COSMOS

powered by Tendermint

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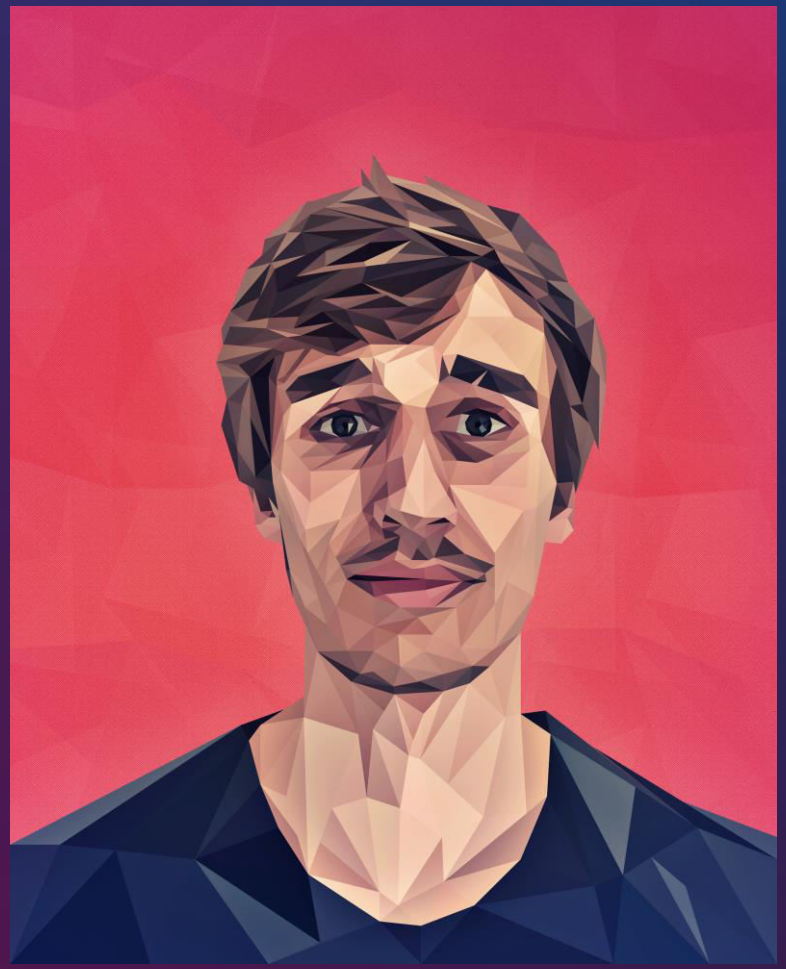
Who am I?



- Adrian Brink
- Background Computer Science and Business Management
- Lived and worked in Denmark, Canada, Germany, and the UK
- Avid drone enthusiast
- Research interest:
  - Consensus Engines
  - Secure peg zones
  - Decentralised Exchanges
  - E-voting
  - Usability

Who's behind COSMOS?

- The core team of 10 (and growing) amazing people

Demo Time

Questions

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Why COSMOS?

