



# The impact of Blockchain technology on trading and settlement

ETCSEE 2018, Plenary session “The future of trading”

Budapest, 13 June 2018

Tilo Zimmermann, PONTON GmbH

# Agenda

- ❑ **Blockchain + Energy = ?**

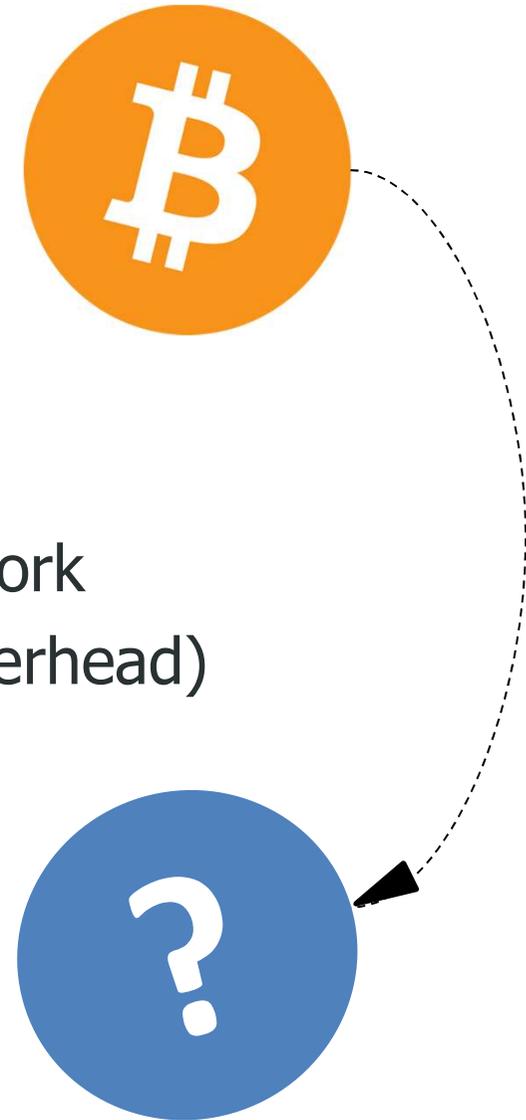
- ❑ Enerchain Case Study

- ❑ Scenarios for the Future

- ❑ Q & A

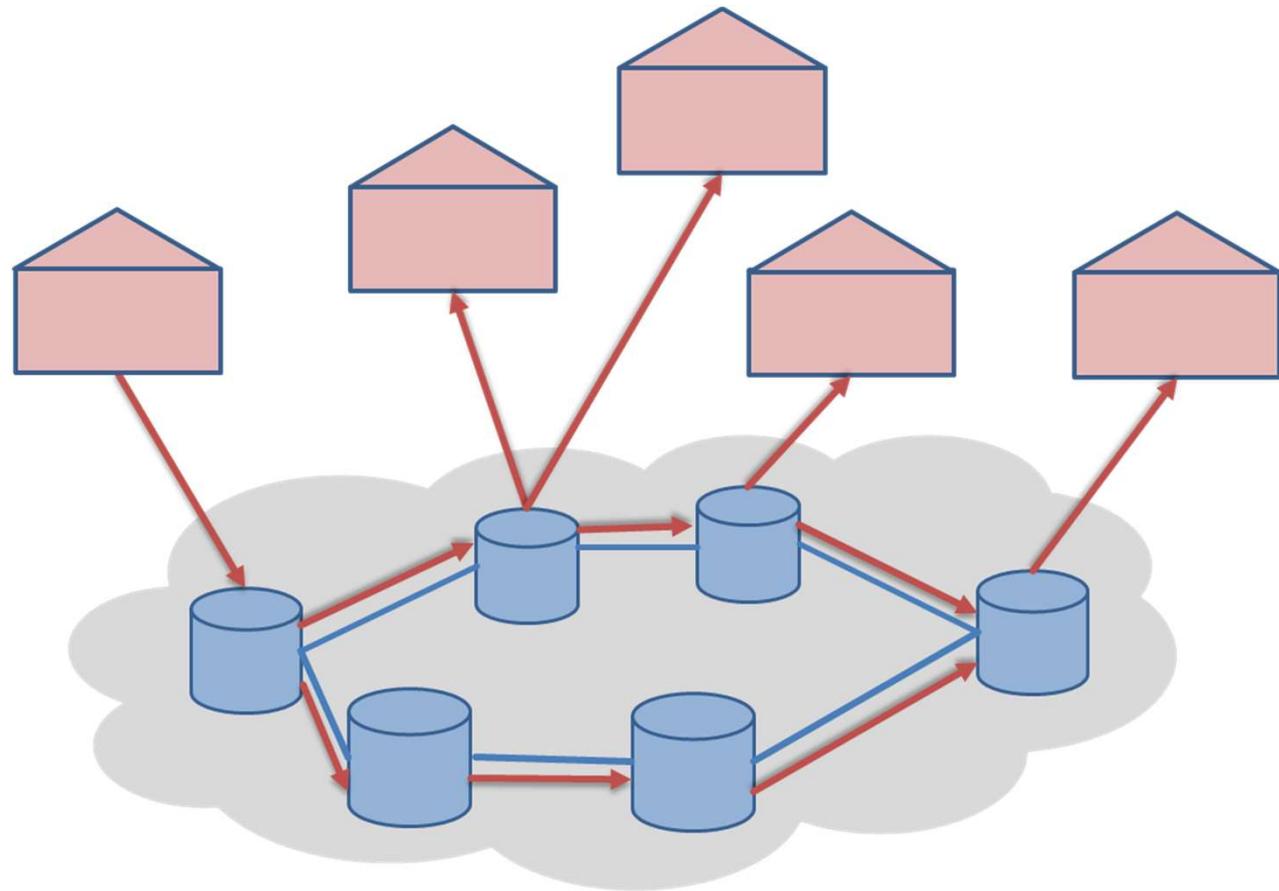
# What is a blockchain?

