Microsoft

Architecting Enterprise Blockchain apps

TruffleCon 2019

@ImpactWhit
@DavidBurela

Who are we

- Microsoft
- Commercial Software Engineers
- Blockchain Technical leads
- Work with top 500 customers
  - Unlock the potential of Blockchain

David Burela

@DavidBurela

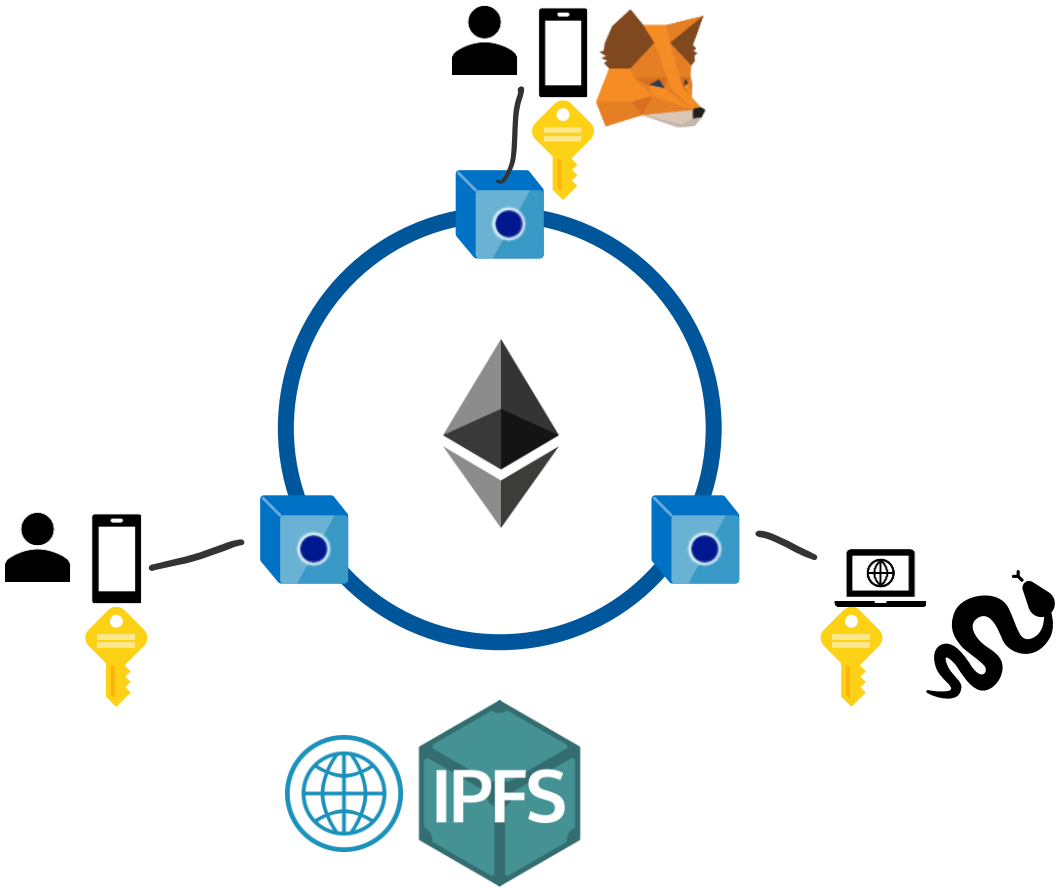
Whitney Griffith

@ImpactWhit

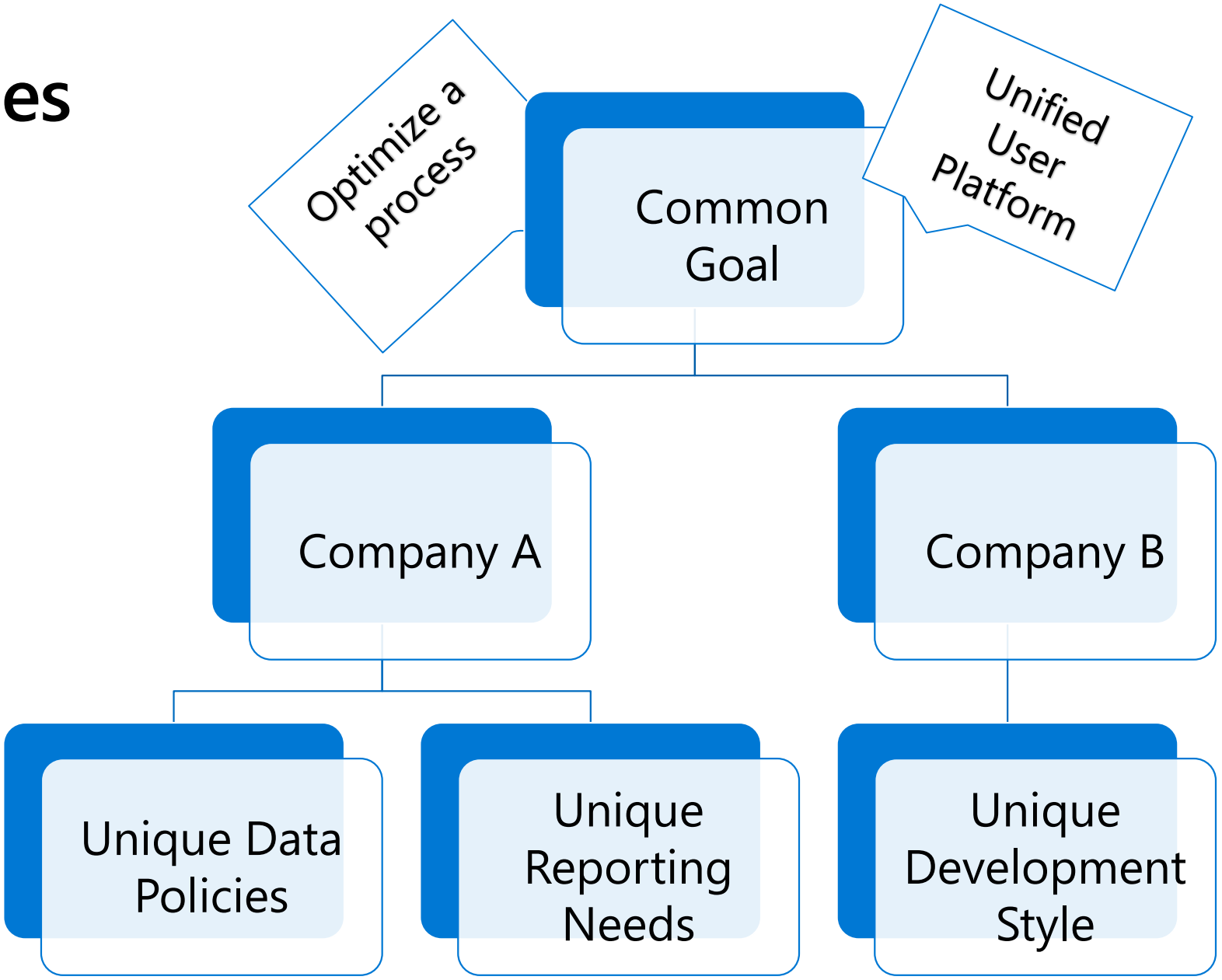
Agenda

- Why enterprise Blockchains?
- Common anti-patterns
- Educating enterprises
- Enterprise architecture
- DEMO
- Composing in different ways
- Example

