Digital Supply Chain Management System

by Hyperledger Iroha

Technical Overview of the Iroha

Architecture

Conceptual View

Process View

Development View

Advantage of Iroha

Iroha Vs Fabric

Technical Overview of the Iroha

Architecture

Architecture

API level

Peer Interaction level

Chain business logic level

Storage level

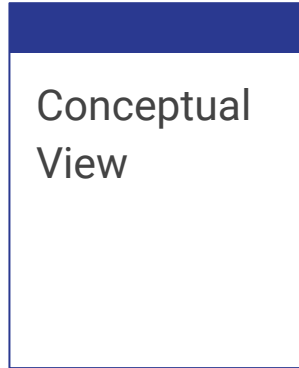| Torii | Model |
| Network | Consensus |
| Simulator | Validator | Synchronizer |
| Ametsuchi |

Architecture

The study of Architecture can be done with the following views:

1. Conceptual View

2. Process View

3. Development View

4. Physical View

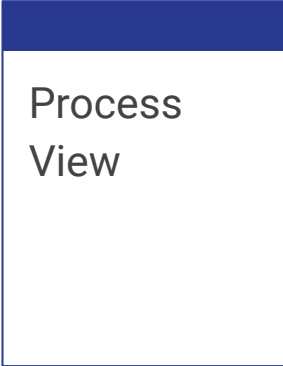# Technical Overview of the Iroha

Conceptual
View

Conceptual View

Layers

User Interface: User Facing Services

Applications: Run on blockchain computer

Compute Layer: Application logic is encoded in program runs on blockchain

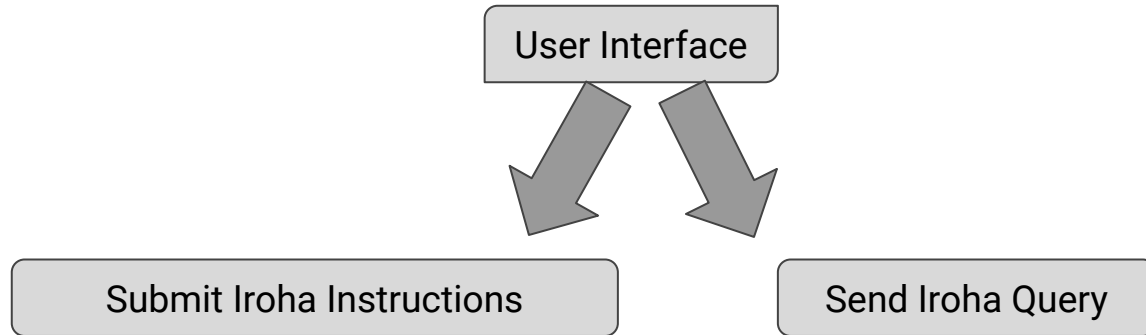**Consensus Layer:** Manage the consensus problem

References: https://wiki.hyperledger.org/display/iroha/Architecture

Technical Overview of the Iroha

Process
View

Process View

Clients Peers Communication

User Interface

Submit Iroha Instructions

Send Iroha Query

References: https://wiki.hyperledger.org/display/iroha/Architecture
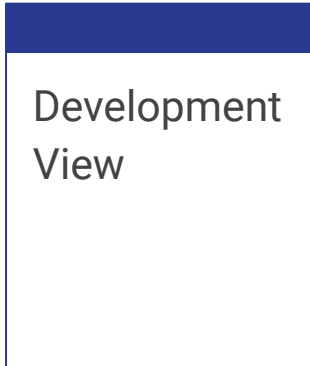
Development View
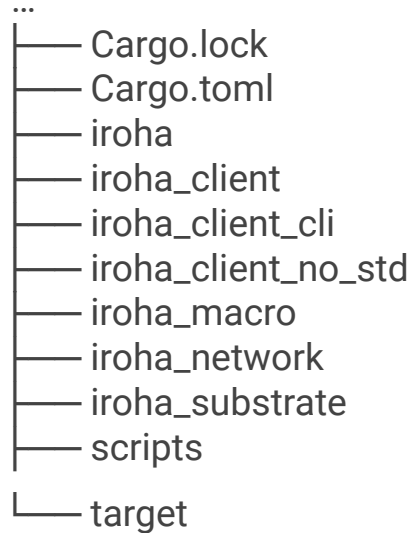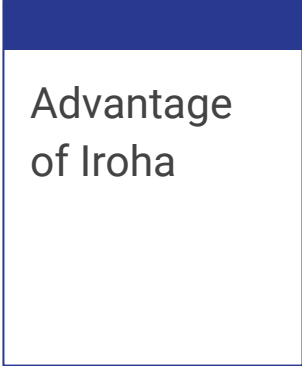
Development View