- ❑ Open, distributed ledger
- ❑ Records transactions between parties:
  - ❑ Records are verifiable
  - ❑ Records are immutable
- ❑ Consists of nodes
- ❑ Nodes communicate in peer-to-peer network
- ❑ Nodes follow communication protocol (overhead)
- ❑ Nodes validate new blocks by following:
  - ❑ Secure consensus mechanism
  - ❑ Decentralised consensus mechanism
  - ❑ Incentive for validation?
- ❑ No assumption on trustworthiness



# Bits and pieces

- Open
- Distributed
- Transactions
- Parties
- Nodes
- Peer-to-peer
- Protocol
- Validation
- Consensus
- Trust
- Incentive



# Which Blockchain?

Four simple questions:

- Open or closed (“permissioned”)?
- Which consensus mechanism?
- Using cryptocurrency?
- Financed by ICO?



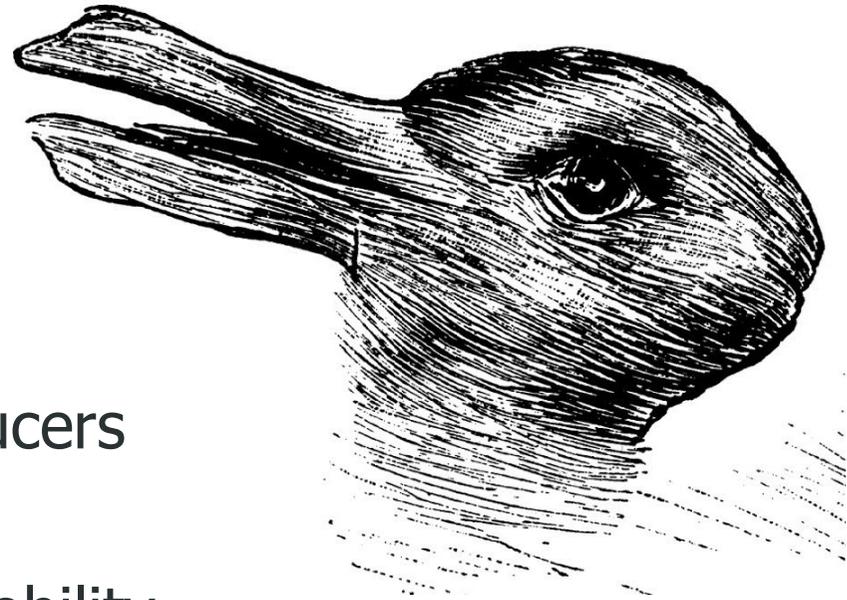
# A solution looking for a problem?

Suitable problems:

- ❑ Preventing double-spend in low trust environment
- ❑ High resilience at low cost
- ❑ Synchronization of select data items
- ❑ Network effects without monopoly power – distributed governance
- ❑ Publication as up-front integration



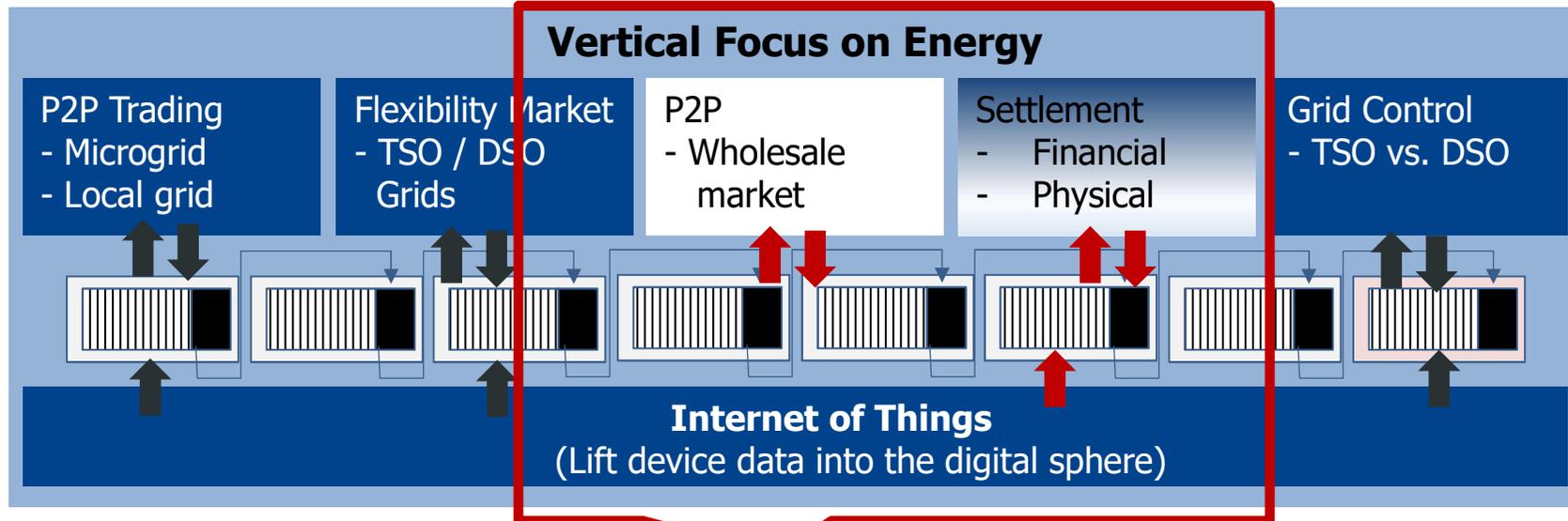
# So what is it, duck or rabbit?