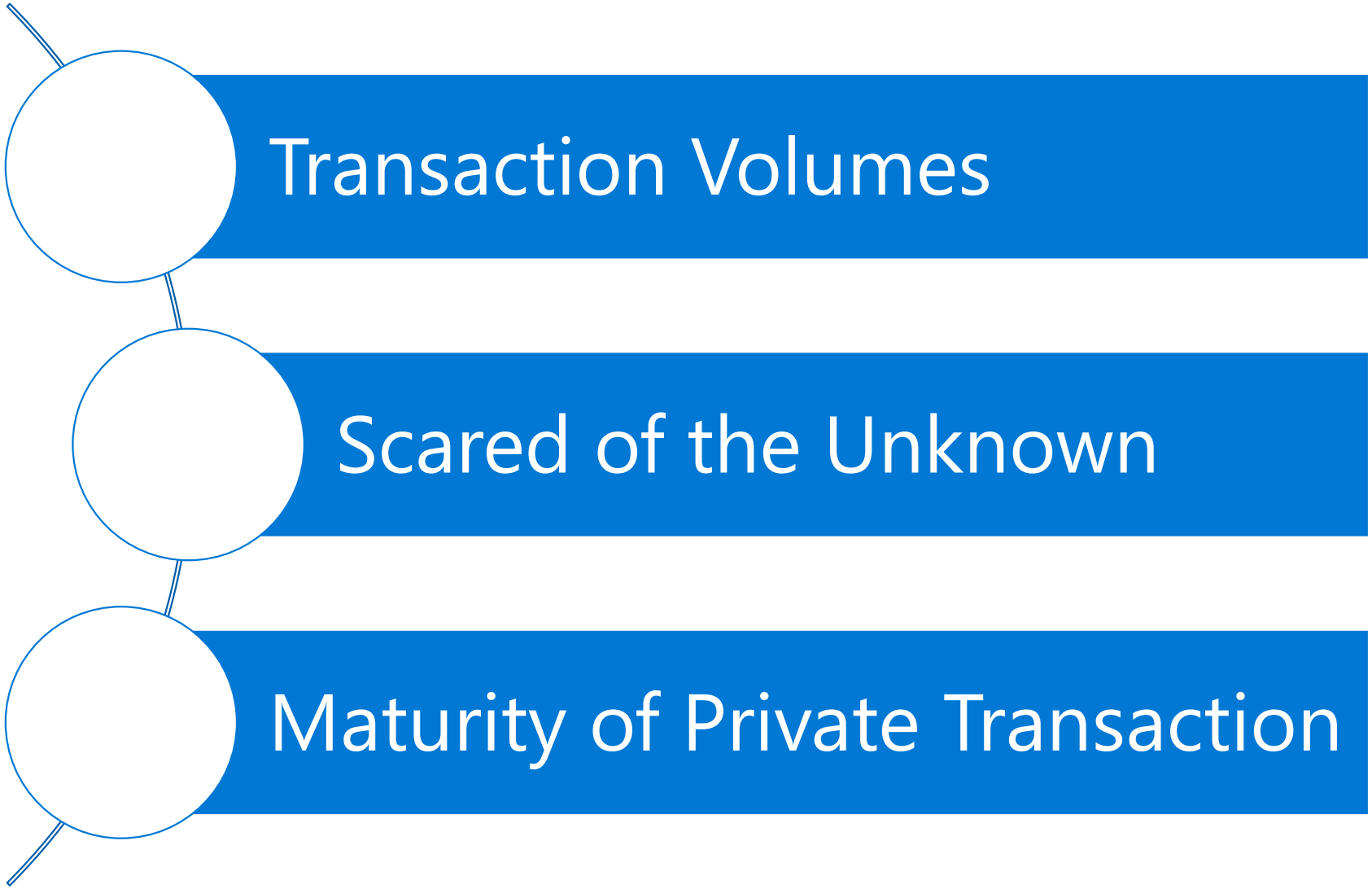
Public Ethereum



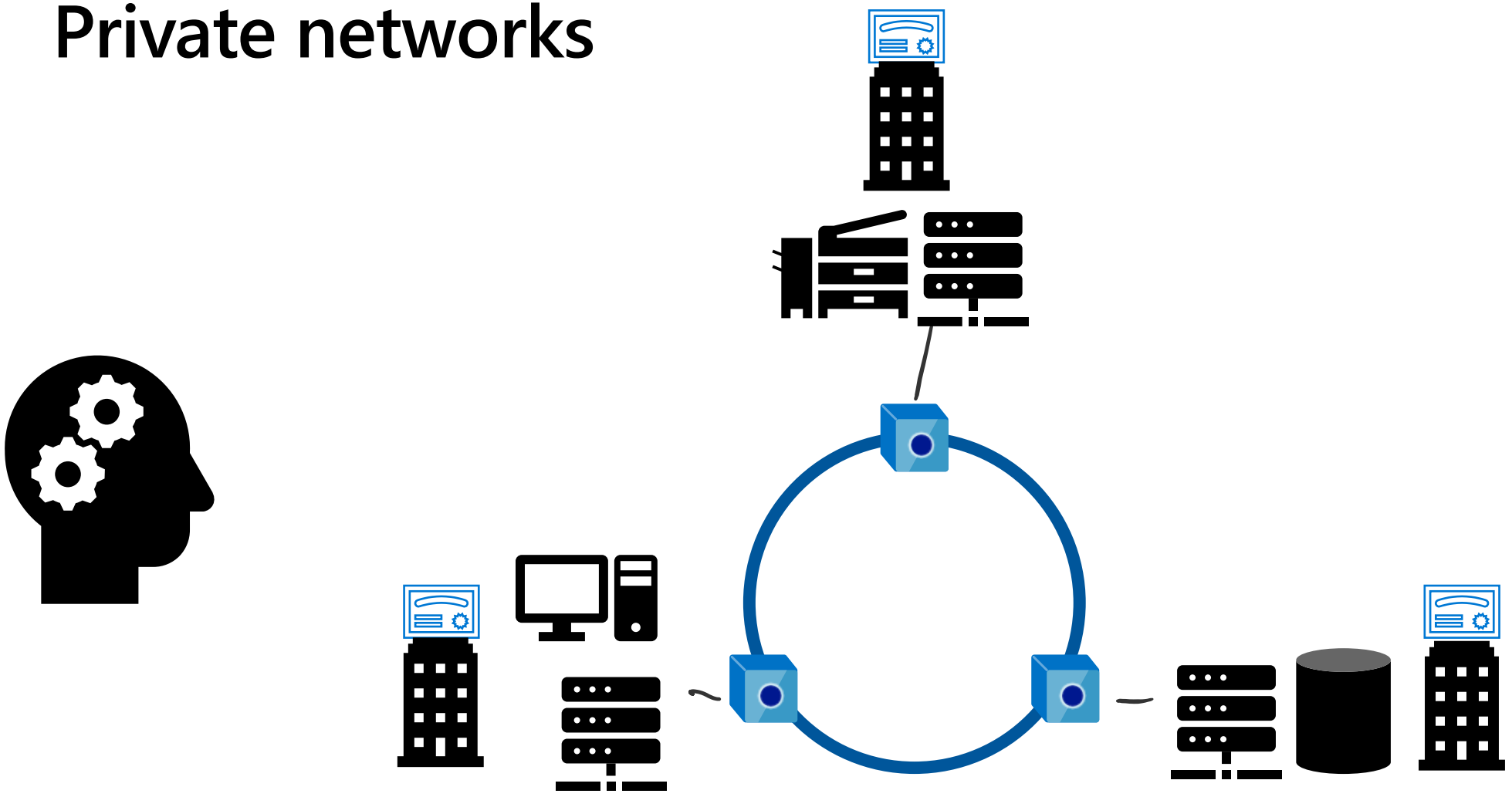
Enterprises

