Build Robust Blockchain Services with Hyperledger and Container

Wenjie(Jay) Xie, ChainNova Technologies Co., Ltd.

ChainNova, member of Hyperledger and Linux foundation, IBM worldwide partner, is a technology company founded by veteran entrepreneurs with deep expertise in distributed systems, cloud computing, big data, and financial services.

ChainNova's mission is to provide secure and scalable blockchain-as-a-service to power enterprise applications.
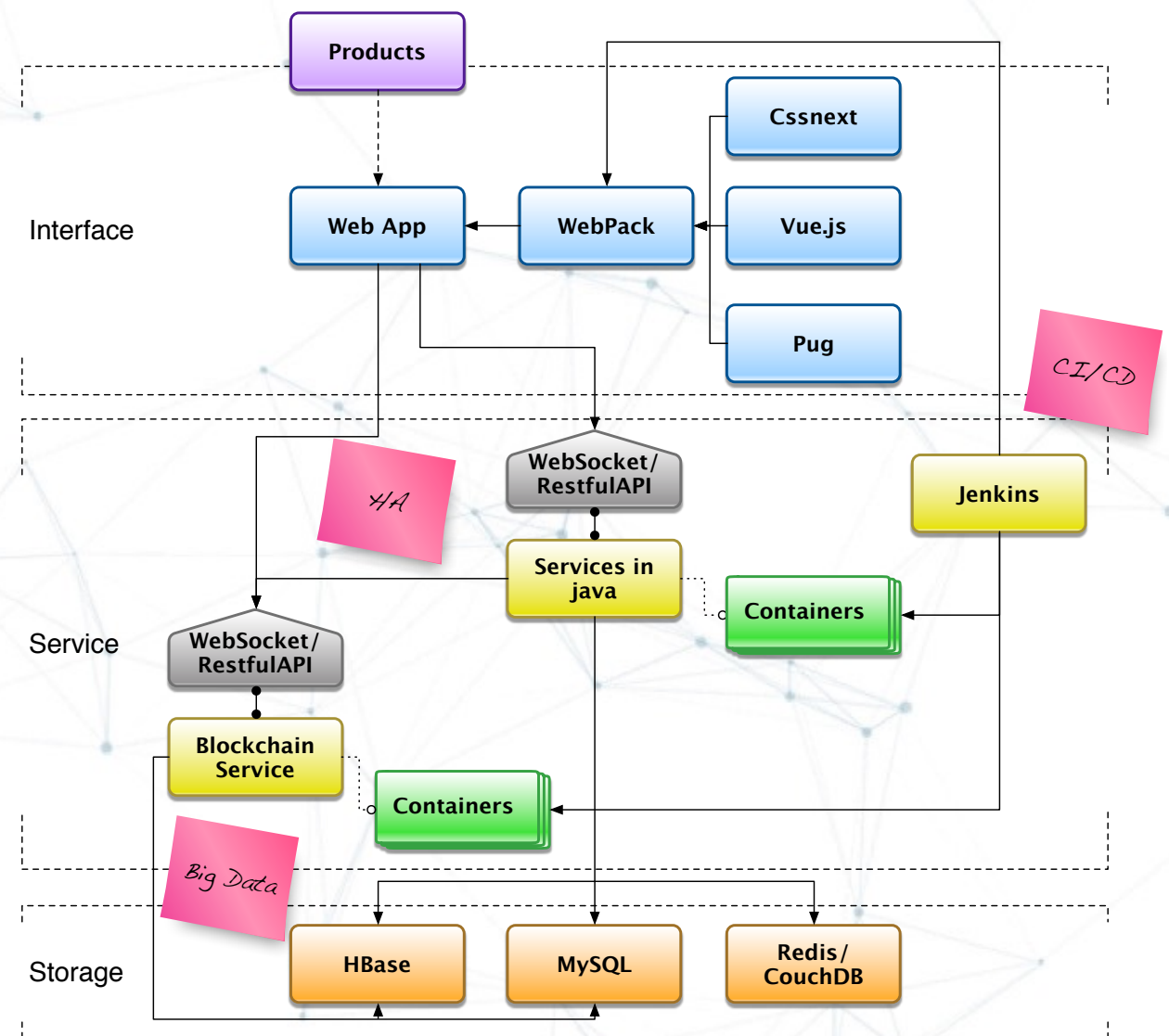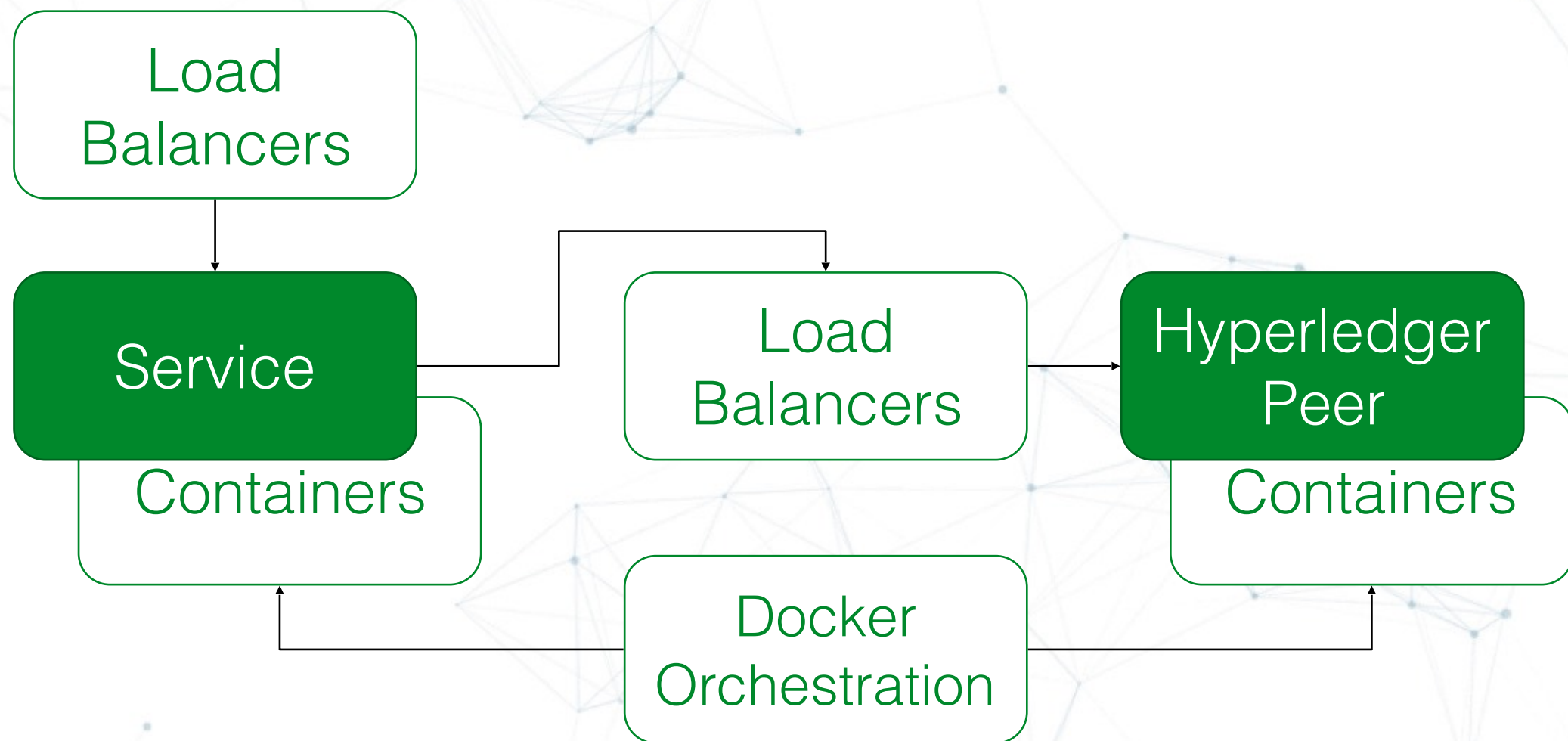
Challenges