Are these suitable problems?

- ❑ Biogas registry, run by producers
- ❑ Physical oil trade finance
- ❑ Billing infrastructure for e-mobility
- ❑ Flexibility market within one TSO zone
- ❑ Mining Ether, rig consumption as balancing power
- ❑ Automation of bilateral trade confirmation process
- ❑ Exchange of power and consumption between prosumers
- ❑ Trading wholesale power between large traders...

# Blockchain & Energy: Use Cases



**ener**  
**chain**

## Horizontal Technical Features & Challenges

Access / Identity Management / Archive historic blocks  
Load / Mass Data / Performance / Stability / Security / Privacy

# Why in Wholesale Energy Trading?

Why participate

- ❑ Lower cost of trading
- ❑ Enable new products
- ❑ Learn to apply blockchain
- ❑ Drive change in market



Barriers to change in energy trading

- ❑ High (fixed) cost of trading at venues
- ❑ High capital requirements for clearing / collateral
- ❑ Lack of choice re. market connectivity (closed stack/API)
- ❑ Complex physical settlement processes
- ❑ Low flexibility for new roles, new products, innovation...

# Why closed (“permissioned”)?

- ❑ Limited number of participants in wholesale trading
  - ❑ 13.000 ACER codes vs. 500 spot market MPs vs. 200 EFET Master Agreements
- ❑ Identity is known / can be established:
  - ❑ ACER Code, EIC code, LEI, VAT code...
- ❑ Bilateral trading requires master agreement
  - ❑ Counterparties know each other
- ❑ No cryptocurrency
  - ❑ No money in the system
  - ❑ Could be pegged to EUR though
- ❑ No mining – proof of stake
- ❑ No ICO
  - ❑ Consortium funded, no start-up



# Agenda

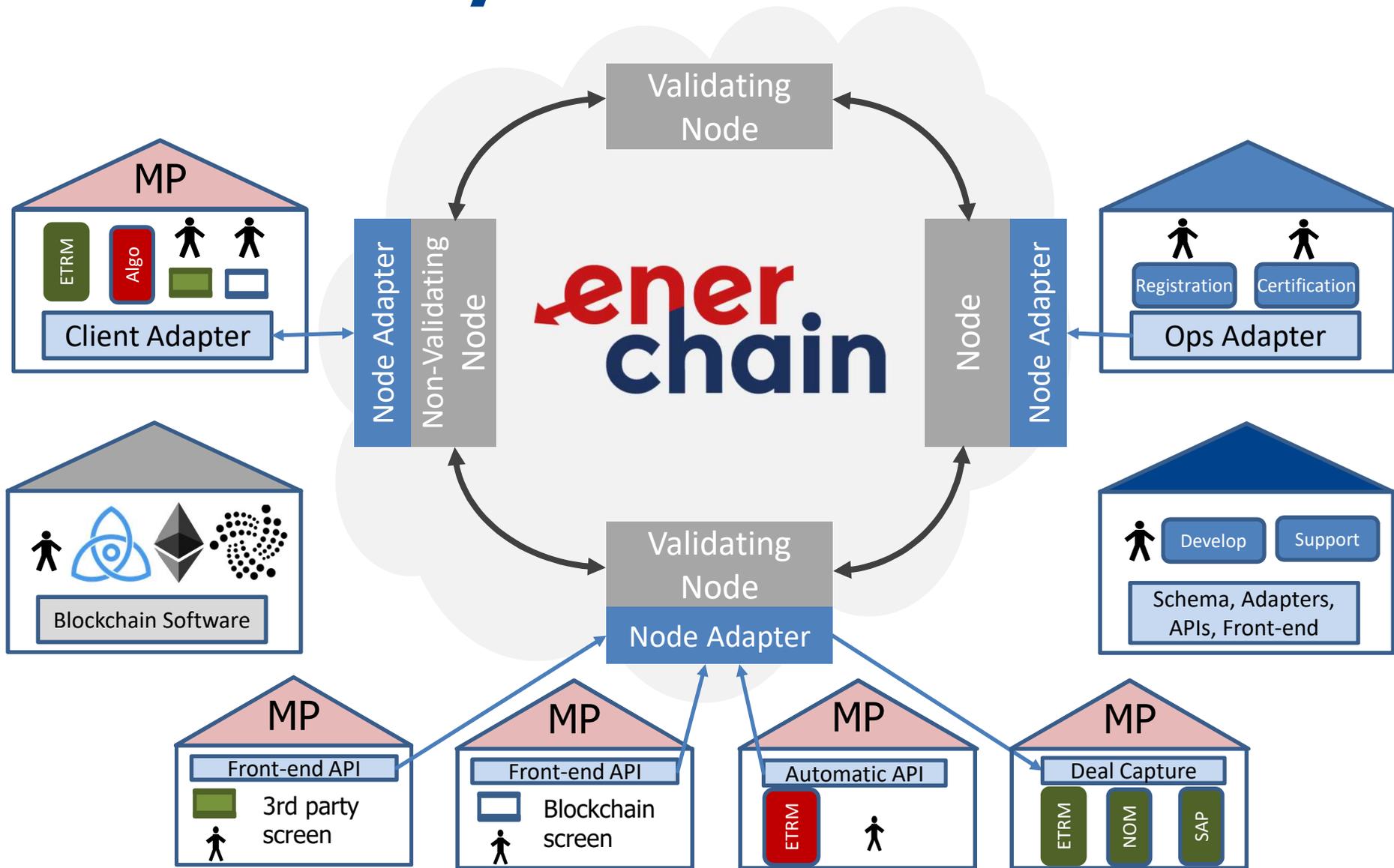
- ❑ Blockchain + Energy = ?