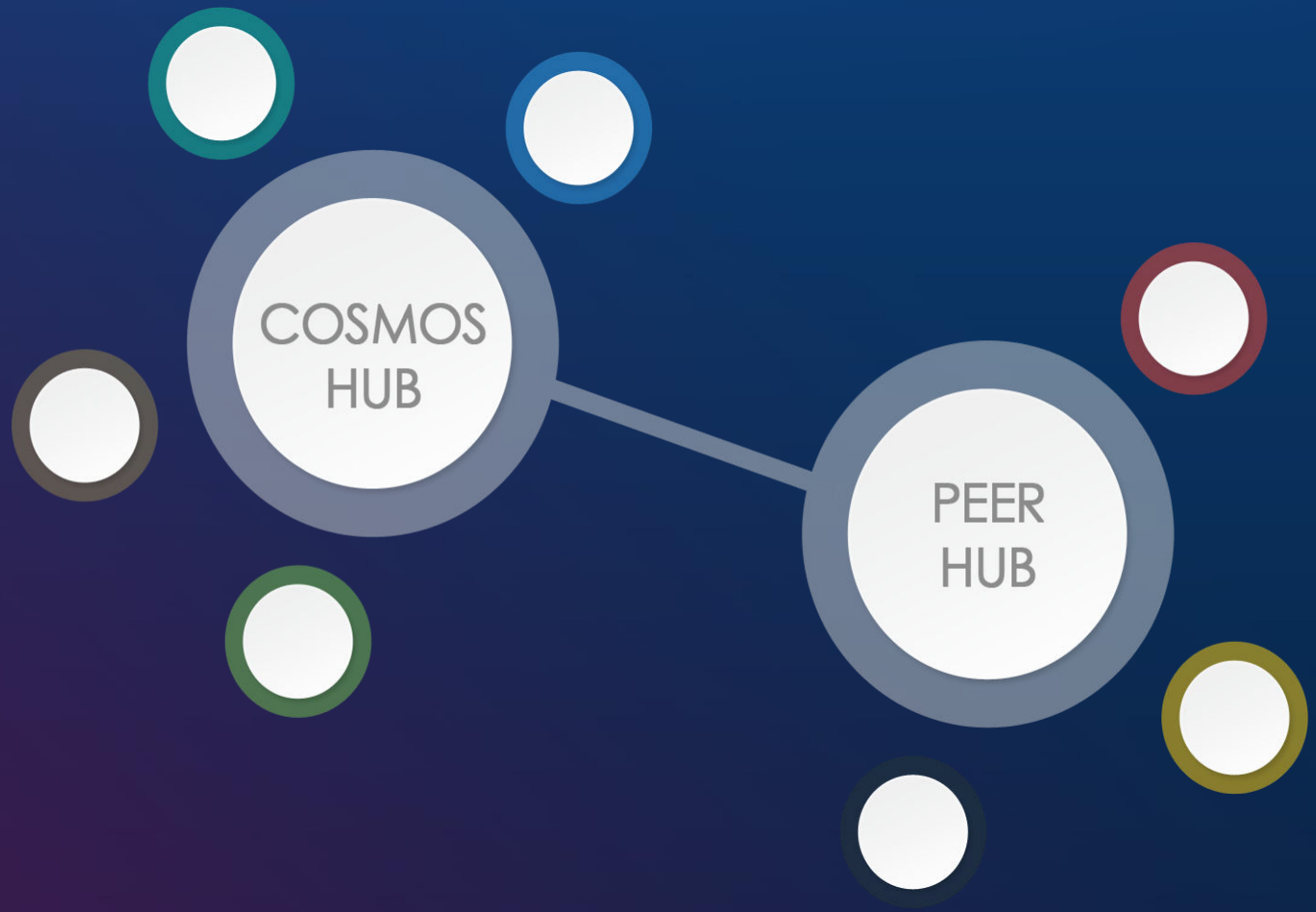
Scalability

&

Interoperability

The Theory

- Value transfer between zones and hubs
- Zone have independent state updates
- Hubs are secure connectors



The Building Blocks

Cosmos Hub

Tendermint Consensus Engine

Ethermint

Ethereum Peg Zone

Weave SDK

COSMOS Apps

Everyone in the world can build their own zone with their own business logic and connect it to the **COSMOS hub**.

COSMOS Hub

Questions

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Let’s get Technical

Basics

Tendermint Consensus Engine

I. Proof-of-Stake consensus algorithm

II. Guarantees safety & liveness

III. Optimally Byzantine Fault Tolerant

IV. Fully fork accountable

V. Simplest PoS implementation

Basics

Practical Byzantine Fault Tolerant

Basics

Why Tendermint Proof-of-Stake?

- Uses security deposits instead of wasting electricity
- Secure and formally verified
- Full specification on GitHub

