an Optimistic Planer
- Don't wait for someone else
- Actively look for design patterns that allow you to build scalable dApps

INTRODUCTION TO SCALING AND INTEROPERABILITY

SCALING

- Throughput
- Time to Finality
- Competition for the same compute resources

INTEROPERABILITY

- Many heterogeneous chains
- Central synchronization points
- Access to liquidity

SCALING

CONSENSUS SCALING

STATE MACHINE SCALING

INTERCHAIN SCALING

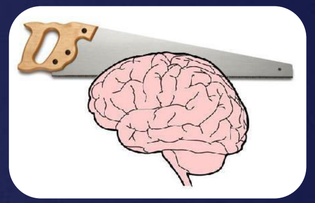
SOCIAL SCALING

CONSENSUS SCALING

Nakamoto Consensus

Validation | Propagation + Mining

Validation | Propagation + Mining



BFT Consensus

Validation | Propagation

Validation | Propagation

CONSENSUS SCALING

Current

- Instant Finality
- Efficient light-client proofs
- Safety in asynchronous networks
- Liveness in partially synchronous networks
- 4,000 tps on 64 validators
- High network overhead - O(N^2)

Future Improvements

- BLS signatures
- Optimistic pipelining
- DKG construction
- Liveness through synchrony assumption

STATE MACHINE SCALING

ETHERMINT

COSMOS-SDK

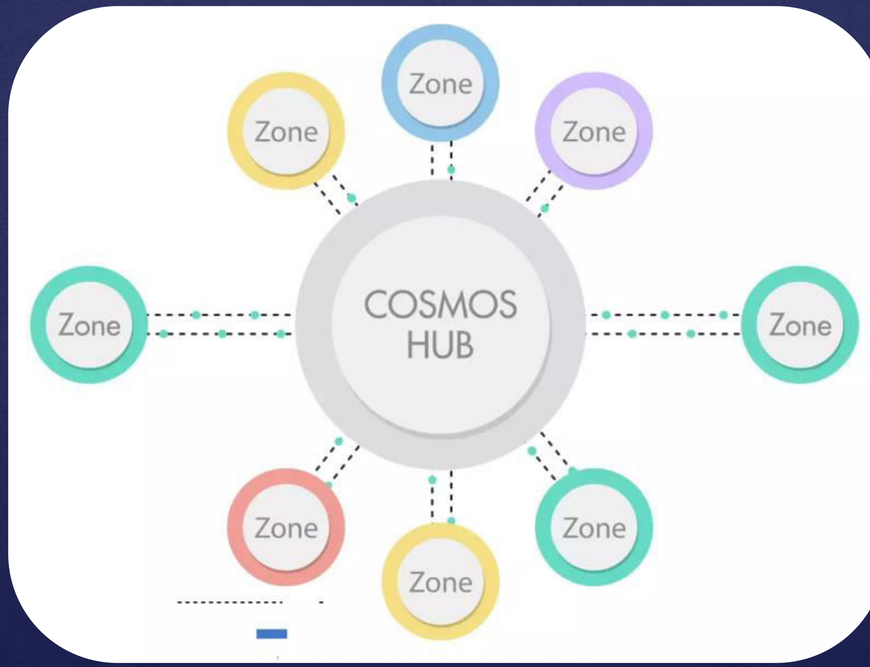
INTERCHAIN SCALING

IBC

- Secure transfers between heterogeneous blockchains
- Tokens -> NFAs -> Complex Objects

IBC + Adaptors

- Adapter to enforce finality
- Allows IBC connections to non-finality chains



Cosmos Hub

- Liquidity provider for all connected blockchains
- Maintains double-spend protection between blockchains

SOCIAL SCALING

Development

- Increasing adoption
- Security of your codebase
- Working with a large group of people

Governance

- Evolving the protocol
- Ability to govern the network

SECURITY MODELS

SOVEREIGN

HOSTED

PLASMA

RECAP

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CALL TO ACTION

Scaling is Everyone’s Responsibility!

Don’t just wait for someone else to solve it for you!

Any Questions?

Adrian Brink

@adrian_brink cosmos.network