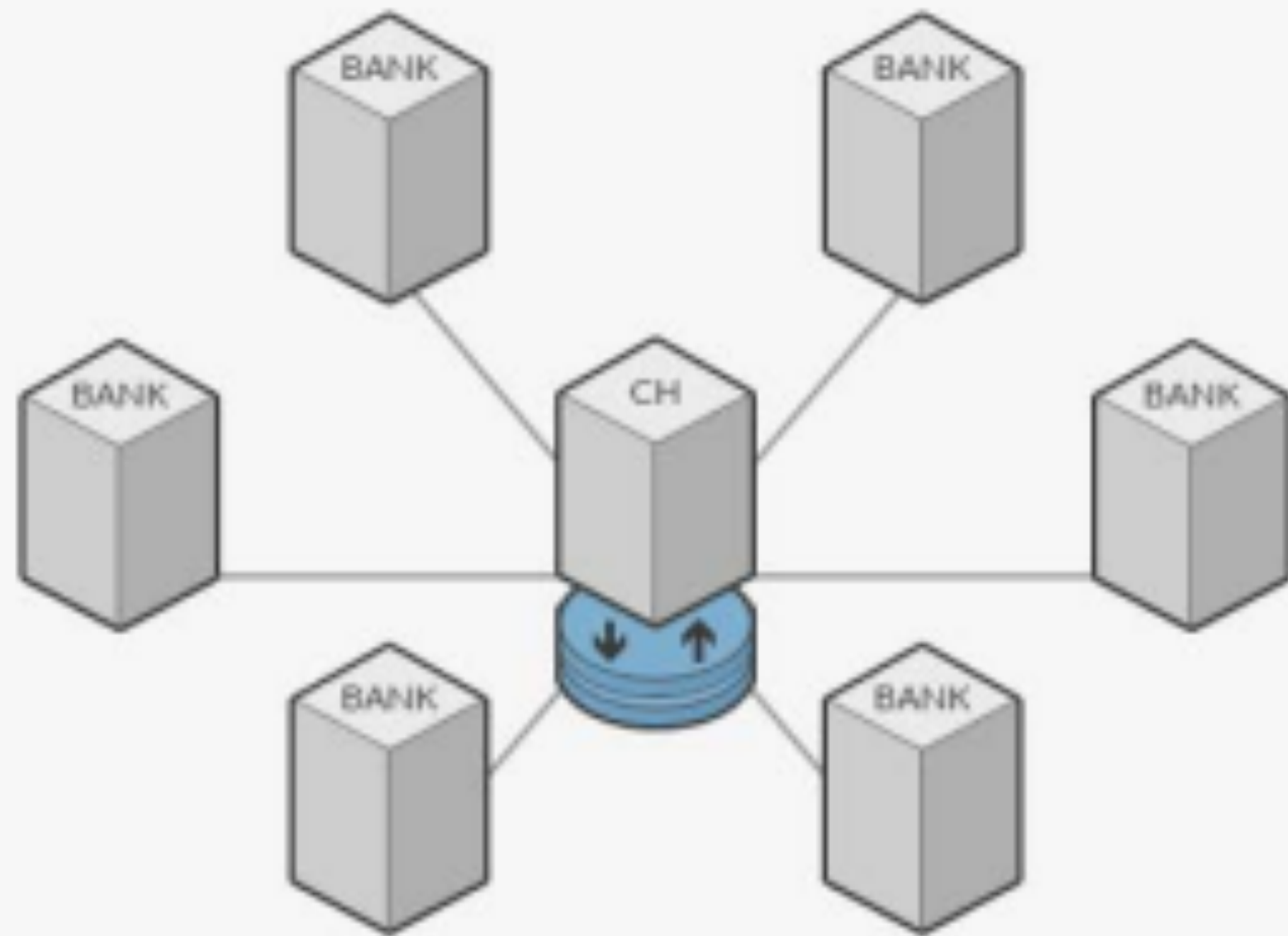




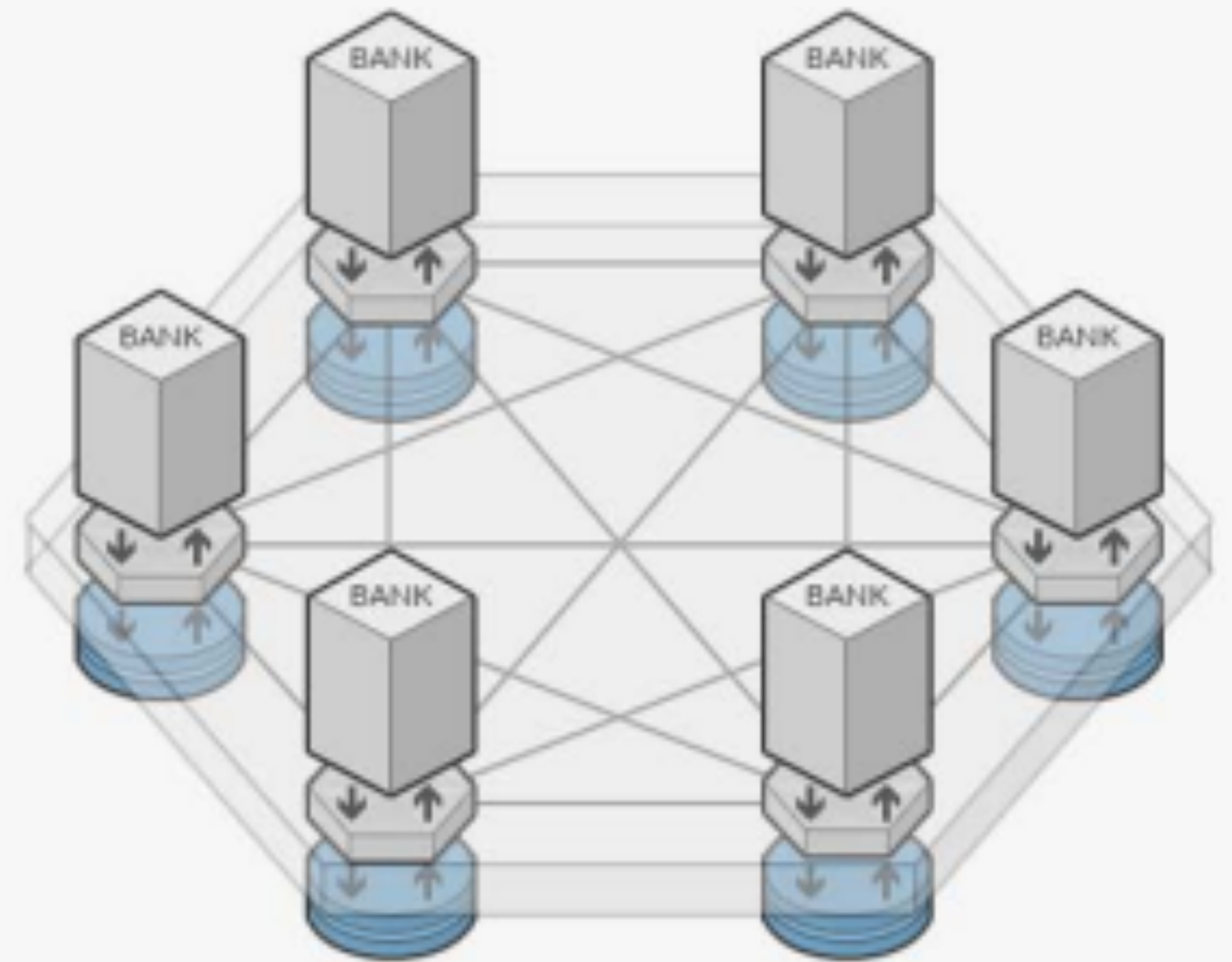
# **HYPERLEDGER PROJECT**

Justin Lee  
@triplez82  
[triplez@justinlee.sg](mailto:triplez@justinlee.sg)