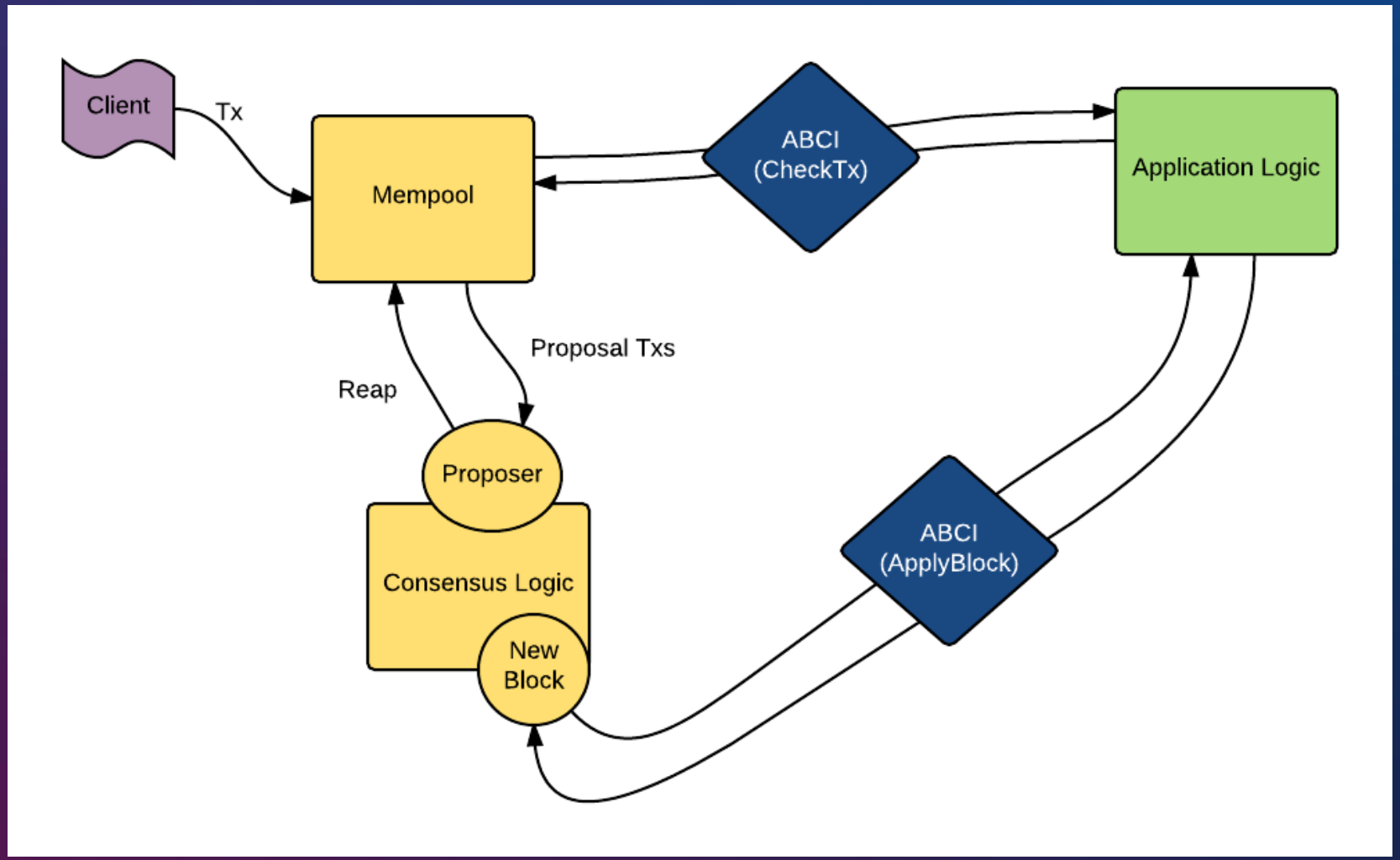
Basics

Security through Staking

- Atoms are mining equipment
- Validators instead of Miners

Basics

Efficient light clients



Basics

Tendermint Socket Protocol

Questions & Break

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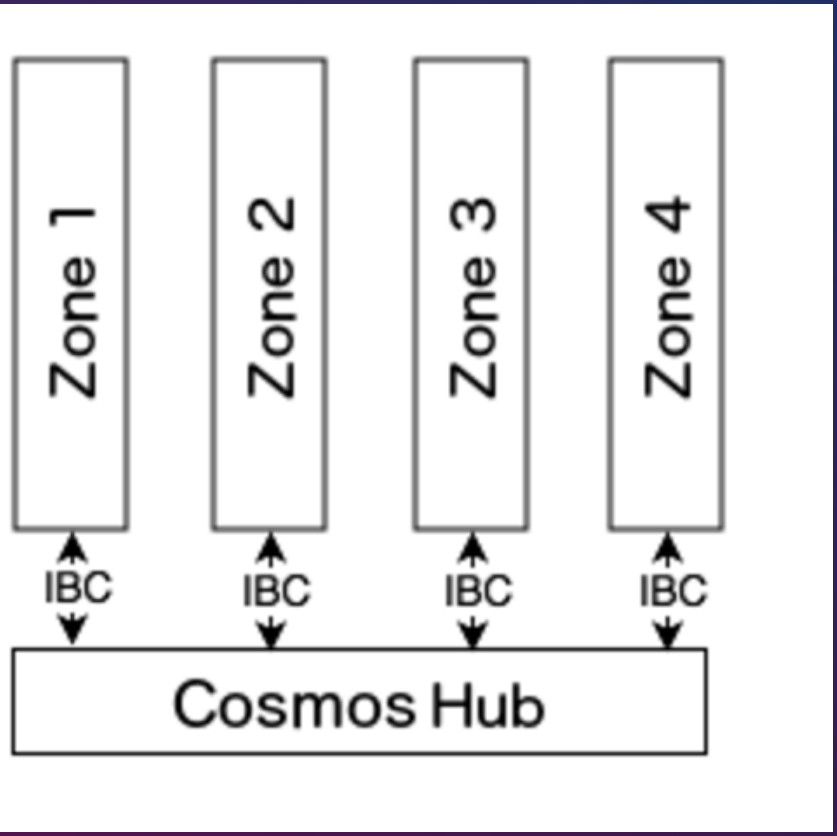
Scalability