- Blockchain to Large scale services

  - Embedded LevelDB vs Big data

  - RPC only vs Cluster computing

  - Confirm delay vs Throughput

What is needed

- High availability

- Scale with big data

- Fault tolerance

- CI/CD

High availability

Load
Balancers

Service

Containers

Load
Balancers

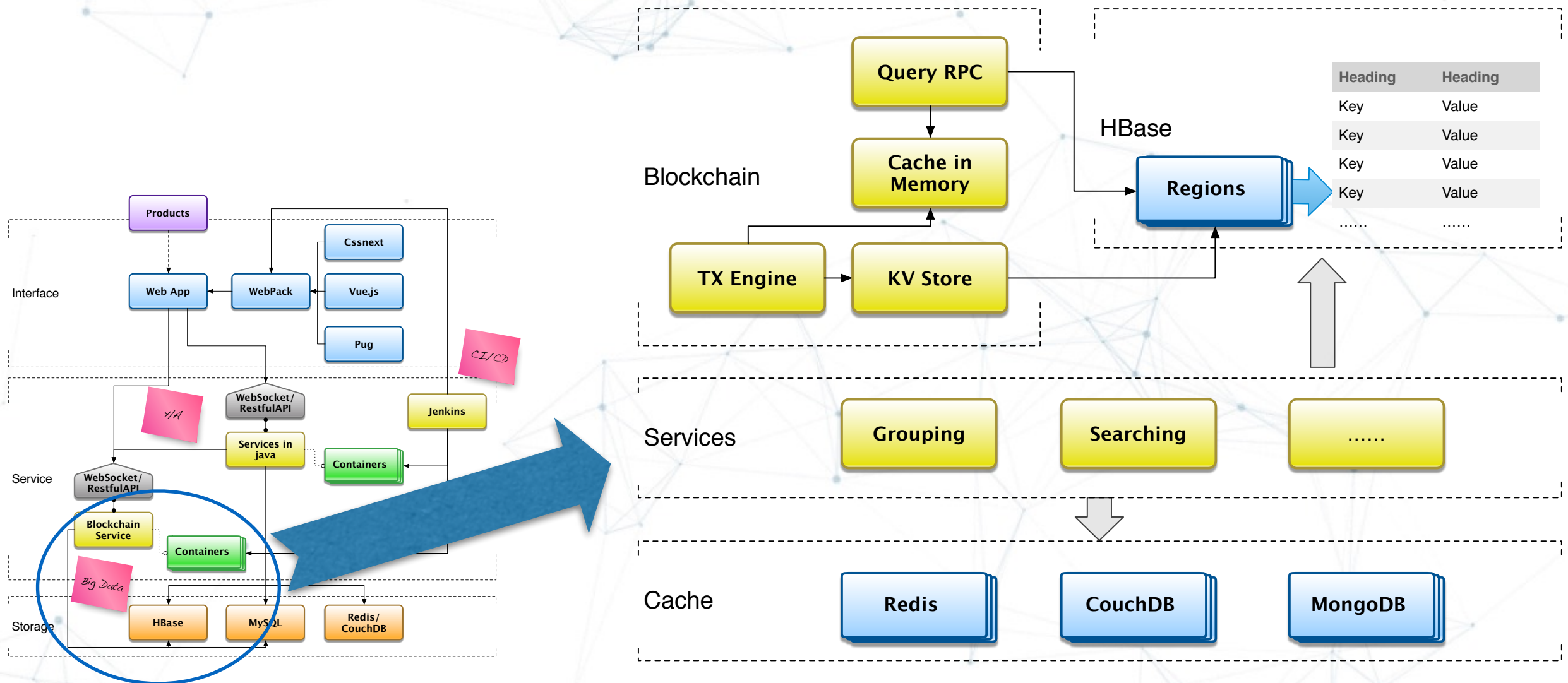Hyperledger
Peer

Containers

Docker
Orchestration

Blockchain's HA ⇌ Service's HA

Warmup problem

- Traditional blockchain peers

  - Need a long time to warmup

  - Data need to be read from network or local disk

- Solution: Keep data in memory

- Connect with data warehouse

- CouchDB support added in Fabric v1.0 recently

Scale with data warehouse

More with big data

Real-time streaming ⟷ IBM StreamBase, Apache Storm, Amazon Kinesis, ...