# Traditional vs. Blockchain

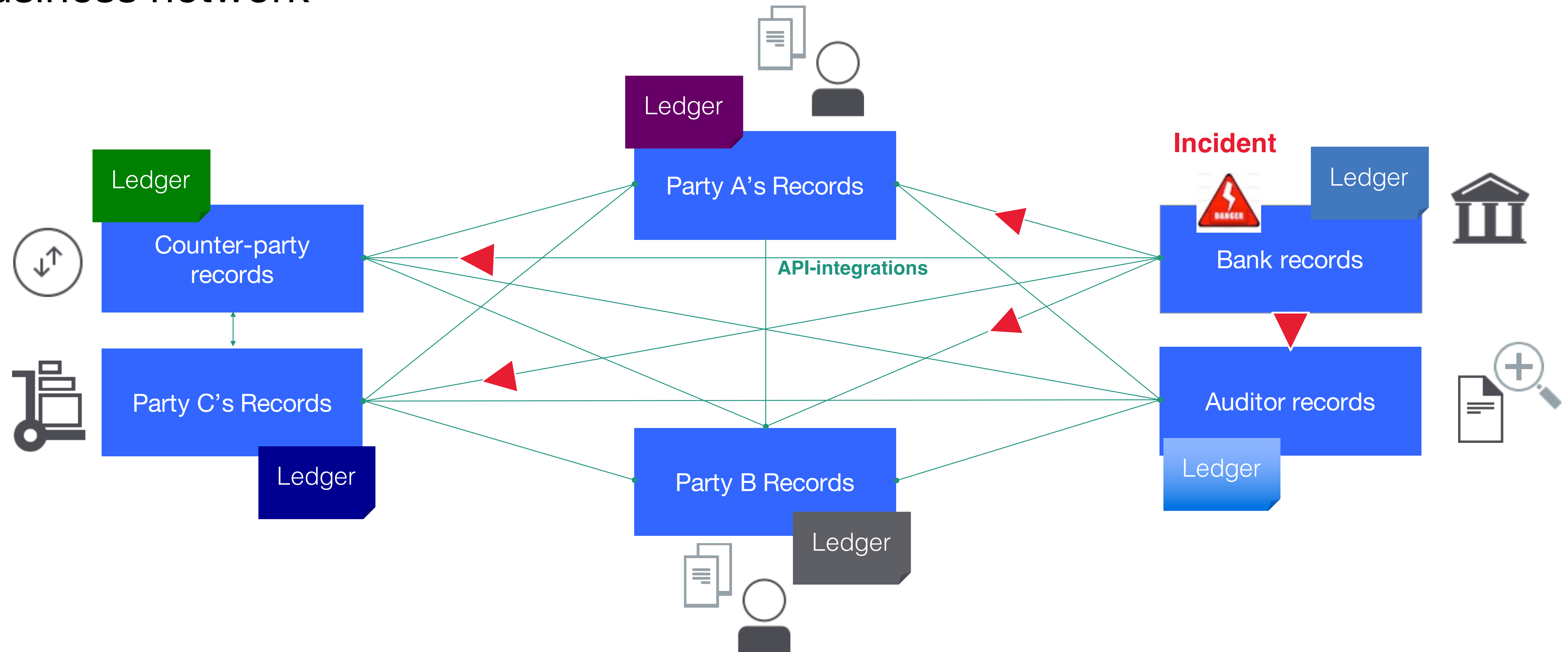


Current Centralised Clearing and Settlement



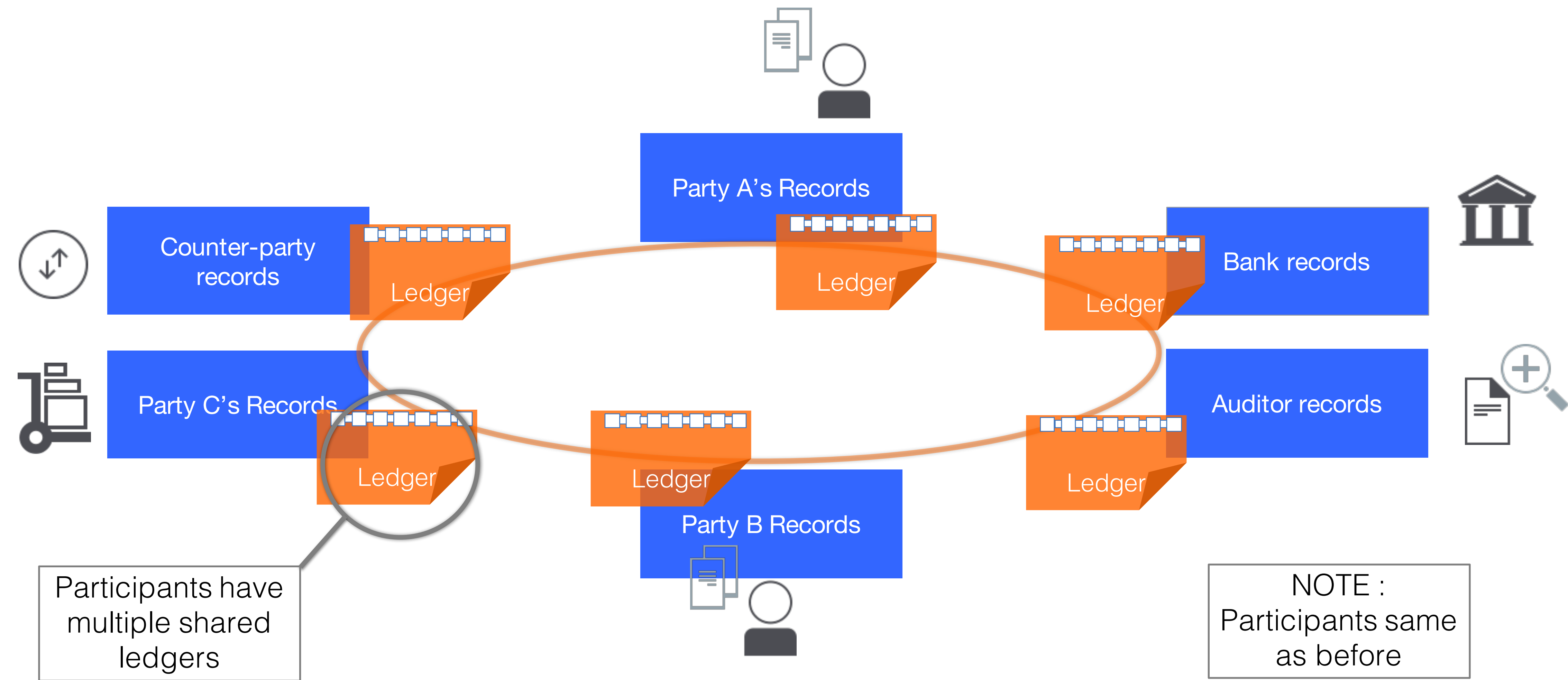
Decentralised Clearing and Settlement with  
**HYPERLEDGER**