IBC – Inter Blockchain Communication

Scalability

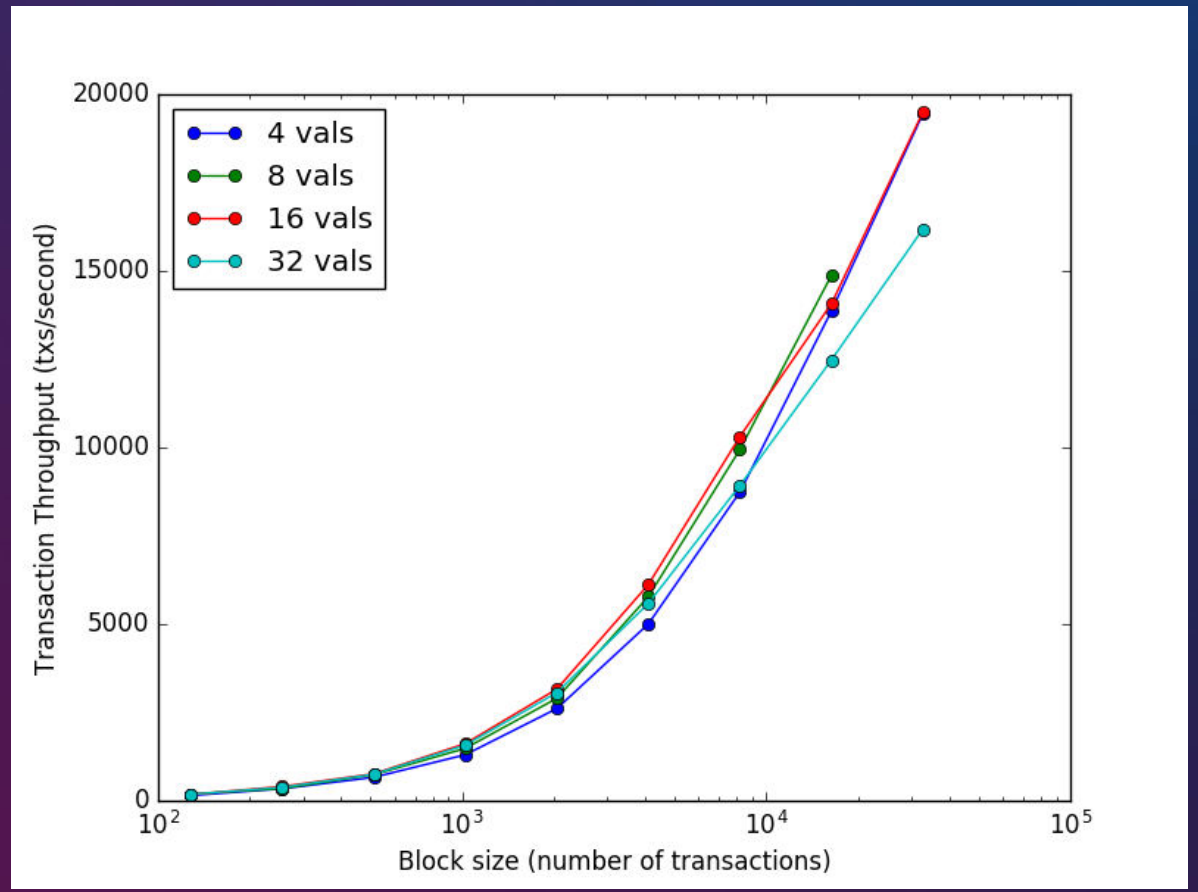


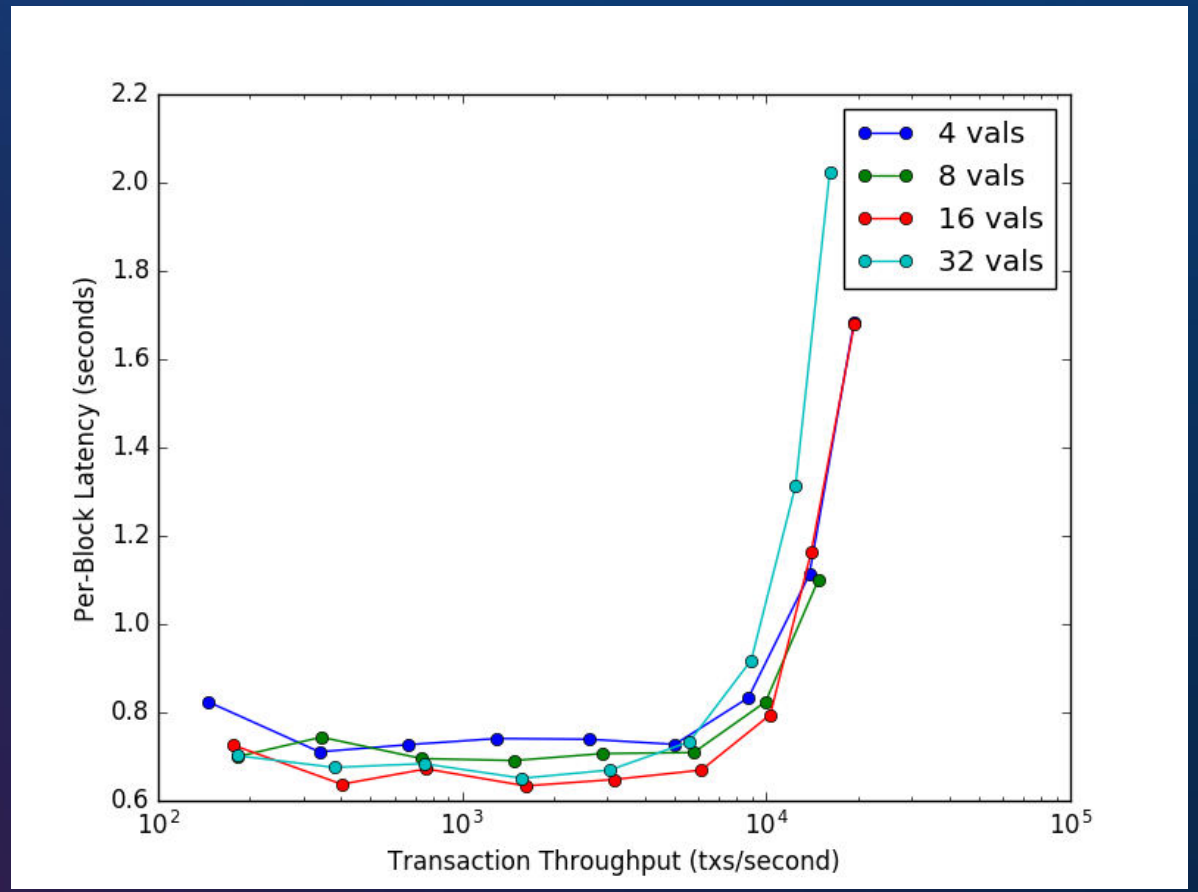
Hubs

Scalability

Zones

Scalability





Interoperability

Zones can contain arbitrary states and business logic

Interoperability

Synchronisation through the hub or peer to peer

Interoperability

Zones do not have to open source their business logic

COSMOS APPS

Ethermint

COSMOS APPS

Weave SDK

COSMOS APPS

The Hub

COSMOS APPS

Ethereum Peg Zone

COSMOS APPS

How to interact with COSMOS

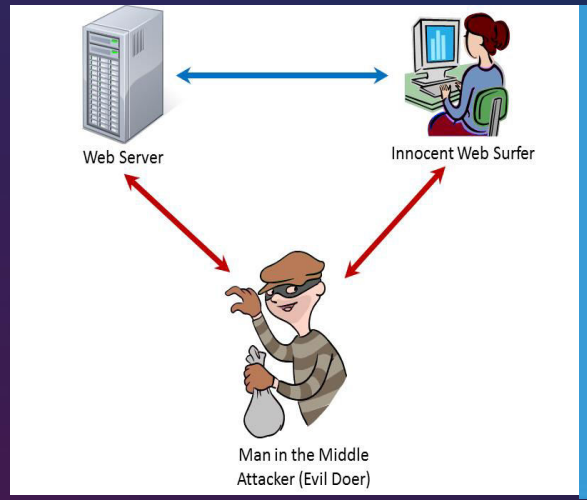
I. Build on top of Ethermint using Solidity