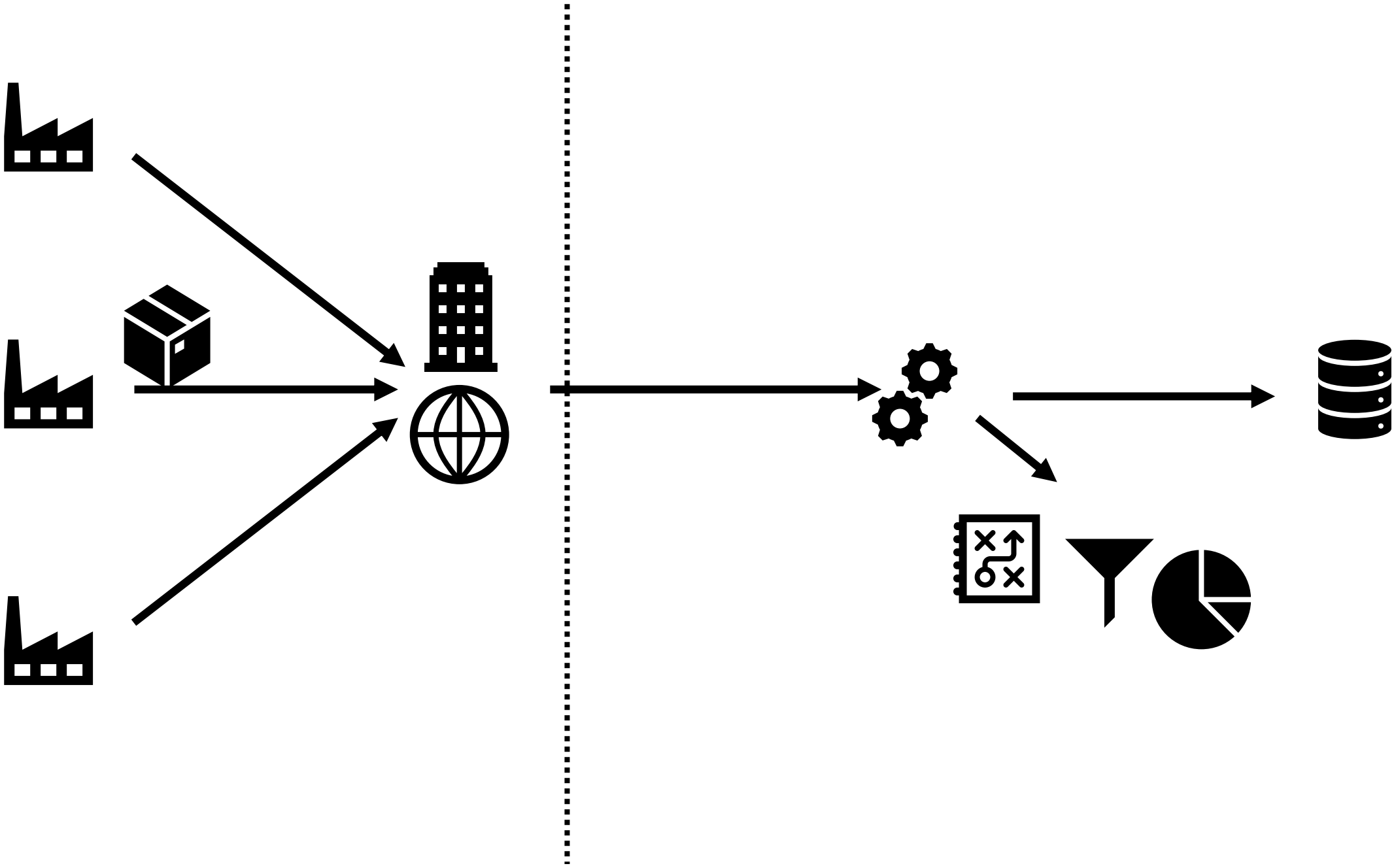


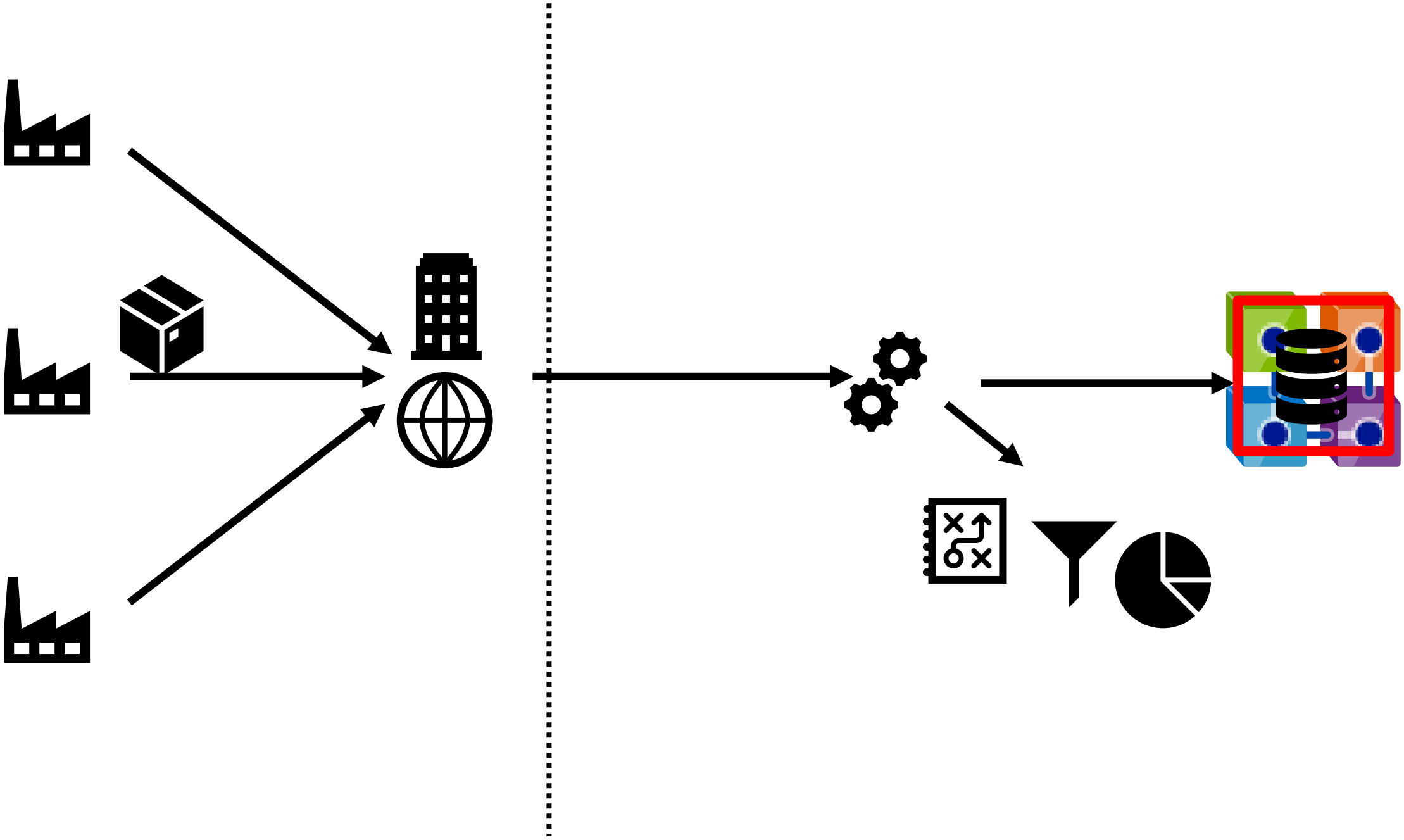
Why Private Networks for Enterprises?