- ❑ **Enerchain Case Study**

- ❑ Scenarios for the Future

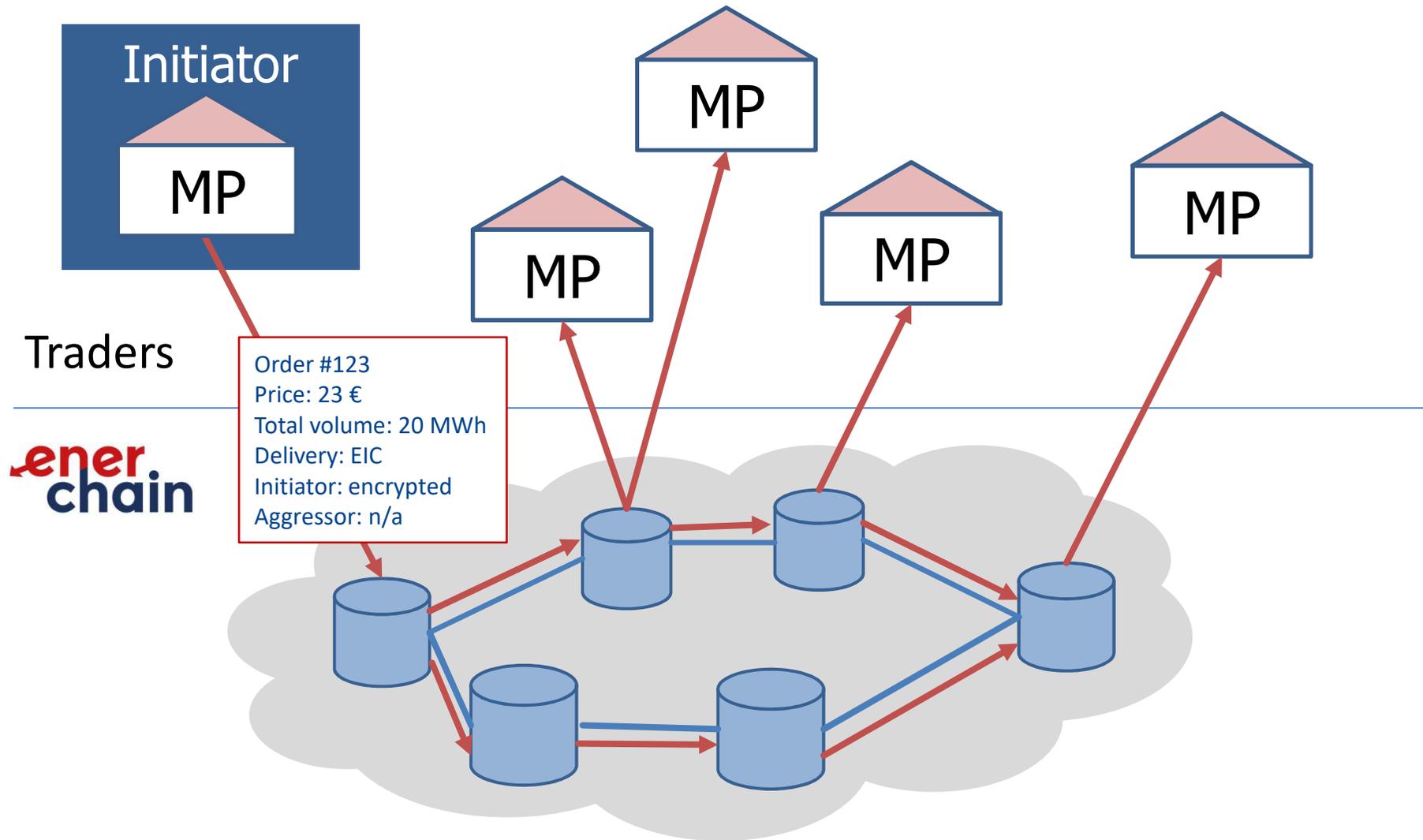
- ❑ Q & A

# Connectivity



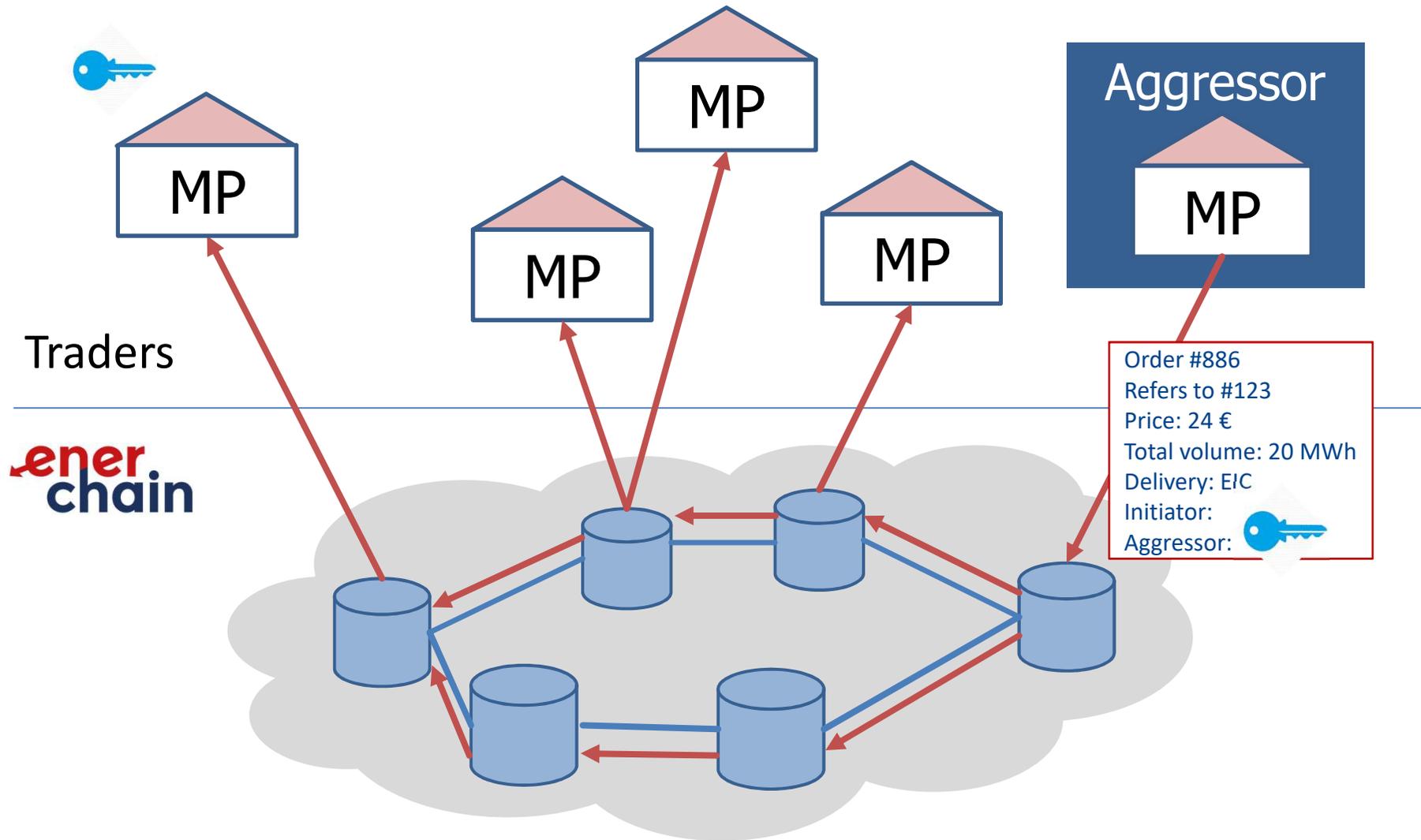