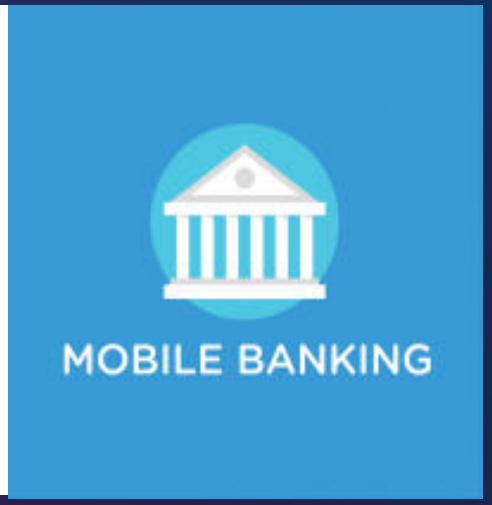
II. Use our language SDKs for Go, Rust, Java, JavaScript or Python

III. Implement the TSP protocol yourself in the language of your choice

COSMOS APPS

Idea





Questions

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NEXT STEPS

You are on the brink of discovery

NEXT STEPS

Future Roadmap

I. Production ready testnets in October

II. Live Network at the end of the year

NEXT STEPS

How to learn more

I. Developer Chats

II. Youtube Channel

III. Blogs

IV. Developer updates via email

V. Meetups

NEXT STEPS

How to get in touch

I. WeChat Group

II. Rocket Chat

IV. Email

V. Github Issues

NEXT STEPS

Upcoming Events

I. Meetups in Korea

II. CSEC in Berkley

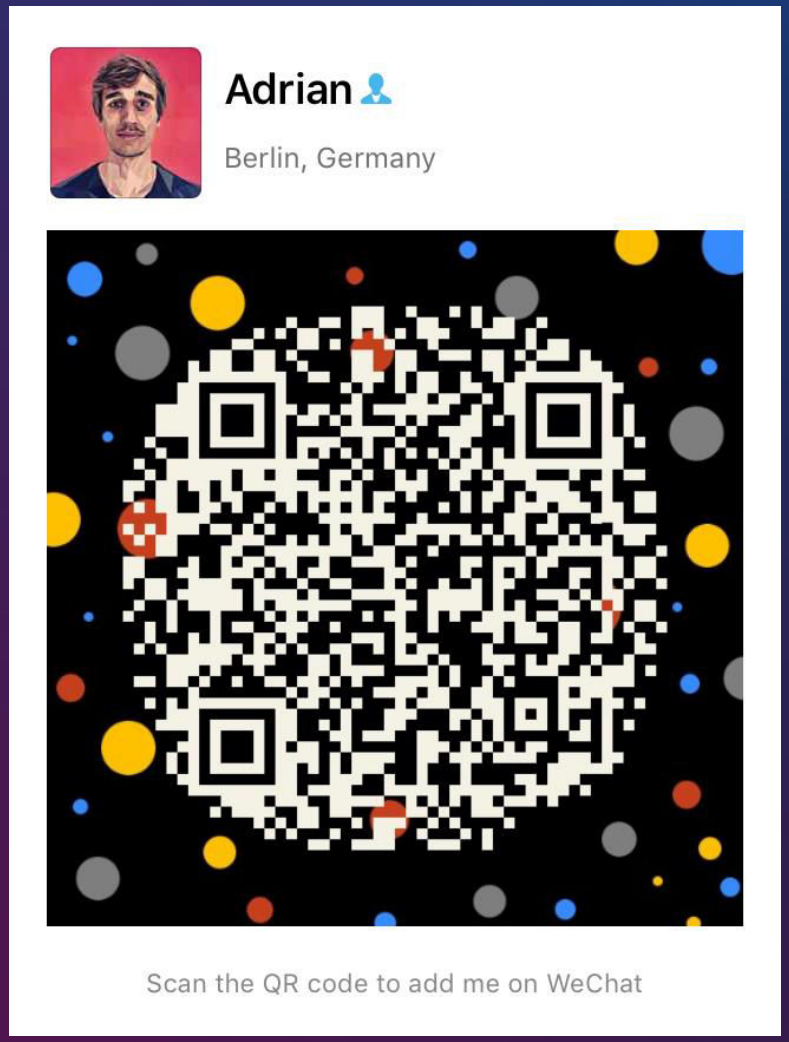
IV. Hackatom China

III. Devcon 3 in Mexico

Extra Resources

- Tendermint/COSMOS Whitepaper
- Tendermint in a Nutshell
- Rocket Channel
- Epicenter – Podcast
- Core Developer Chat Livestreams - Youtube

Where to find me?