Private networks







Common mistakes

- 3 tier app, full control thinking:
- Use blockchain as DB
- Try to put a centralised flow onto blockchain
- Largest company wants to control it

How we educate – Blockchain first

- Blockchain as source for truth
- External systems react to Blockchain events
- Each party controls THEIR infrastructure
- All the companies have to be present and contribute to development process. Not one company rolling out their solution

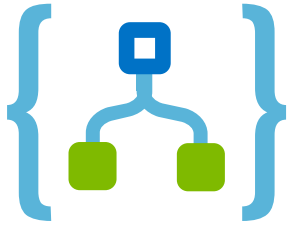
Enterprise Architecture

Azure Services

Azure Functions

Serverless microservices.

Javascript, .Net, python



Logic apps

Codeless serverless microservices

Event grid

Enterprise pub/sub of events between microservices

Ethereum logic app connectors

Triggers Actions

When a smart contract event occurs (preview)
Ethereum Blockchain

Triggers Actions

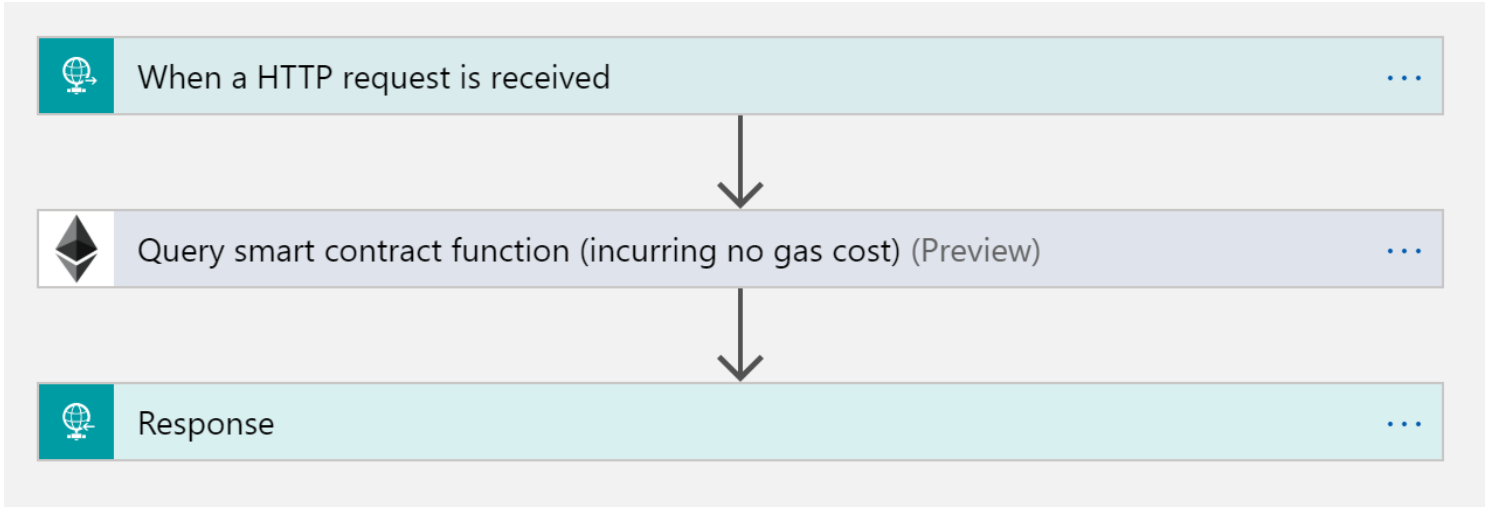
Deploy smart contract (preview)
Ethereum Blockchain

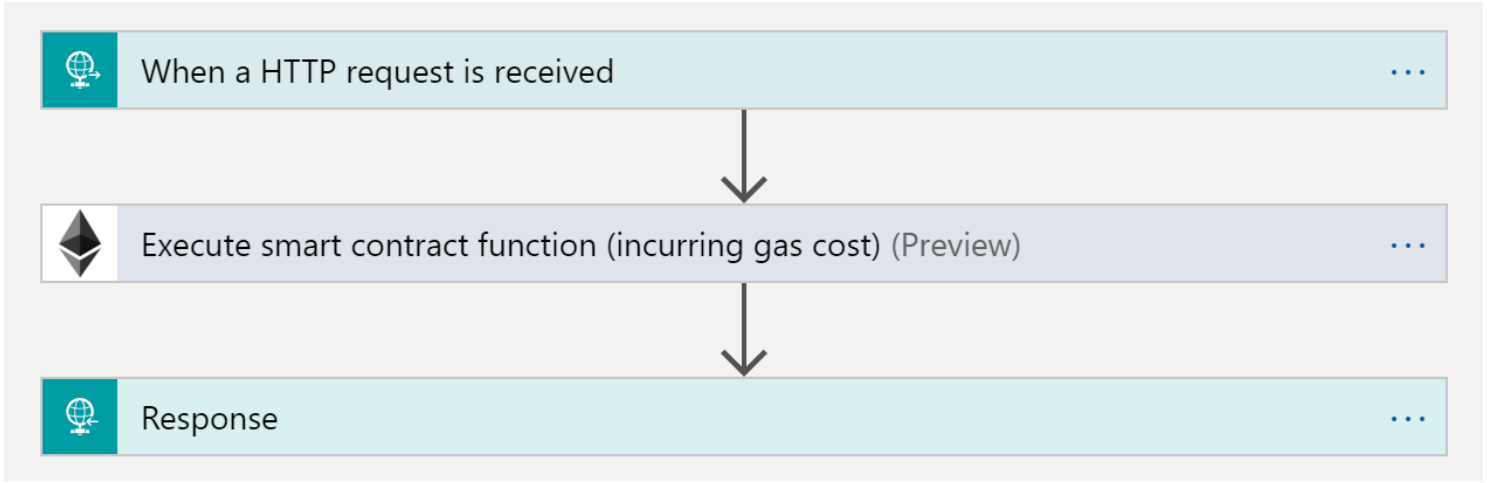
Execute smart contract function (incurring gas cost) (preview)
Ethereum Blockchain