# Propagation of non-binding order\*



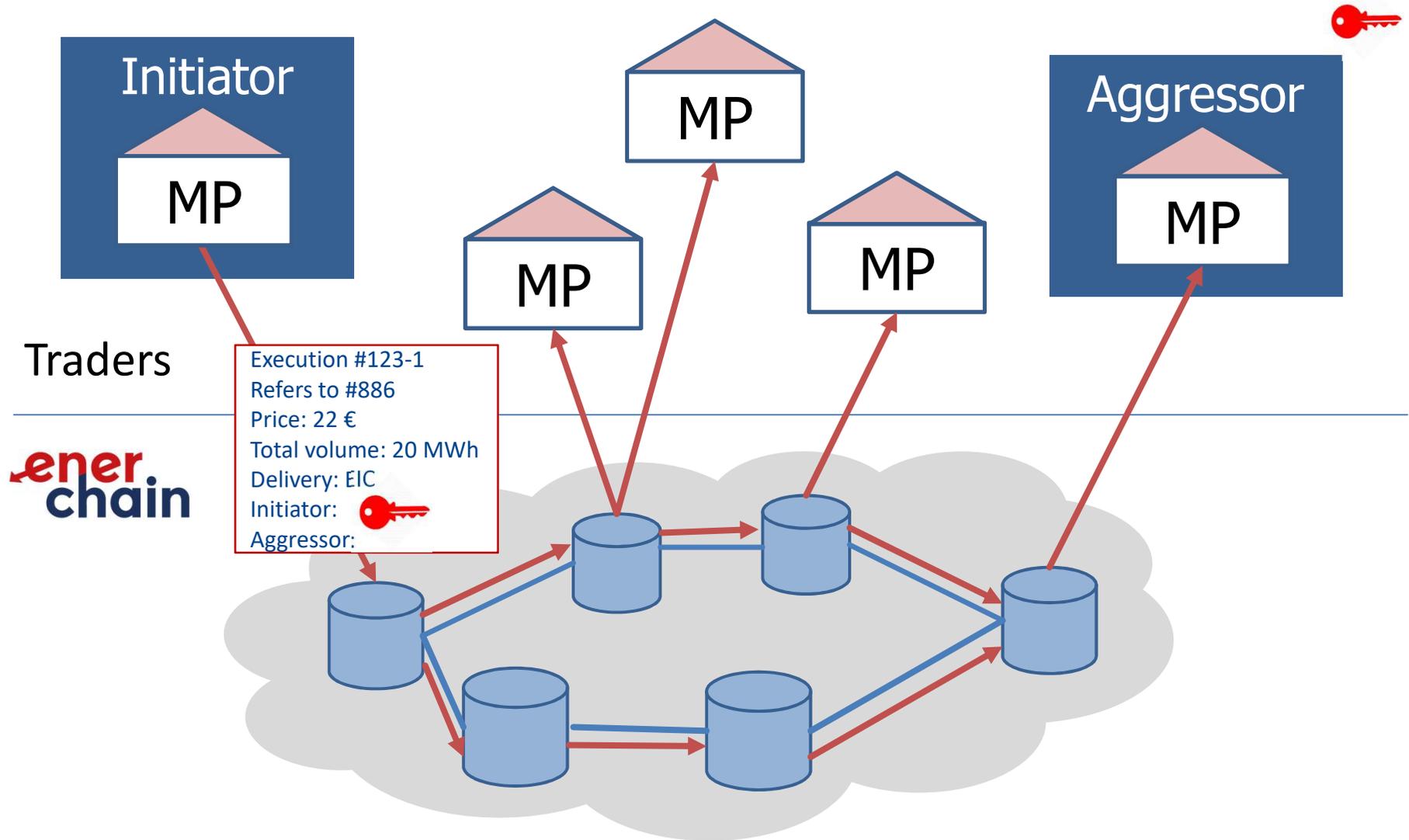
\* Invitatio ad offerendum

# Response with binding order\*



\* Offerta ad incertas personas