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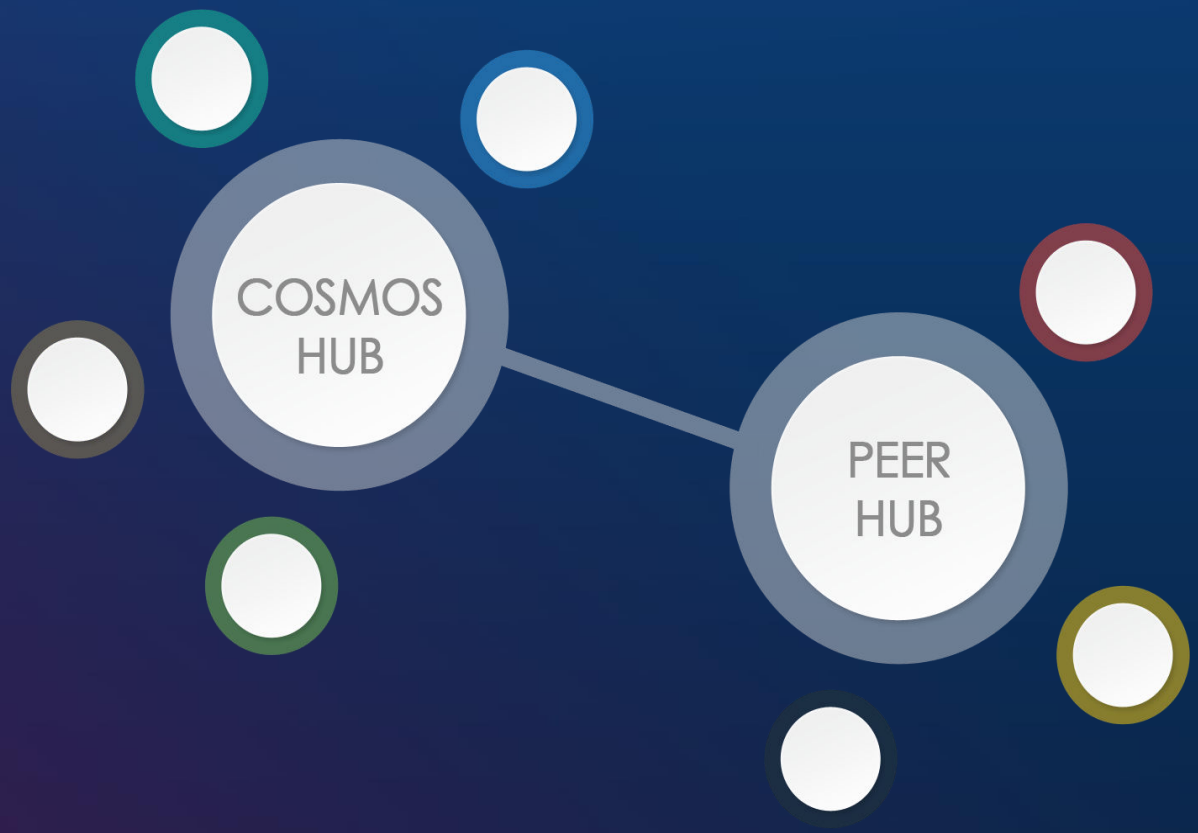
  adrian@brink-holdings.com
- Research interest:
  - Consensus Engines
  - Secure peg zones
  - Decentralised Exchanges
  - E-voting
  - Usability

What is the COSMOS Hub?

- Scalable Cryptocurrency
- The COSMOS hub facilitates moving value across different zones and hub
- Arbitrary business logic in the application layer
- Instead of one to rule them all there will be multiple to work together