Get smart contract state (all properties) (preview)
Ethereum Blockchain

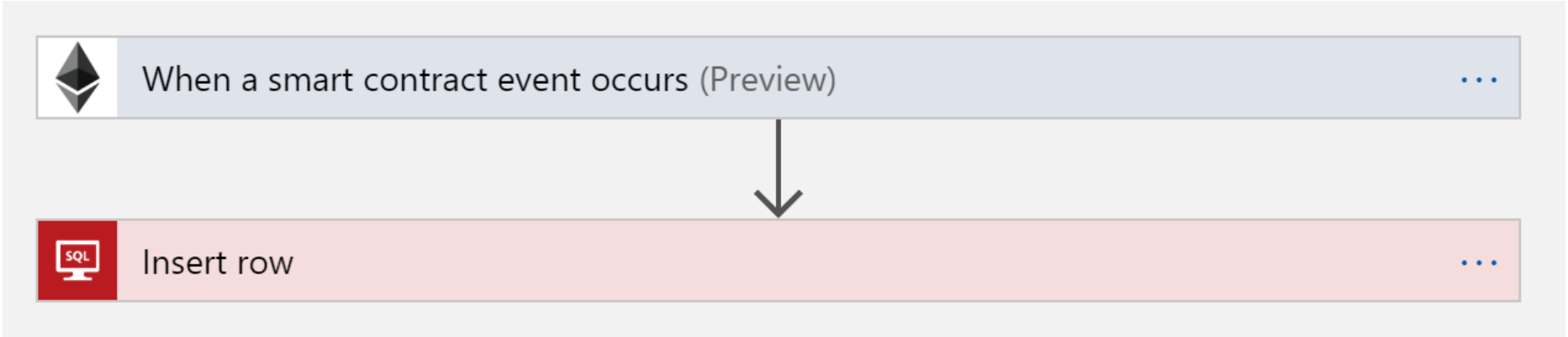
Query smart contract function (incurring no gas cost) (preview)
Ethereum Blockchain