# Problem - Difficult to monitor asset ownership and transfers in a trusted business network



**Inefficient, expensive, vulnerable**

**Solution – shared, replicated, permissioned ledger**

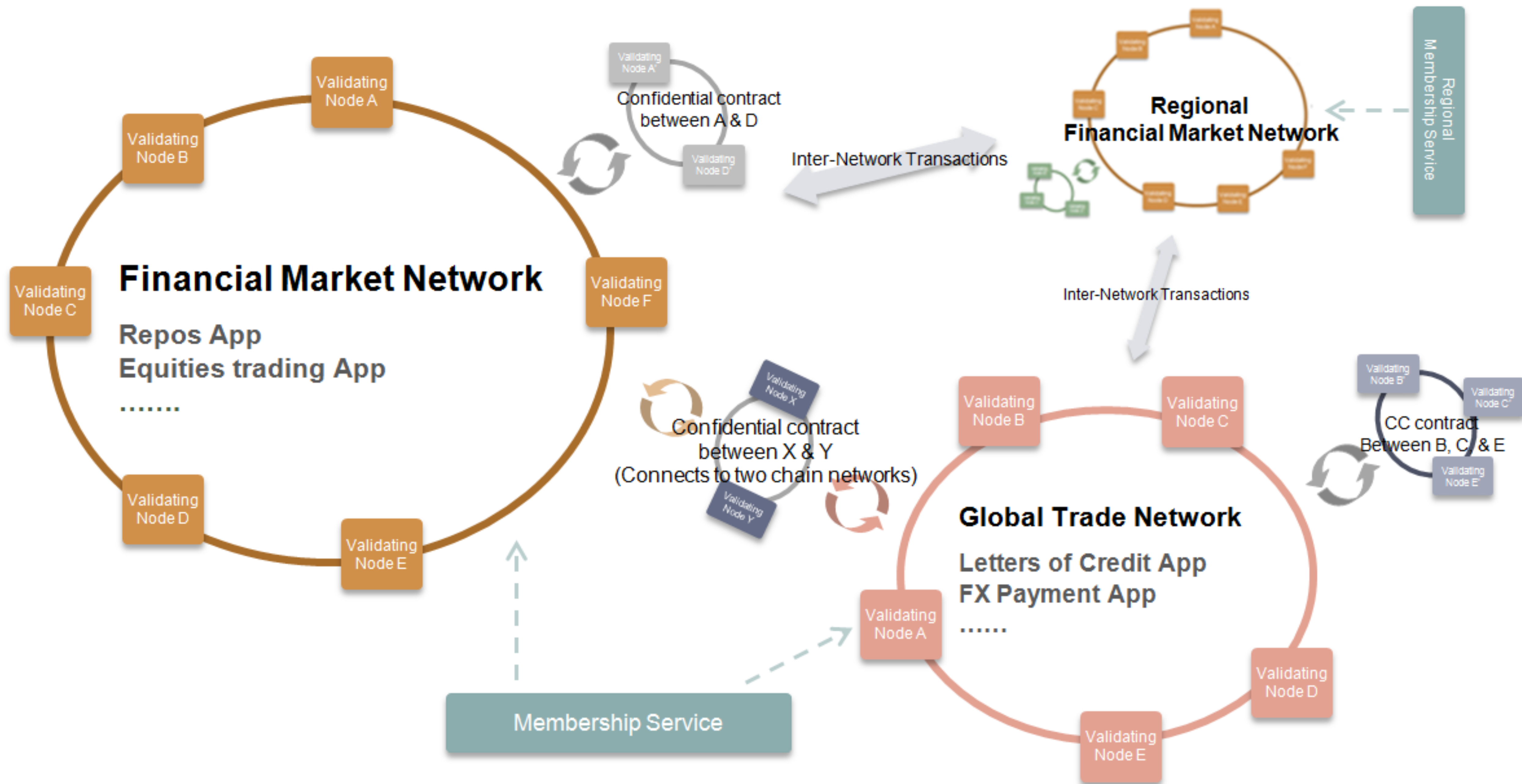


**Consensus, provenance, immutability, finality**

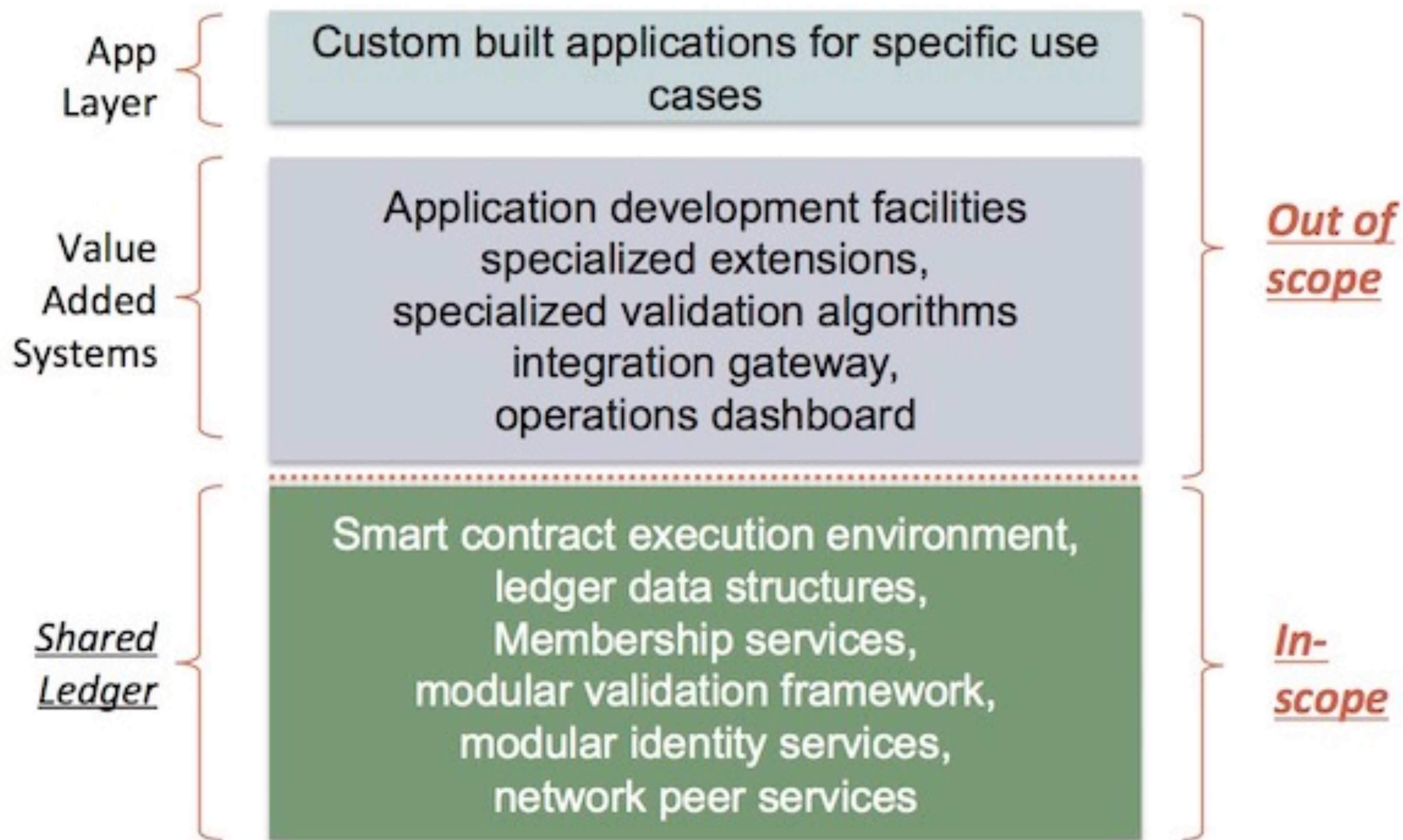




The **Hyperledger Project** is a collaborative effort created to **advance blockchain technology** by identifying and addressing important features for a **cross-industry open standard** for distributed ledgers that can transform the way **business transactions** are conducted globally.