# Trade execution by order acceptance



# Market design

## Participation

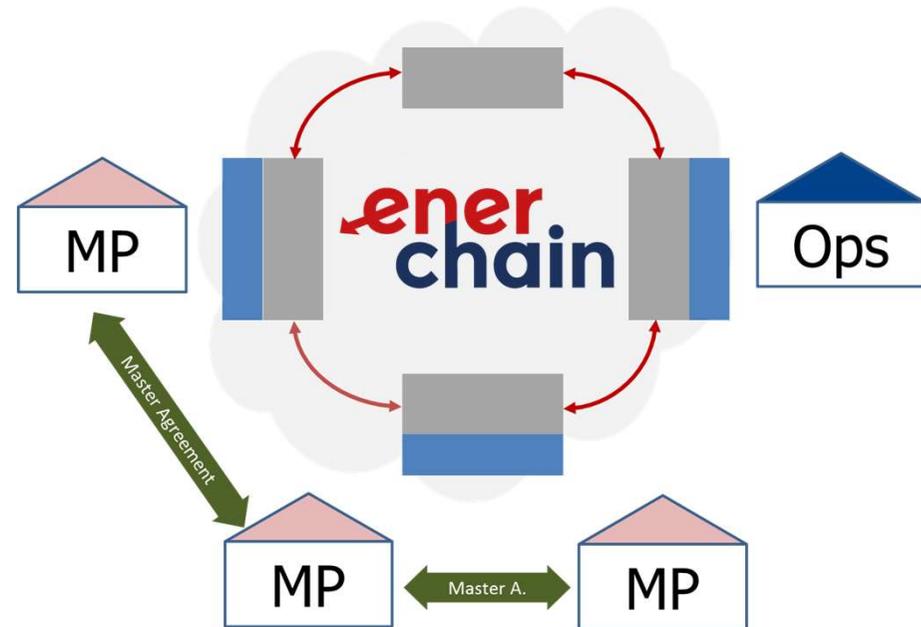
- ❑ Permissioned blockchain
- ❑ Traders only, multi-lateral
- ❑ Joint governance