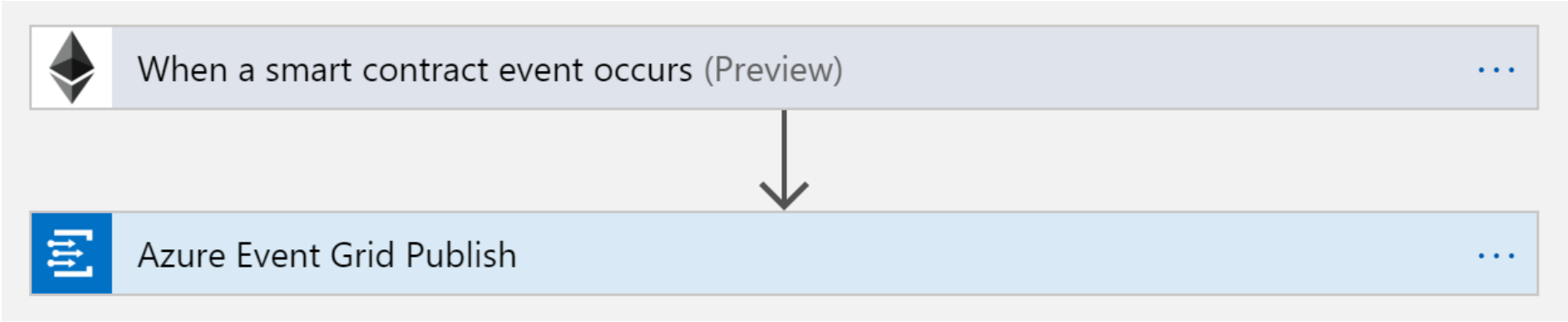
Logic app – read / write



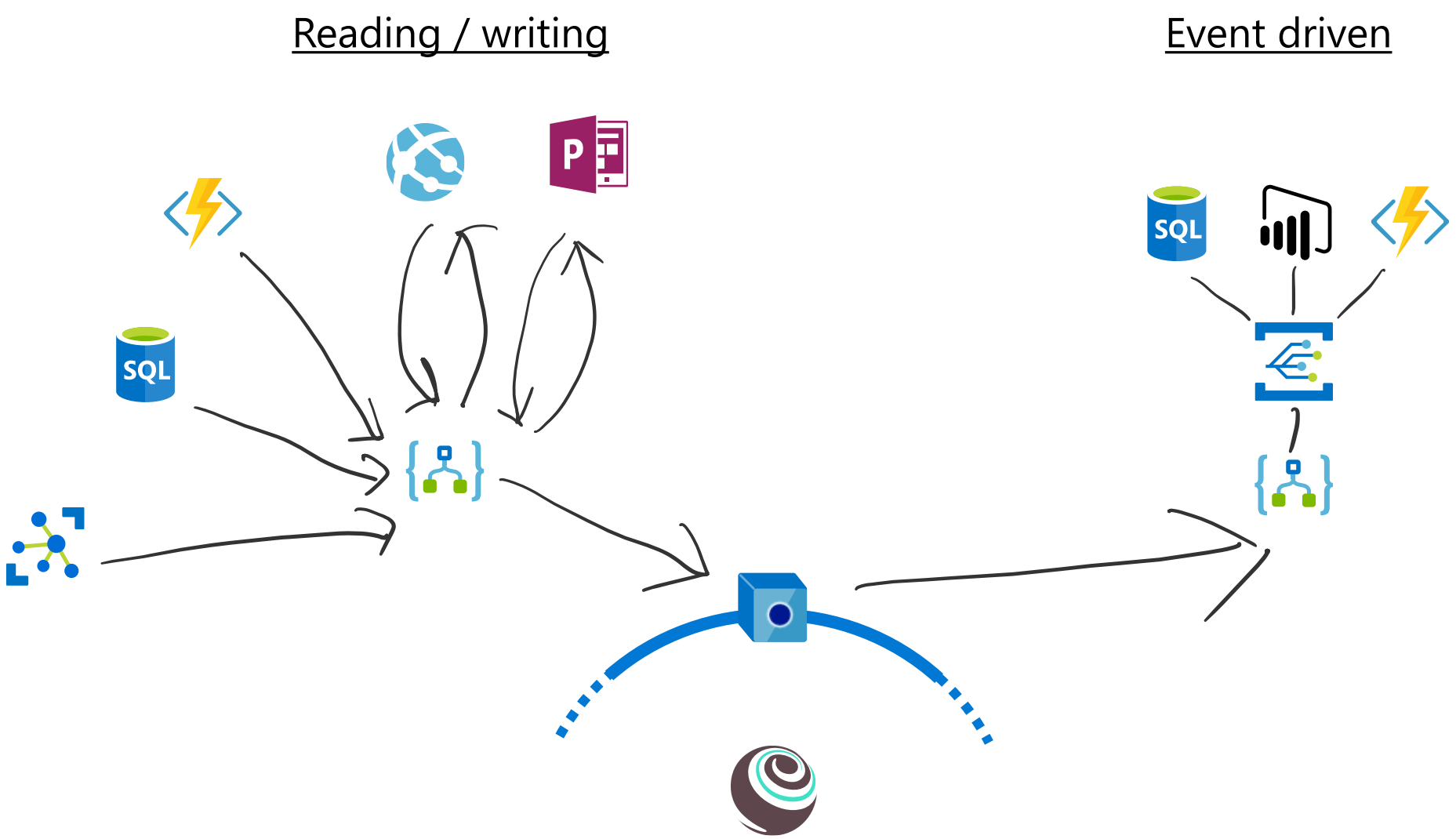


Logic app – event based trigger



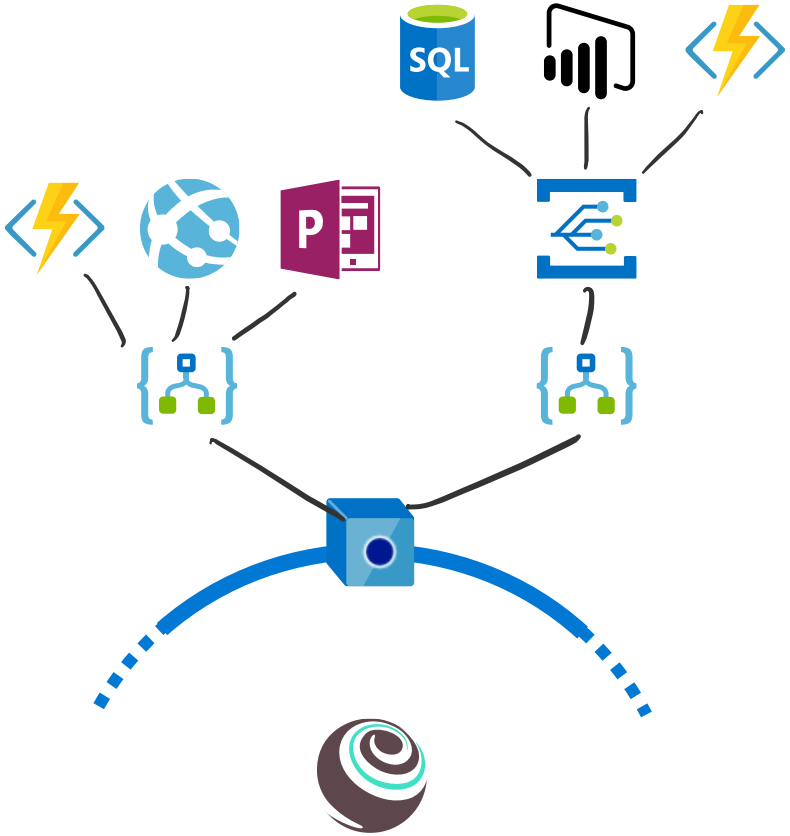


Architecture – Single member

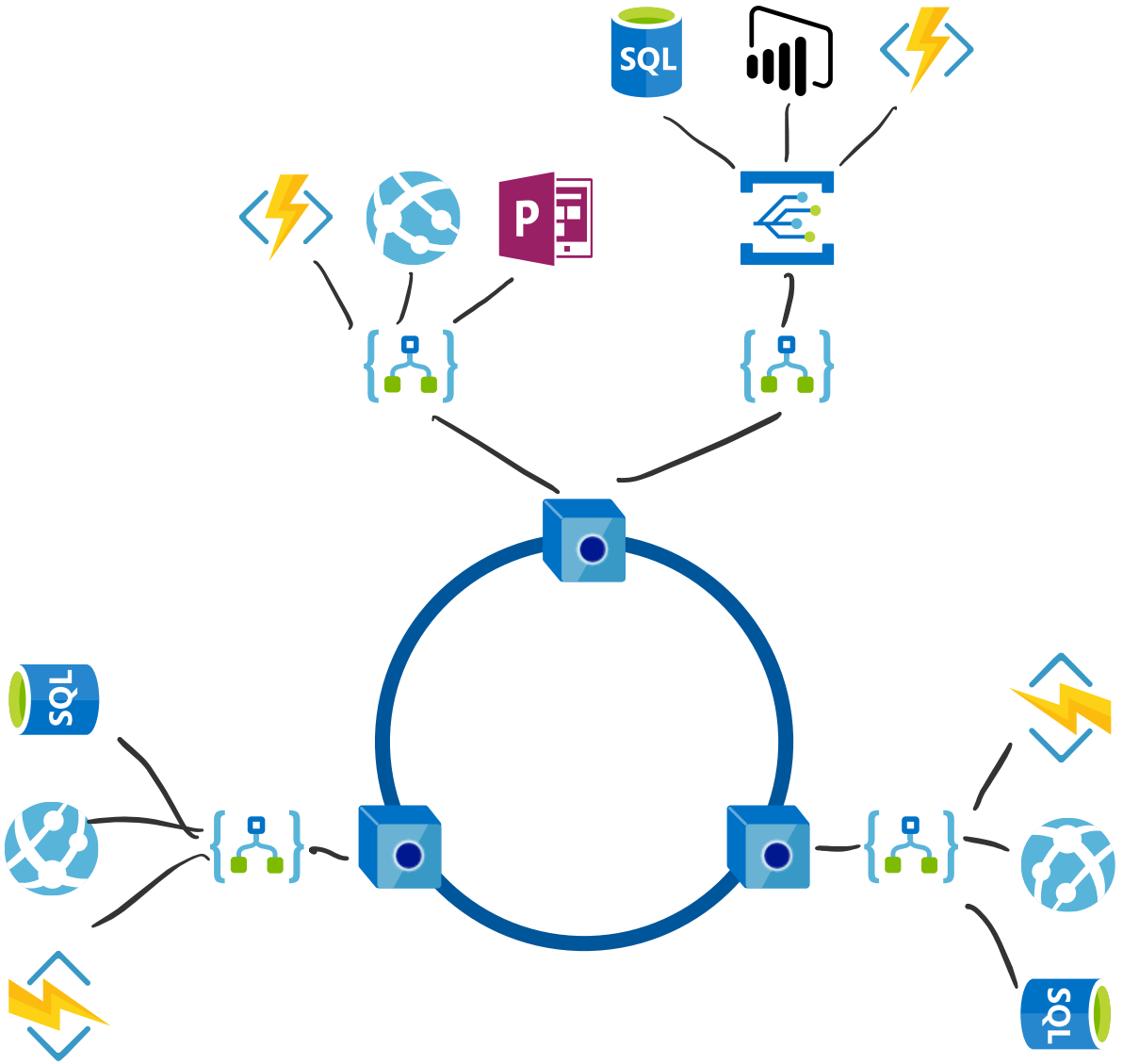


Demo

Architecture – Single company



Architecture – B2B