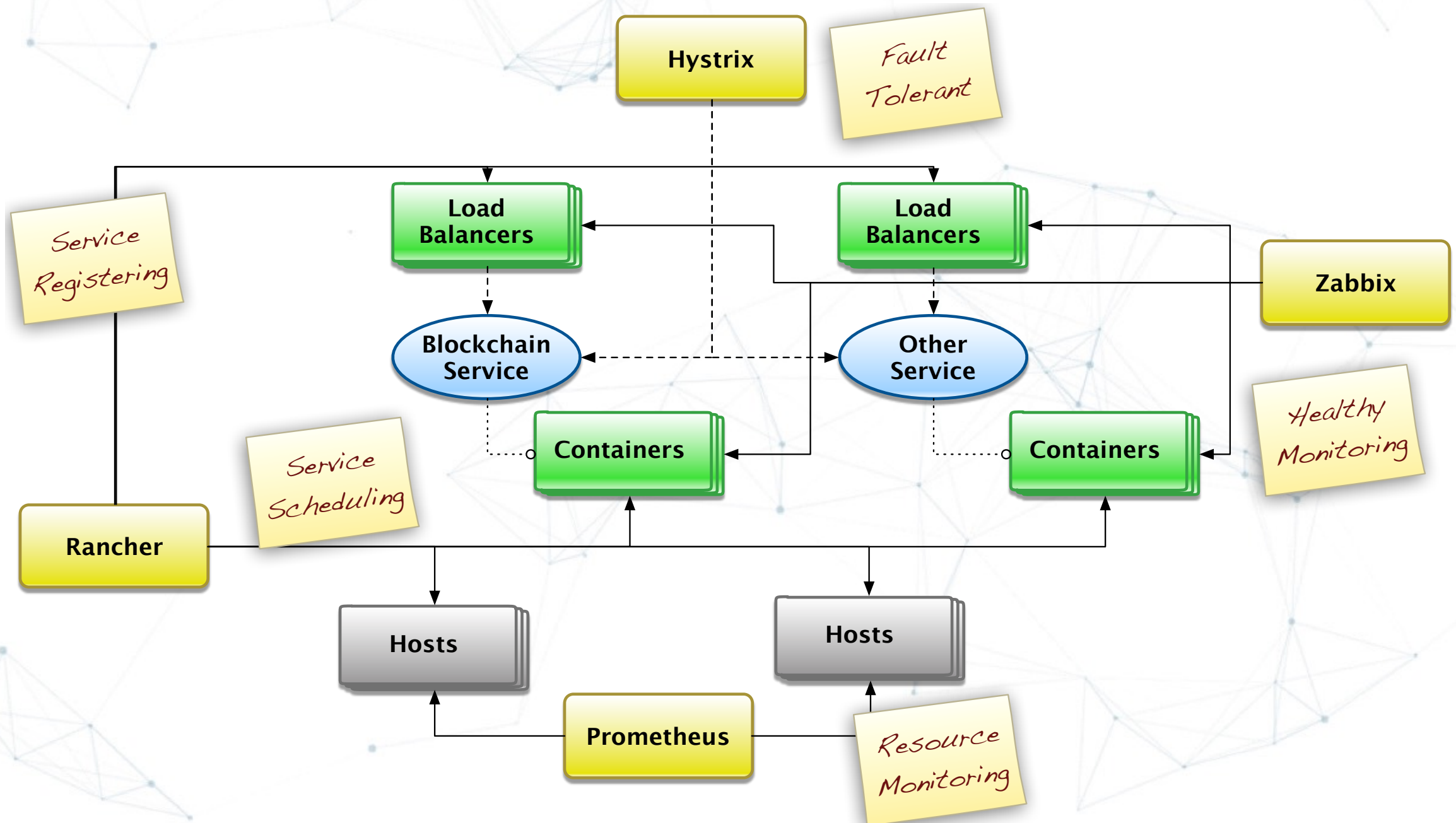Blockchain ⟷ HYPERLEDGER

Data Warehouse ⟷ HBase, Cassandra, ...
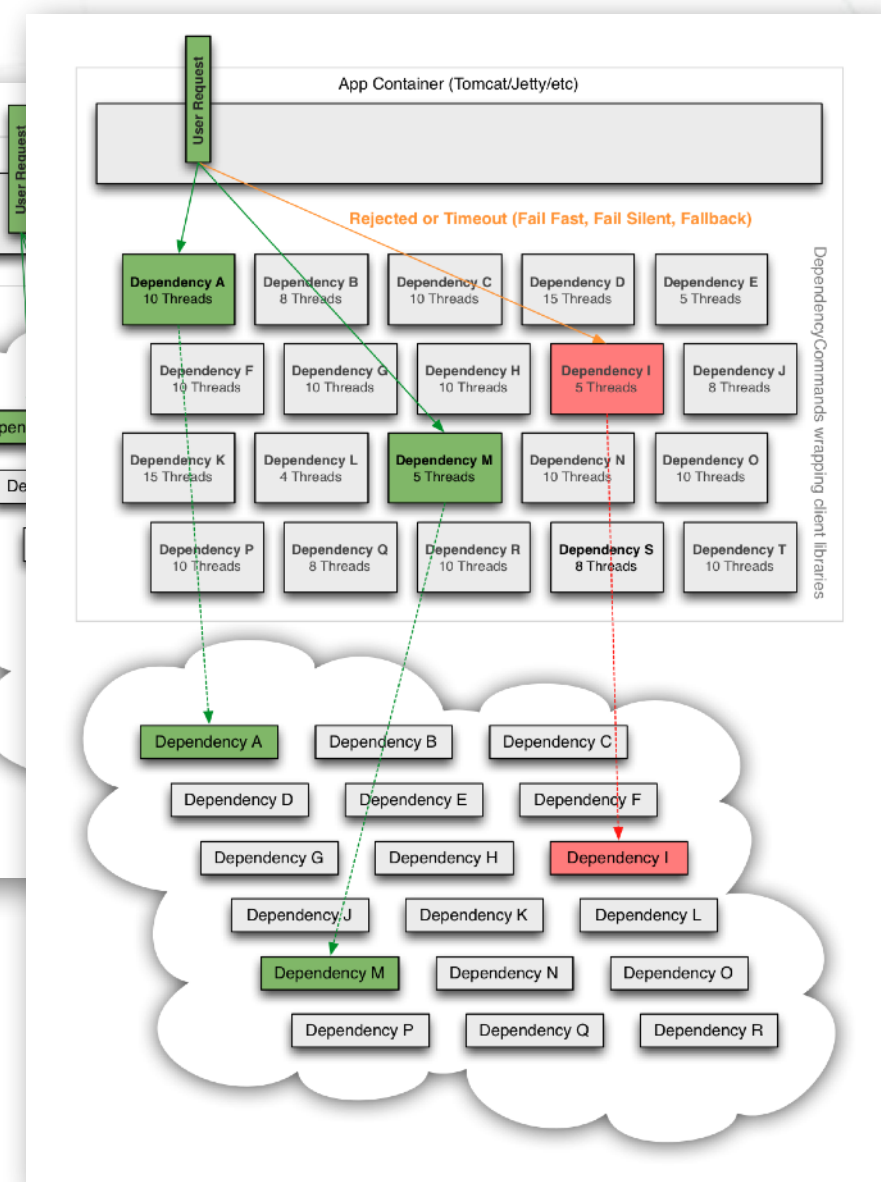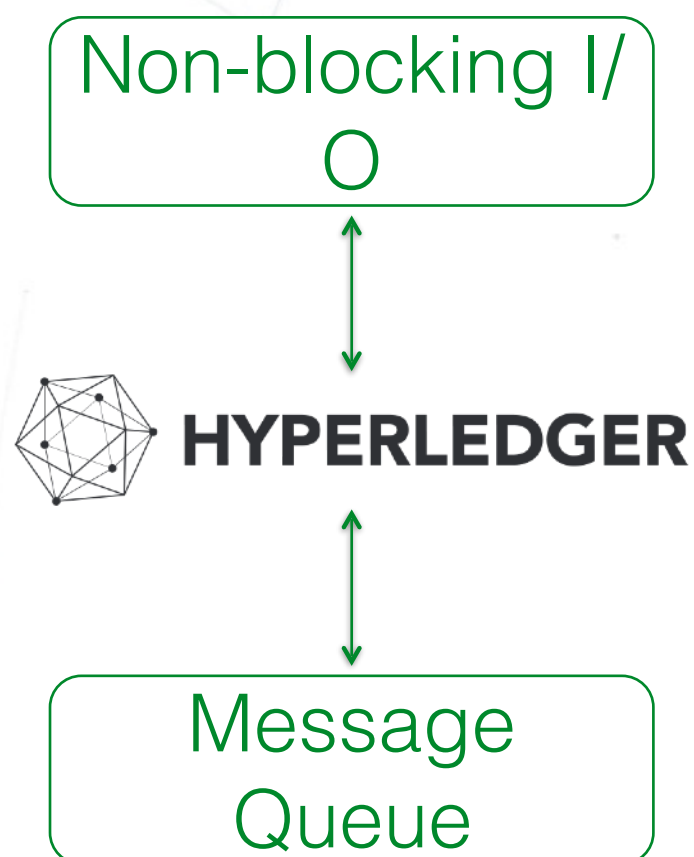