## Settlement & compliance

- ❑ Deal capture, then confirm
- ❑ Transaction reporting
- ❑ Settlement "off-line"

## Product and markets

- ❑ Physical settlement only
- ❑ Markets: IDH, DAH, FW



## Trading mechanism

- ❑ Decentral orders
- ❑ Credit Limits Process
- ❑ Click & trade / API
- ❑ Bilateral OTC

# Enerchain Timeline

- ❑ 2016: PONTON developed P2P energy trading demonstrator “Enerchain”
- ❑ EMART 2016: first energy trade via the blockchain in Europe executed on Enerchain
- ❑ Feb. 2017: Enerchain Kick-off workshop in Berlin
- ❑ May 2017: Project Participation Agreement (PPA) with 22 companies, critical mass achieved
- ❑ Oct. 2017: 33 companies signed, 28 connected
- ❑ EMART 2017: Trades from trading floor
- ❑ 2018: New governance
- ❑ Transfer to new Enerchain entity in 2018



# Enerchain started in 2017

□ Has ca. 40 participants across Europe as of June 2018:

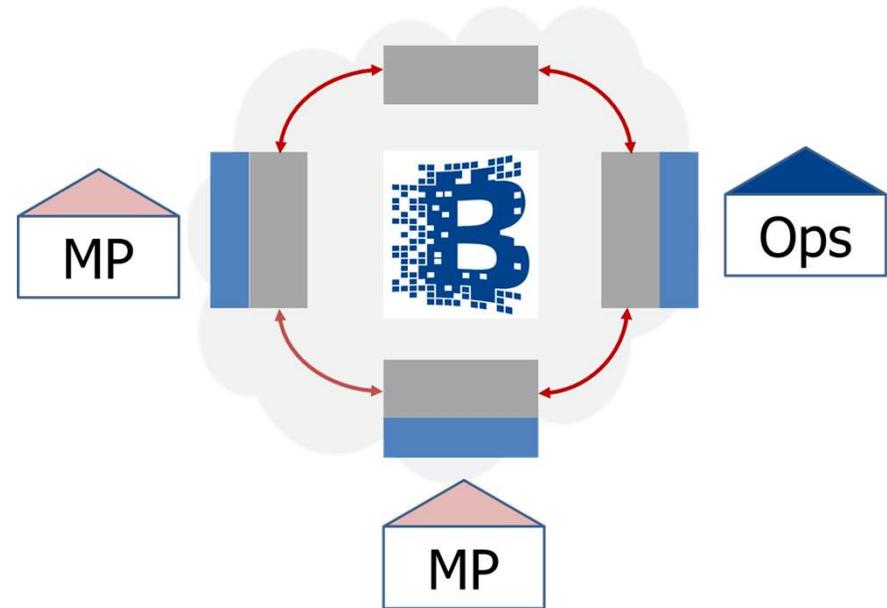
|   |   |  |   |   |
|---|---|--|---|---|
|    |    |    |    |    |
|    |    |    |    |    |
|    |    |    |    |    |
|    |    |    |    |    |
|   |   |  |   |   |
|  |  |  |  |  |
|  |  |  | + companies without permission to share logo  |   |

# Agenda

- ❑ Blockchain + Energy = ?
- ❑ Enerchain Case Study
- ❑ **Scenarios for the Future**
- ❑ Q & A

# Liquidity pools

- ❑ Underserved regions
- ❑ Participant clusters
- ❑ New instruments
- ❑ Brokered trading, cleared trading, bilateral trading – blockchain as 4<sup>th</sup> channel?
- ❑ Secondary effects