Consortium Governance

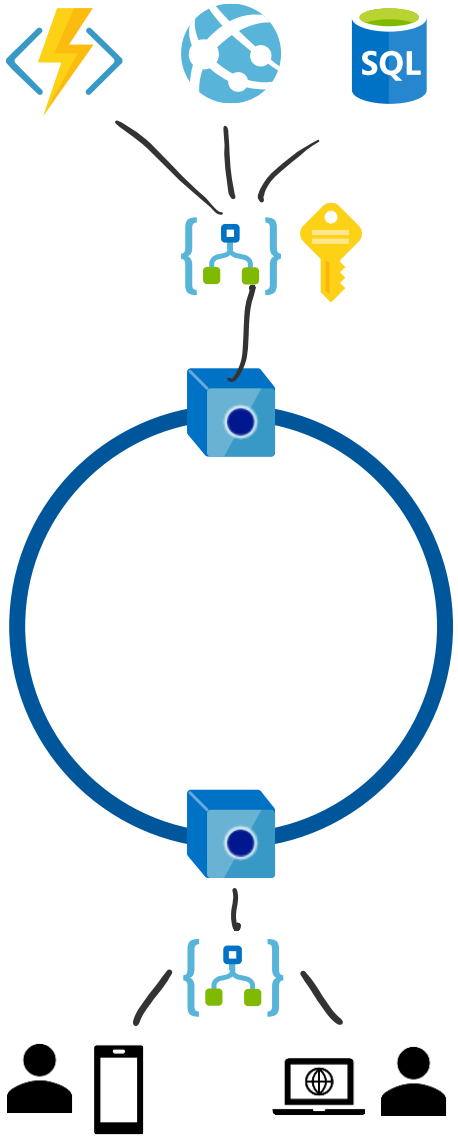
Addition of Members

- Quorum and ABS support

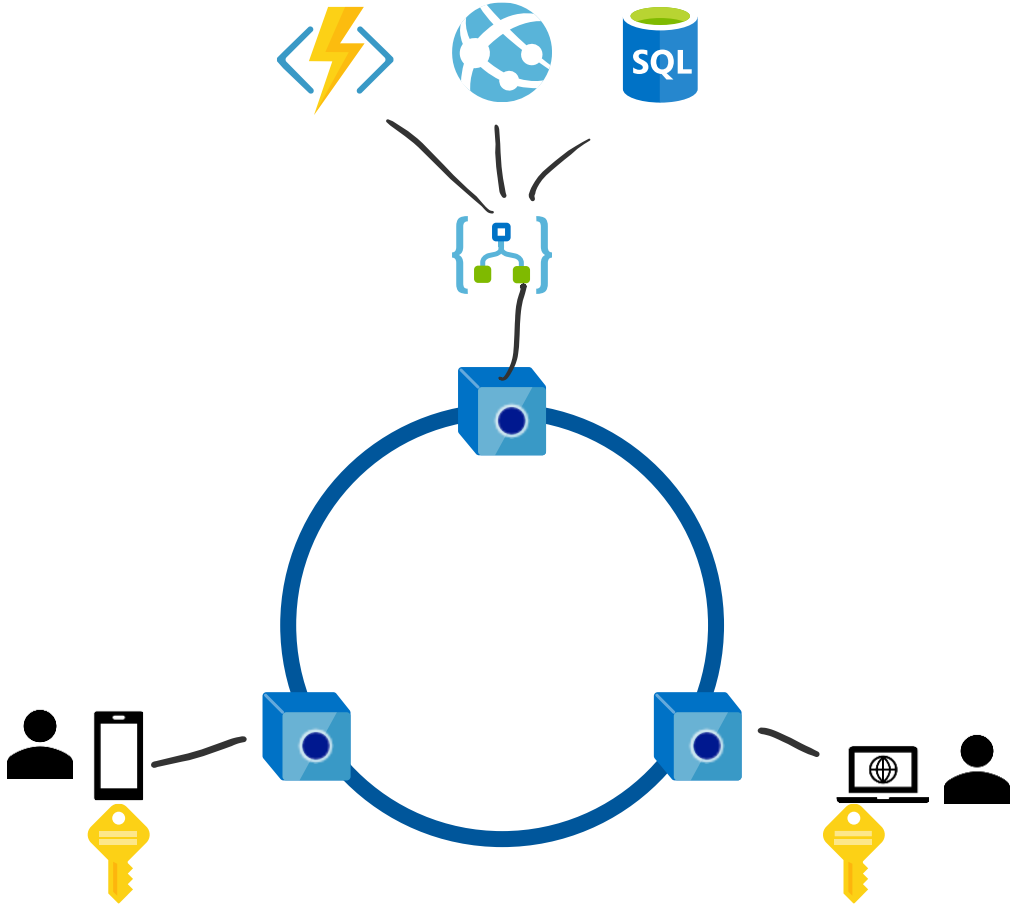
Development

- Azure DevOps
  - One Canonical Blockchain State
  - Update of Smart Contract Address and ABI
  - Build Policies
    - Cross Company Approval Boards for Releases