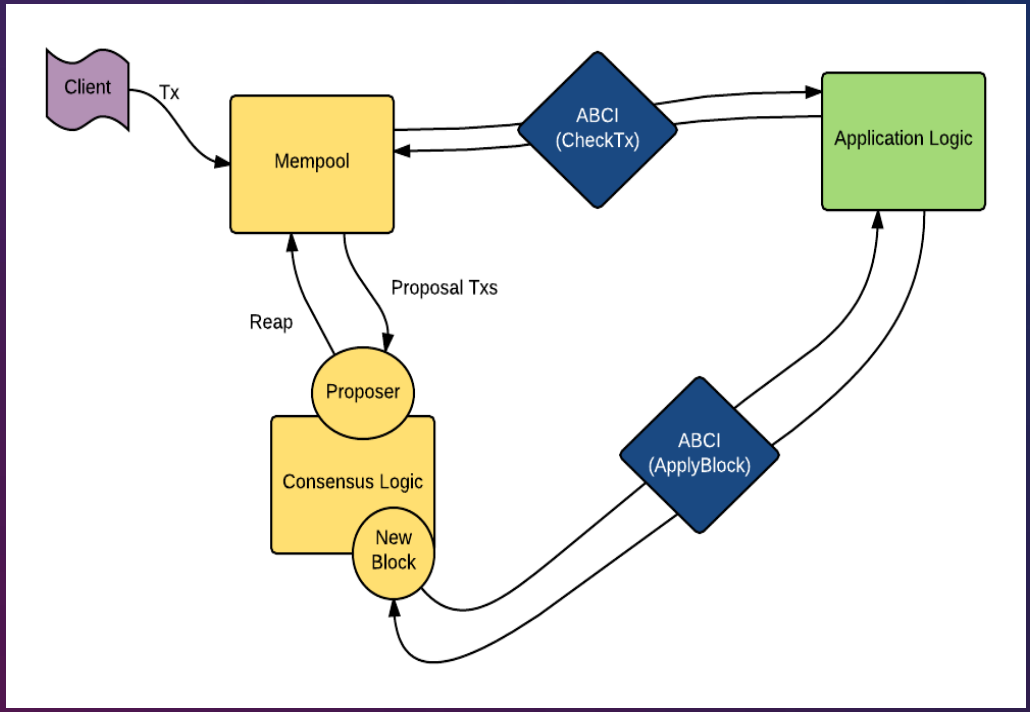


What are we building?

Everything that is needed for the COSMOS Hub

- Tendermint Core Engine
- COSMOS Apps
- Tendermint Apps
- ABCI Protocol
- Peg Zones
- Decentralised Exchange
- Enterprise Solutions
- IBC Protocol

Brief Overview of Tendermint



- The Blockchain is secured by Tendermint consensus
  - Proof-of-Stake algorithm that uses security deposits
- Application logic is abstracted away
  - Arbitrary business logic can be build on top of Tendermint
- Standalone Tendermint application can become zones on the COSMOS hub

Why Tendermint and what makes us different?

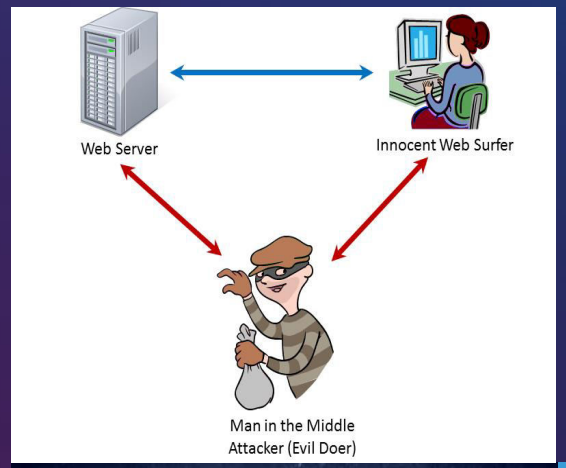
I. Tendermint Core implements a Proof-of-Stake consensus algorithm
   - Doesn’t waste electricity but rather uses security deposits
   - Secure and formally verified
   - Full specification on GitHub

II. Guarantees safety & liveness through the algorithm and a weak synchrony assumption

III. Is optimal Byzantine Fault Tolerant
   - Requires +1/3 byzantine failures to violate safety/liveness

IV. Is fully fork accountable
   - We can figure out who tried to cheat and punish them

V. Much simpler than other implementations such as Casper (Ethereum)



Properties and possible application

- Fast and permanent block finality
- Efficient light clients are available
- The validator set is known and accountable
- Regional zones

How to write your own business application?

- The easiest way is to implement everything on top of Ethermint in solidity
- We provide language bindings for Rust, Java, Go, JavaScript if you want to write your own persistent state machine
- Implement a couple of required messages, such as Info() and DeliverTx()
- Pitfalls:
  - Tendermint core opens three separate socket connections
  - Some events can run concurrently, whereas others require sequential execution
  - Speed is of essence essentially for apps that require larger application states
  - Light-clients have to be considered from the beginning