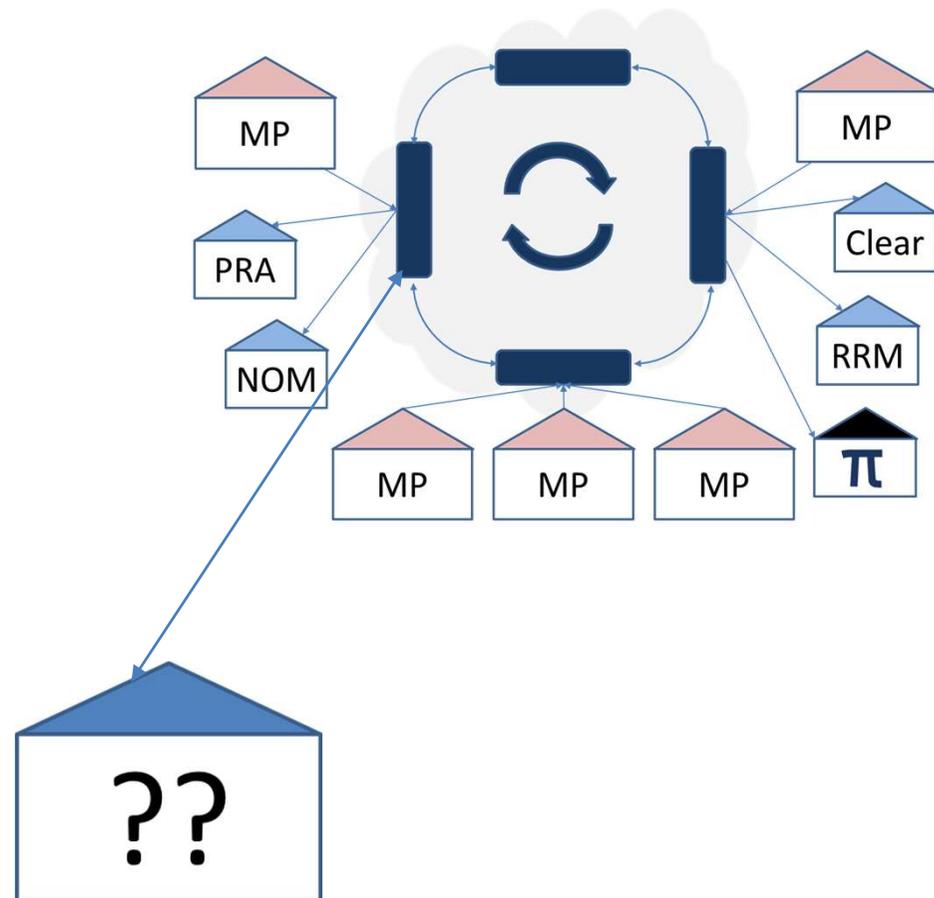
Access will be key

# Post-execution services

Blockchain as Operating System:

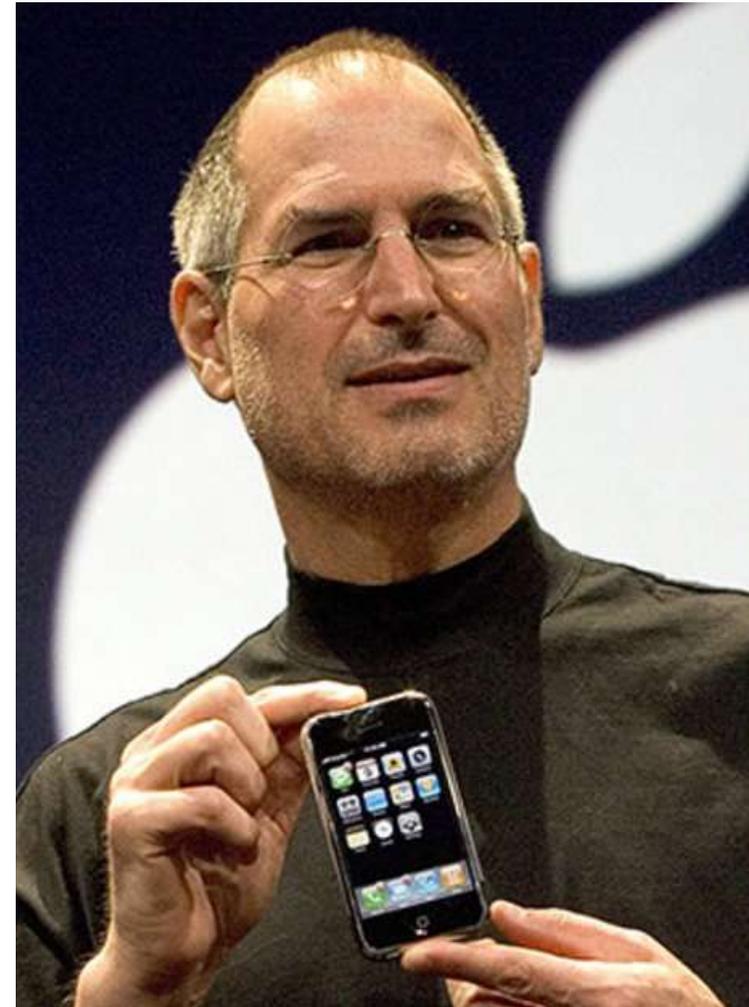
- ❑ Physical Settlement as a Service
- ❑ Compliance as a Service
- ❑ OTC clearing
- ❑ Netting
- ❑ Portfolio compression
- ❑ ...

Portfolio upload key



# Killer app?

- ❑ Infrastructure +
  - ❑ Interoperability +
  - ❑ Data +
  - ❑ Ubiquity
- =
- Killer app



# Agenda

- ❑ Blockchain + Energy = ?
- ❑ Enerchain Case Study
- ❑ Scenarios for the Future
- ❑ **Q & A**

# Legal questions

- ❑ Declaration of intent – where, when, how?
- ❑ Acceptance / consent – where, when, how?
- ❑ Recourse in case of mistakes
- ❑ Liability in a peer-to-peer environment
- ❑ Jurisdiction (legal seat of infrastructure?)
- ❑ Fit with EFET Master Agreement



# Regulatory questions

- ❑ How will trading on the blockchain be classified under REMIT?
- ❑ What classification under MiFID II?
- ❑ Artificial limits on financial trading - Nordics
- ❑ Who is the venue operator of a blockchain?
- ❑ How to retain anonymity while revealing identity in case of suspicious behavior?
- ❑ Can there be a statement of non-classification?



# Thank you.

Looking forward to your call:

Tilo Zimmermann  
Managing Director, PONTON GmbH  
Dorotheenstr. 64  
22301 Hamburg  
Germany

[zimmermann@ponton.de](mailto:zimmermann@ponton.de)

+49.40.866 275-340 (office)

+49.175.435 46 04 (mobile)