Architecture – B2C



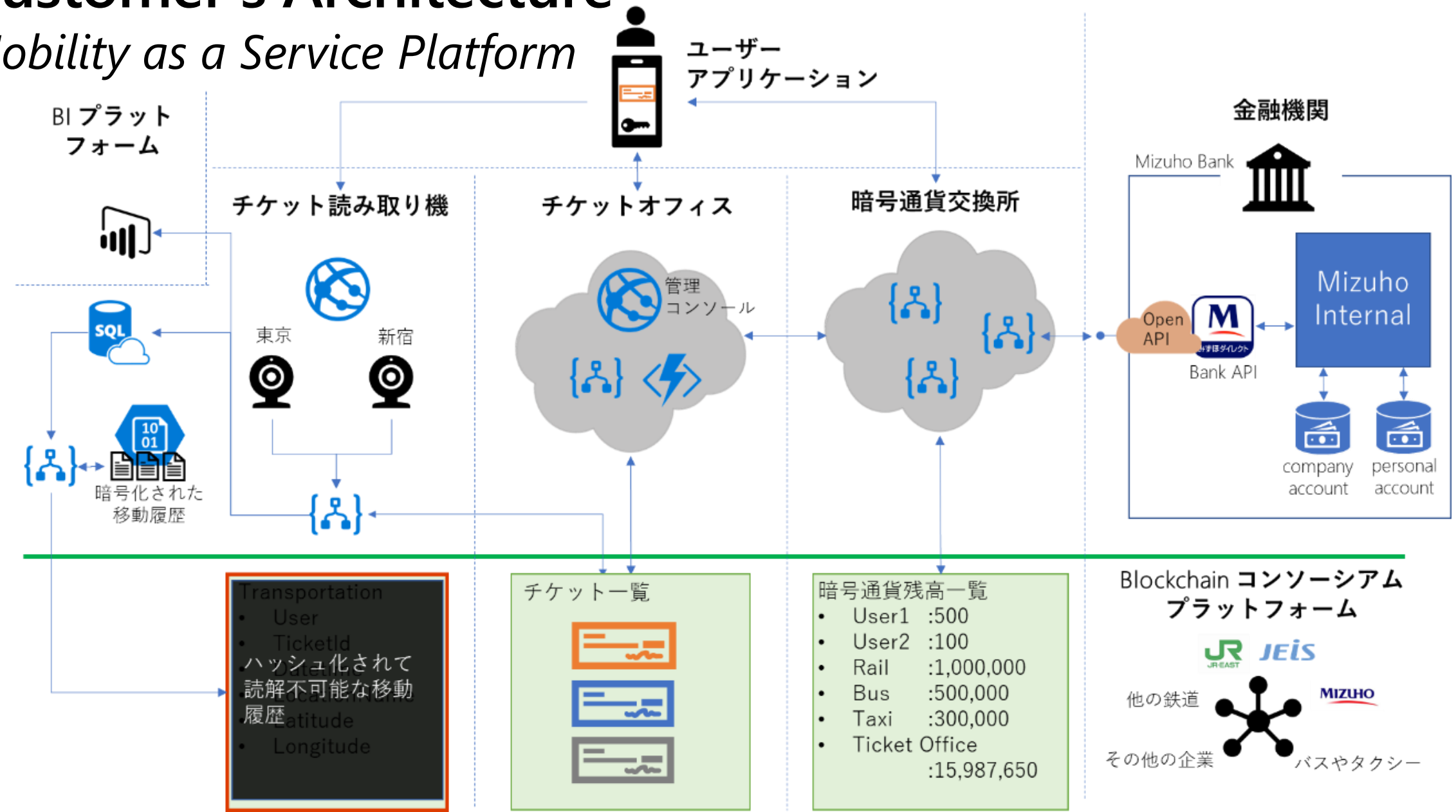
Architecture – B2C



Customer Example

Customer's Architecture

Mobility as a Service Platform



Customer's Architecture

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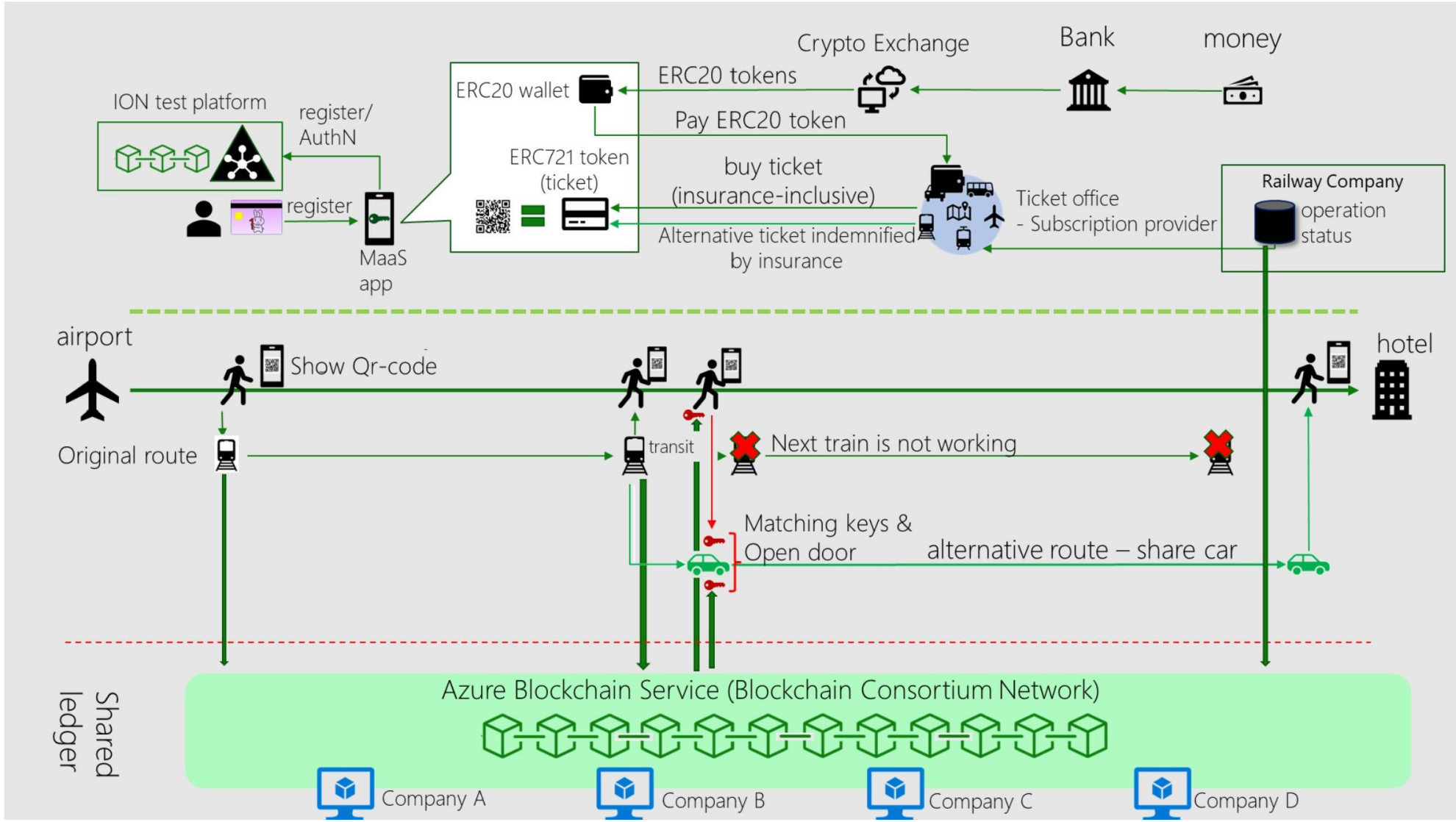
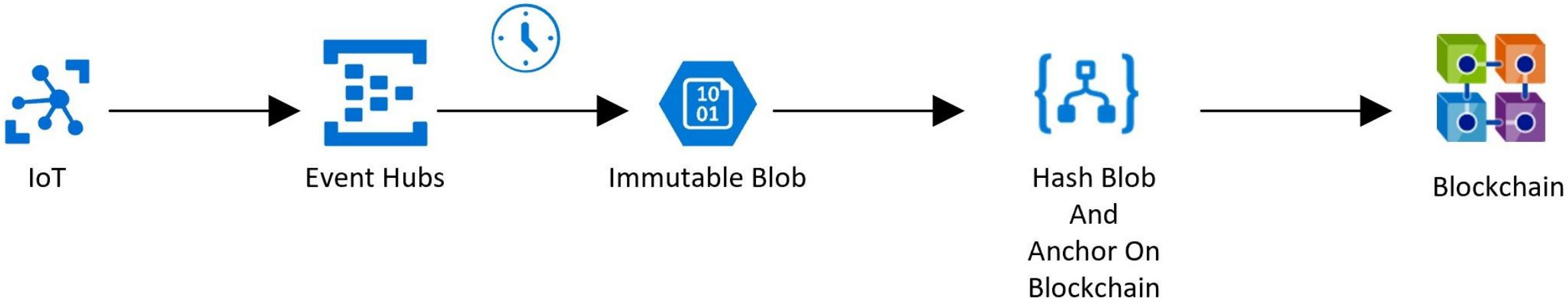


Enterprise – High frequency data anchored to Blockchain



References

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https://aka.ms/truffle2019

MaaS Article

Logging IOT High Frequency Data On & Off Chain