This view deals with the static organization or structure of the software in its development of environment.

```
…
├── Cargo.lock
├── Cargo.toml
├── iroha
├── iroha_client
├── iroha_client_cli
├── iroha_client_no_std
├── iroha_macro
├── iroha_network
├── iroha_substrate
├── scripts
│
└── target
```

References: https://wiki.hyperledger.org/display/iroha/Architecture

Technical Overview of the Iroha

Advantage
of Iroha

Advantage of Hyperledger Iroha

- new Crash Fault Tolerant Consensus algorithms called **YAC.**

- use to make trusted, secure, and fast application by bring the power of permission based blockchain with **Crash Fault Tolerant consensus**.

- easily to create application for desktop & mobile platform.

- work on linux, MacOS, variety of mobile & desktop libraries.

References: https://wiki.hyperledger.org/display/iroha/Architecture

Technical Overview of the Iroha

Iroha Vs Fabric

Hyperledger Iroha Vs Hyperledger Fabrics

- Iroha h**as a novel, Crash Fault tolerant consensus algorithms (YAC)**.
  - YAC gives high performance and finality of transaction with low latency.

- Iroha built in commands are a major benefits, very simple limited to do common task resultant in **reduce the attack vector**

- Iroha is the **only ledger that has a robust permission system**, allowing permissions to be set for all commands, queries & joining of the network.

References: https://iroha.readthedocs.io/en/develop/overview.html

Advantage of Hyperledger Iroha

- Simpler & Easier

- Faster Transactions

- Lightweight

- Crash Fault Tolerance

- Granular Permissions

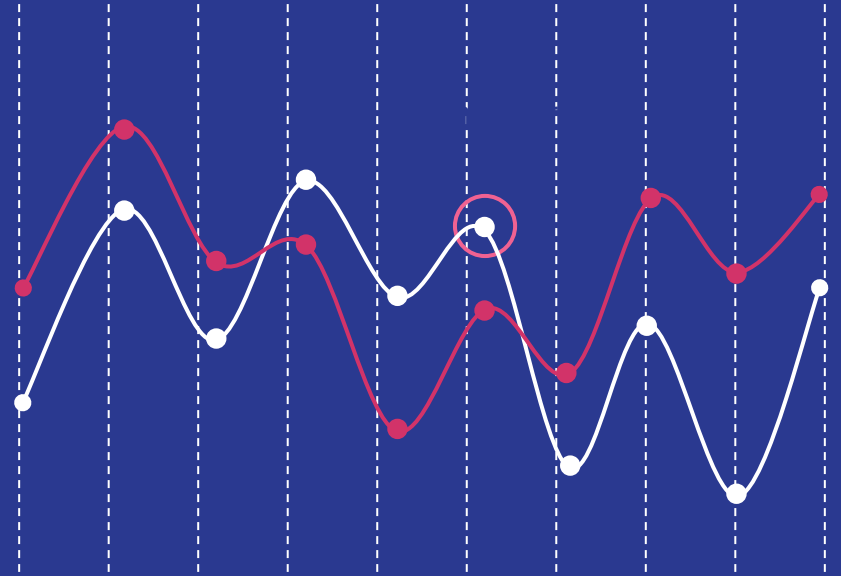**References:** https://iroha.readthedocs.io/en/develop/overview.html

Key points of YAC (Yet Another Consensus) Algorithms

- **Scalability:** Handles thousands of nodes without communication overload.

- **Performance:** fast block confirmation, transaction with low latency.

- **Crash Fault Tolerance:** Can handle a third (N/3) of nodes crashing and still keeps everything rolling. It is based on the **Byzantine Fault Tolerant** consensus approach.

References: Bard

Thank you

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