## APIs, SDKs, CLI

MEMBERSHIP

BLOCKCHAIN

TRANSACTIONS

CHAINCODE

### Membership Services

Registration

Identity Management

Auditability

### Blockchain Services

Consensus Manager

Distributed Ledger

P2P Protocol

Ledger Storage

### Chaincode Services

Secure Container

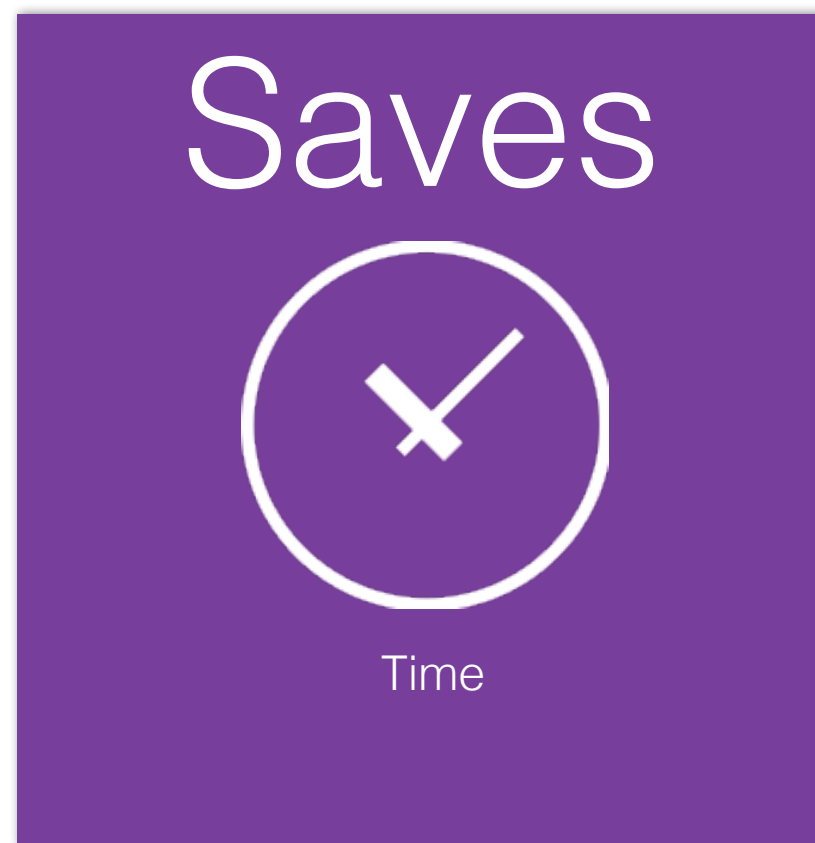
Secure Registry

Event Stream

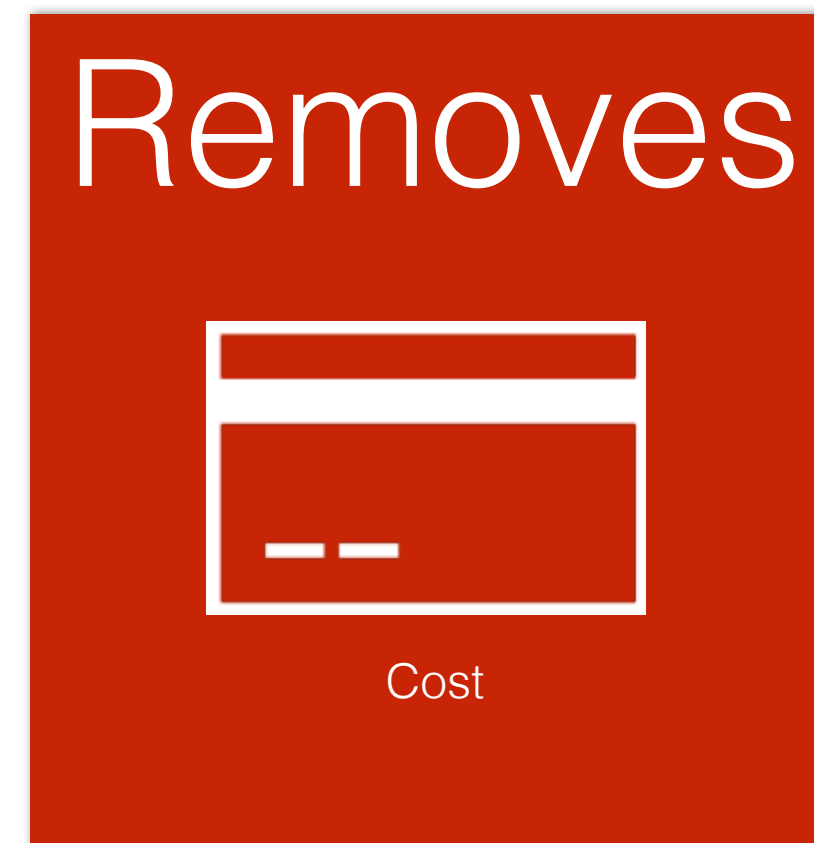
Services



# Blockchain Benefits



Transaction  
time from days  
to near  
instantaneous



Overheads  
and cost  
intermediaries



Tampering,  
fraud & cyber  
crime

# Consensus Use Case – Shared Routing Codes

## What?

- Competitors/collaborators in a business network need to share reference data, e.g. bank routing codes
