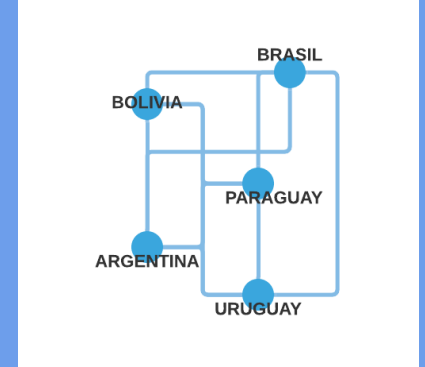


bConnect



A Blockchain for MERCOSUR

october 2021



bConnect

Blockchain that connects the custom services of Argentina, Brazil, Bolivia, Paraguay and Uruguay.

It has a testnet and a production network implemented in november 2020.



Technical Concepts

Made with blockchain open source project Hyperledger Fabric from Linux Foundation



- 2016 - v0.6.x
- 2017 - v1.0.0
- 2019 - v1.4.x LTS ← bConnect
- 2020 - v2.2.x LTS
- 2021 - v2.4.x

Technical Concepts



Permissioned network

You need permission to belong to the network.

Every participant has a clear identity and everyone in the network knows who's who.

A Fabric Membership Service Providers identifies network participants through their X.509 certificates.

Technical Concepts



High Performance

Most existing blockchain platforms require all transactions are executed sequentially by all nodes.

In Fabric, each transaction need only be executed (endorsed) by a subset of peer nodes necessary to satisfy the transaction's endorsement policy.

Fabric deterministic consensus algorithm \Rightarrow No forks

Technical Concepts



Smart Contracts (chaincodes)

Can be written in Go, Javascript or Java.

Ease upgrade: don't need migrate the state or a proxy contract.

Configuration

- 5 members: Argentina, Brasil, Bolivia, Paraguay and Uruguay
- 6 peer nodes (chaincode executors and block validators)
- 3 orderer nodes (block producers)
- A chaincode written in Javascript (Typescript)
- Chaincode endorsement policy: “at least 2 organizations”
- Gateway applications made by Argentina and Brasil

First Use Case

- Information exchange of Authorized Economic Operators.
- This replaces a process that was previously done through spreadsheets sent by email.
- Smart Contract API: create, load, list, history and findByCriteria.
- Document format: json object compliant with the AEO MASTER DATA MODEL from WCO GUIDELINES ON TRADER ID NUMBER.



Next steps ...

- Implement privacy capabilities for use cases where a group of organizations needs to keep the data private from other organizations.
- Interoperability with other regional blockchains.

Prerequisites for a successful regional blockchain project

- Previous experience: AFIP has a team working with blockchain since 2019. Before bConnect, we had implemented a national blockchain network to share tax payers information with the provincial agencies.
- Choosing a first simple use case that can be implemented with a smart contract also simple.
- Gateways: the blockchain interacts with the systems of each organization, appropriate gateway applications are needed.
- Standards-based data model, such as AEO Master Data Model from WCO.

Thanks !



Blockchain Team

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