PropertyBlock-Network

Contributors:

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This is a project for CFDev 03 at The Blockchain Hub, at York University Lassonde Professional Development, Lassonde School of Engineering.

Objective:

Property Block Network is a platform for users to digital exchange the property ownership over a Hyperledger smart contract network. This defines a business network where house sellers can list their properties for sale.

Tools Used for The Project:

- An ubuntu instance was created on Amazon AWS EC2 with Hyperledger Fabric deployed.

- Hyperledger Composer was used as a tool to aid in the development of the PropertyBlock-network.

- The sample DigitalProperty-network was used as a basis with edits being made to the library and model files in the chain code.

PropertyBlock-network

PropertyBlock-network Definition:

Participant Person

Assets LandTitle SalesAgreement

Transaction RegisterPropertyForSale 'BlockedProperty' 'UnBlockedProperty'
A Person is responsible for a LandTitle. By creating a SalesAgreement between two Person participants you are then able to submit a RegisterPropertyForSaletransaction.

How the Network Operates:

The network has the following abilities and functions:

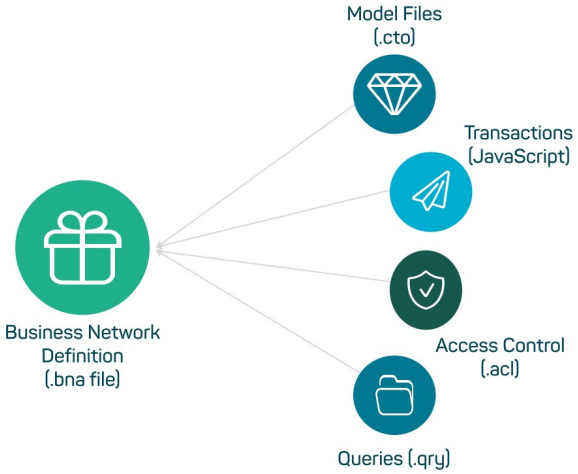
- Register a new property on the network
- Puts a new property for sale on the network
- Transfer the ownership of the property
- Add the information to the land title information of the asset
- Completes the review of a property registered on the network and refrain it from getting sold on the network identified by propertyId
- Completes the review of all the properties registered on the network and allows it to sale on the network identified by propertyId

Transactions that can be completed on the network:

- Registers new property on the network for sale
- Block a property on the network
- Unblock a property on the network

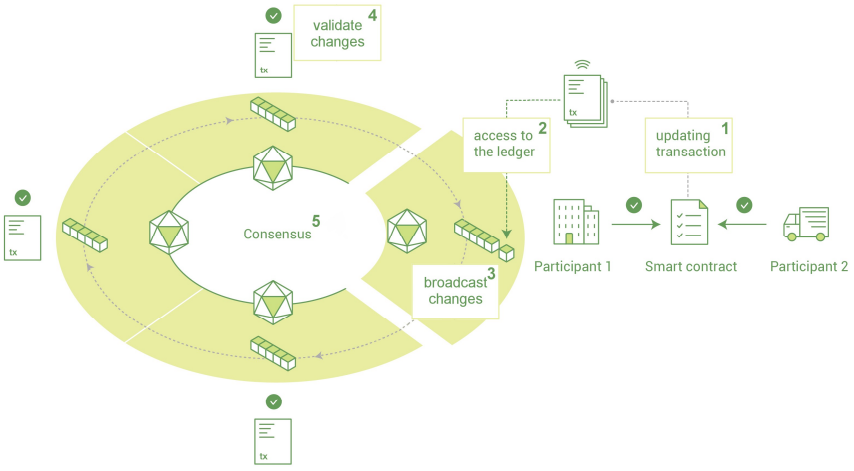
Structure of the Business Definition (.bna) File and PropertyBlock-network

The PropertyBlock-network .bna file is included which contains the model definitions of the network such as the participants, assets, and transactions located in the /models folder. The JavaScript file in the /lib folder contains the file to implement the transaction processor functions of the PropertyBlock-network. The access control in the permissions.acl file provides access control restrictions for participants to access given resources.



Source: codecentric

The participant on the PropertyBlock-network executes a smart contract, which then an updating transaction runs and accesses the ledger where the changes are then broadcast on the network. A validation of the change is made with consensus being provided amongst the peer consenters in the channel, then entry is posted to the ledger.



Source: codecentric

Sources:

- Hyperledger Fabric documentation
- Hyperledger Composer documentation
- The Linux Foundation resources
- codecentric