- Currently each member maintains their own codes, and forwards changes to a central authority for collection and distribution

## How?

- Each participant maintains their own codes within a blockchain network
- Blockchain creates single view of entire dataset

## Benefits

1. Consolidated, consistent dataset reduces errors
2. Near-real-time of reference data
3. Naturally supports code editing and routing code transfers between participants





# Provenance Use Case – Vehicle Maintenance

## What?

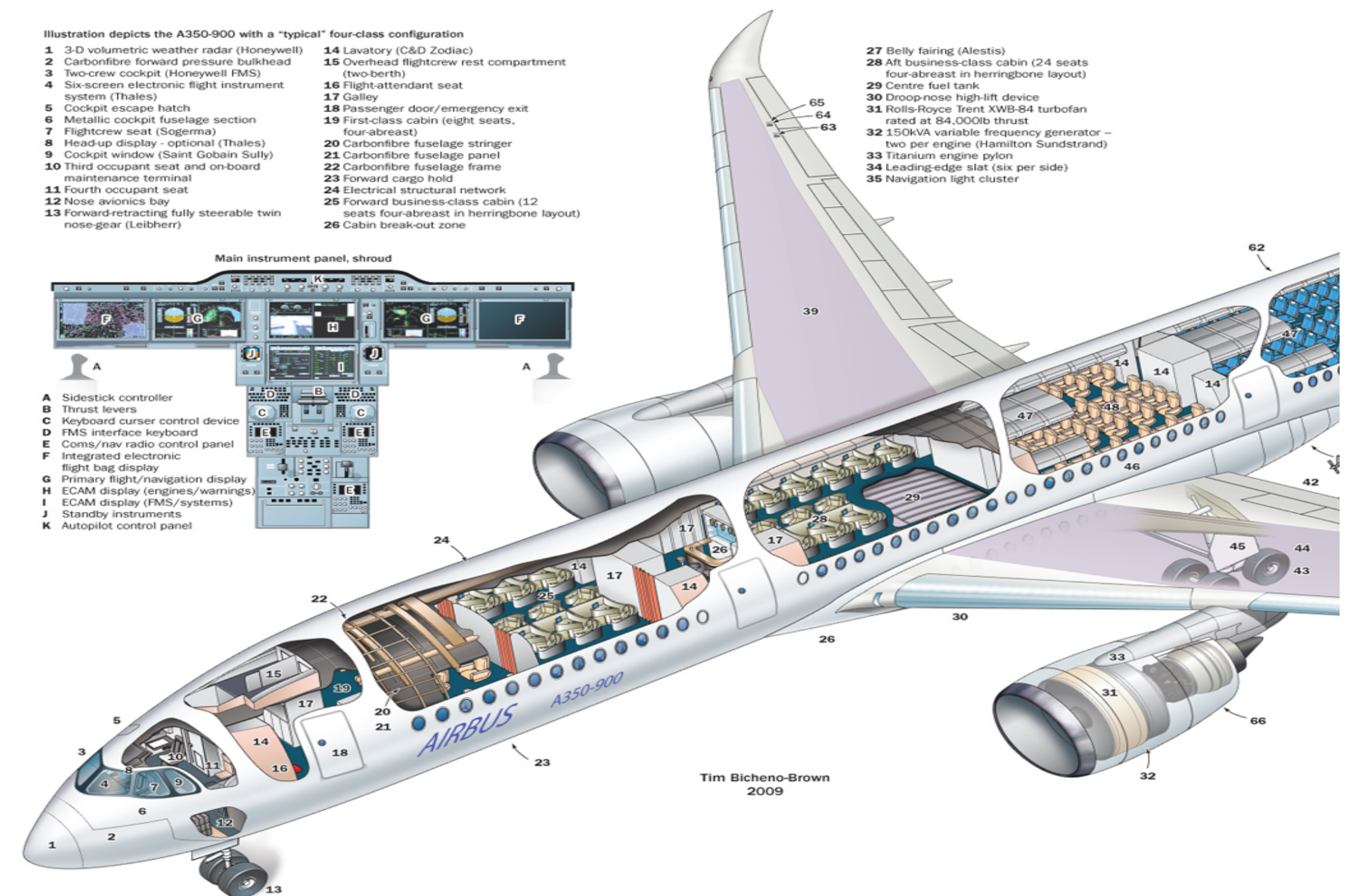
- Provenance of each component part in complex system hard to track
- Manufacturer, production date, batch and even the manufacturing machine program