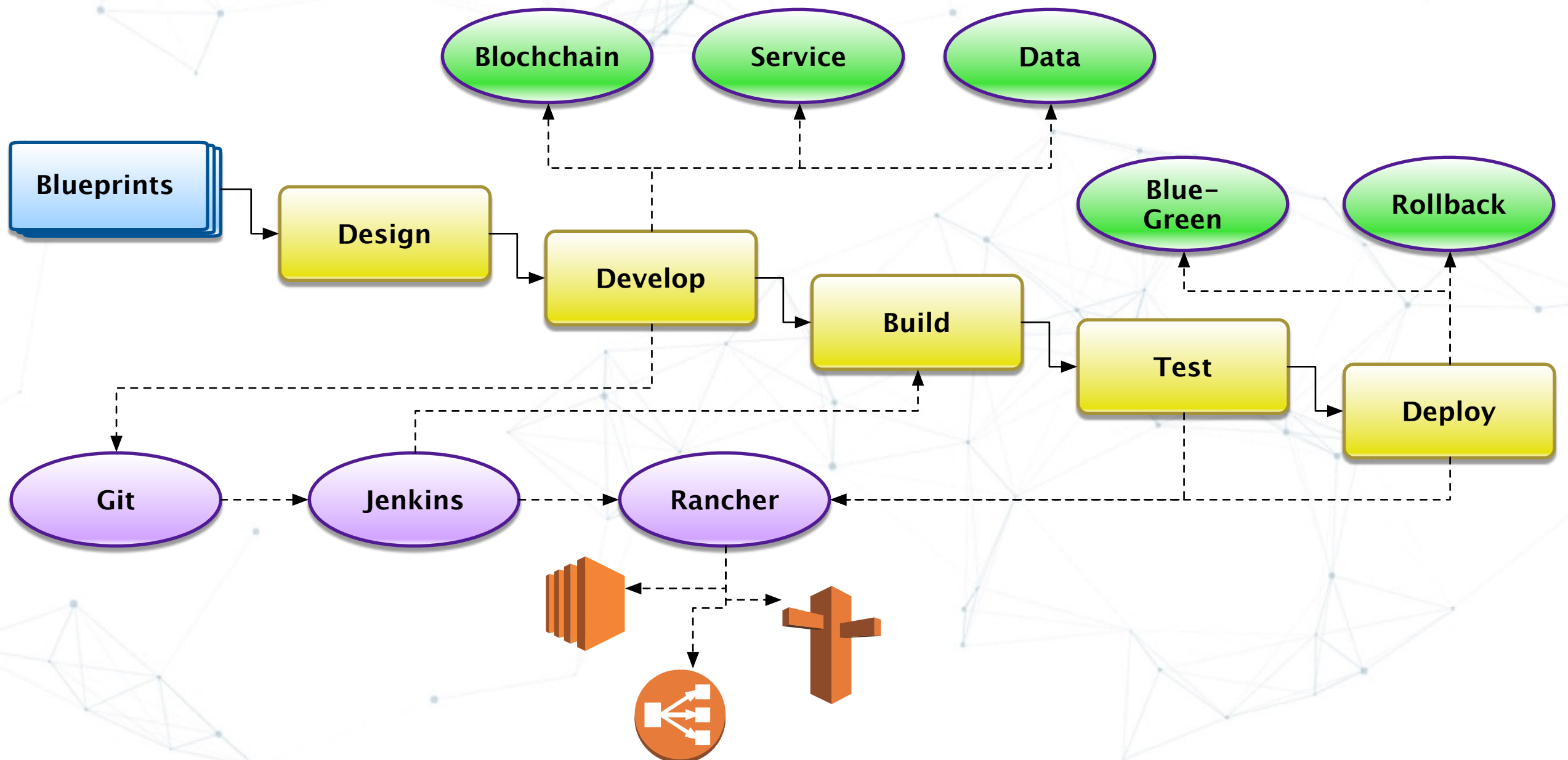Distributed Computing ⟷ MapReduce, Cluster Computing, ...

Fault tolerance

Fault tolerance

Non-blocking I/O

HYPERLEDGER

Message Queue

Images from hystrix

Hyperledger and CI/CD

Hyperledger and CI/CD

Q&A

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