## How?

- Blockchain holds complete provenance details of each component part
- Accessible by each manufacturer in the production process, the aircraft owners, maintainers and government regulators

## Benefits

1. trust increased no authority "owns" provenance
2. improvement in system utilization
3. recalls "specific" rather than cross fleet





# Immutability Use Case – Financial Ledger

## What?

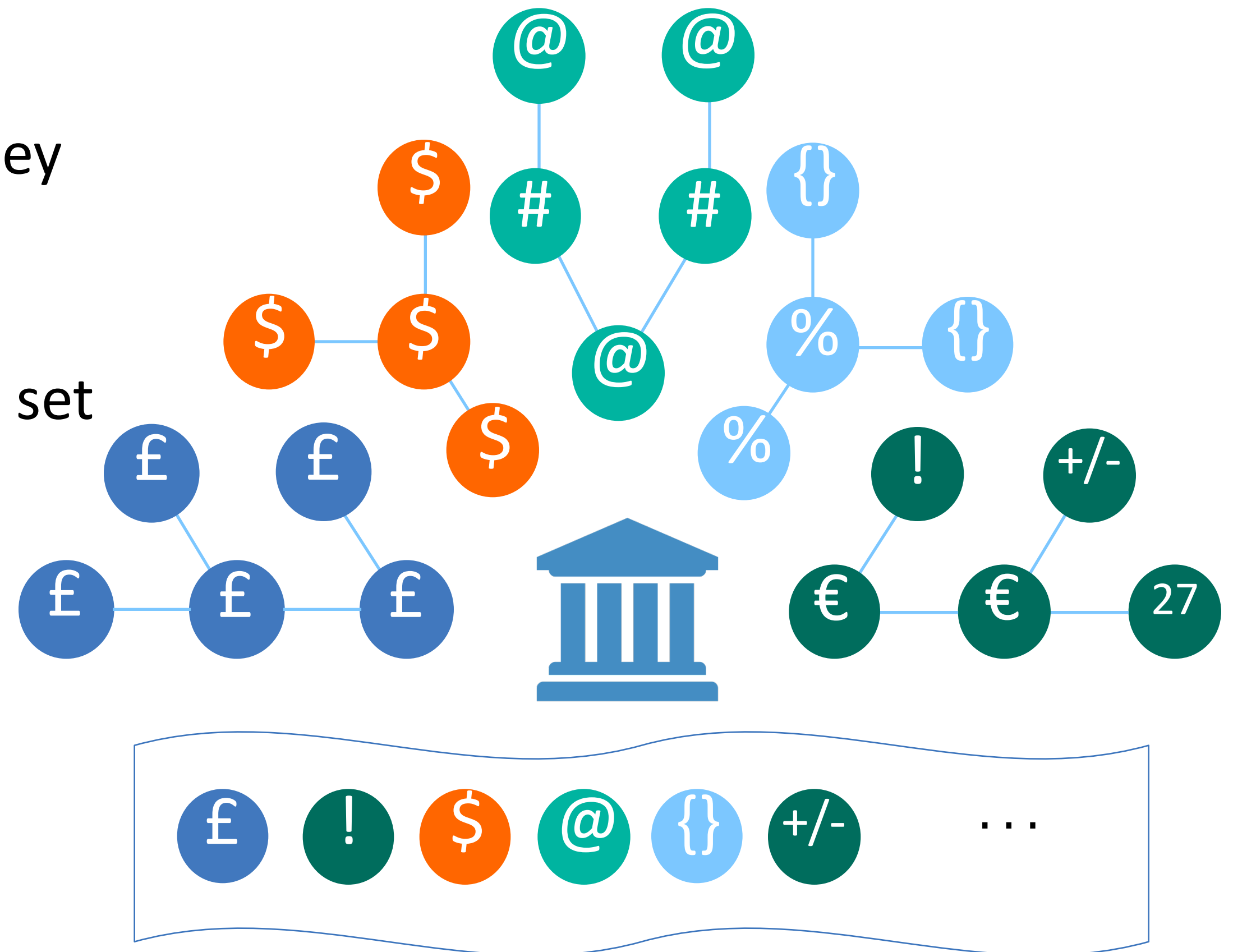
- Financial data in a large organization dispersed throughout many divisions and geographies
- Audit and Compliance needs indelible record of all key transactions over reporting period

## How?

- Blockchain collects transaction records from diverse set of financial systems
- Append-only and tamperproof qualities create high confidence financial audit trail
- Privacy features to ensure authorized user access

## Benefits

1. Lowers cost of audit and regulatory compliance
2. Provides “seek and find” access to auditors and regulators
3. Changes nature of compliance from passive to active



# Finality Use Case – Letter of Credit

## What?

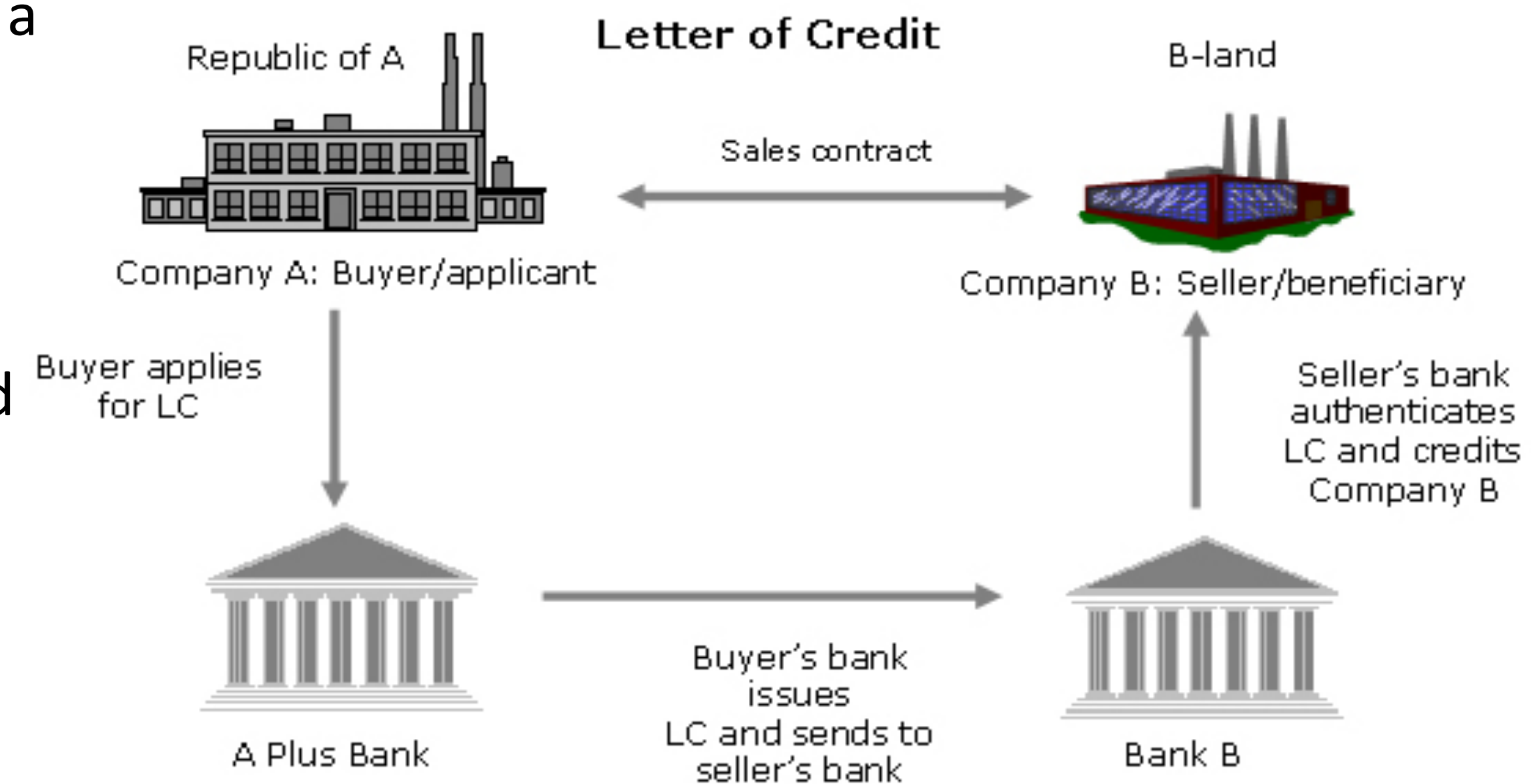
- Bank handling letters of credit (LOC) wants to offer them to a wider range of clients including startups
- Currently constrained by costs & the time to execute

## How?

- Blockchain provides common ledger for letters of credit
- Allows all counter-parties to have the same validated record of transaction and fulfillment

## Benefits

- Increase speed of execution (less than 1 day)
- Vastly reduced cost
- Reduced risk, e.g. currency fluctuations
- Value added services; e.g. incremental payment



# Other Potential Use Cases include . .

- **Securities**
  - Post-trade settlement
  - Derivative contracts
- **Trade Finance**
  - Bill of Lading
  - Cross-currency payment
- **Syndicated Loans**
- **Supply Chain**
- **Retail Banking**
  - Cross border remittances
  - Mortgage verification & contracts
- **Public Records**
  - Real estate records
  - Vehicle registrations
  - Citizen Identity
- **Digital Property Management**



- Some of the most innovative companies in the world are actively engaged -- It is a global collaboration of the best and brightest in Finance, Banking, Internet of Things, Supply Chains, Manufacturing and Technology.

## PREMIER



## GENERAL



# Connecting with the Hyperledger Project Community

- Mailing List - <http://lists.hyperledger.org/>
- Github - <http://www.github.com/hyperledger>
- Slack - <http://hyperledgerproject.slack.com/>  
(Invite - <https://slack.hyperledger.org/>)
- Wiki - <https://github.com/hyperledger/hyperledger/wiki>
- IRC: #hyperledger on freenode.net
- Code of Conduct - <https://github.com/hyperledger/hyperledger/wiki/Hyperledger-Project-Code-of-Conduct>
- Working Group Meetings - <https://github.com/hyperledger/hyperledger/wiki/PublicMeetingCalendar>