Polsto project : Income-Generating Security Token Issuance and Distribution Platform for Patent Asset

Overview

Blockchain technology, especially STO, has suggested the possibility of supplying liquidity by tokenizing underlying assets in the real world that have not been assetized. Currently, not only traditional stock firms but also various participants around the world are actively interested in implementing a platform for STO and are actively preparing all necessary matters.

STO guidelines have been released in Korean and STO is allowed on a trial basis through requlatory sandboxes. The bill is also expected to pass soon.

We are also making various preparations for the STO platform business, especially bringing intellectual property rights and patents as underlying assets to the blockchain world.

Given the characteristic of the underlying assets we aim to handle and considering the STO environment in Korea, we certain that Polkadot is an excellent choice for us, Truly

Topic : Issuance/distribution of Security token

Of course, the STO guidelines announced in Korea do not respond to all processes that may be required in tokenization of underlying assets. In this transitional phase, we think scalability is a very important factor. And we have initially implemented an on-chain issuance/distribution platform here. This prototype has some essential functionalities that are deemed necessary.

Several off-chain processes are required before token issuance. First of all, a subscription offering is held for assets to be securities tokenized. When the subscription is completed, subscriber's share ratio is used as the basis for issuance. Now that we have passed this process, we can issue tokens to the on-chain storage, and we focus on the following problems.

Problems & Solution

- **Key person risk** : To prevent various security issues that may arise from granting token issuance authority to a single address, considerations can be made for functionalities such as Multisig and MPC wallets. Substrate provides an on-chain level solution, Multisig Account feature. Furthermore, the approval of a particular institution to register the underlying asset's account may be required. We have also included the ability to define mandatory approval accounts for this purpose.
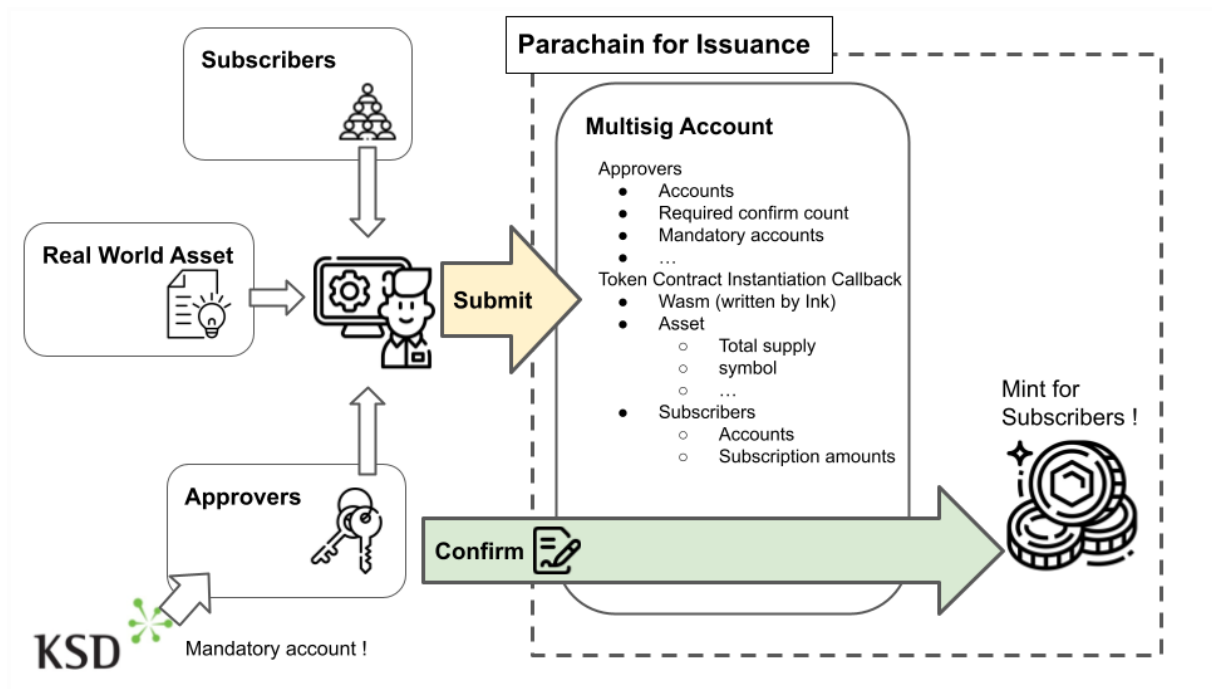
- **Separation of Issuance and Distribution** : In Korea's STO guidelines, STO should be operated on a private blockchain network, and issuers and distributors should be operated separately. We assumed a situation in which issuers and distributors would have their respective blockchain networks. And we considered the function of token holders to move their own tokens to a particular distributor for trading after token issuance. For this, we designed the asset movement between each parachain of issuance and distribution through XCM.
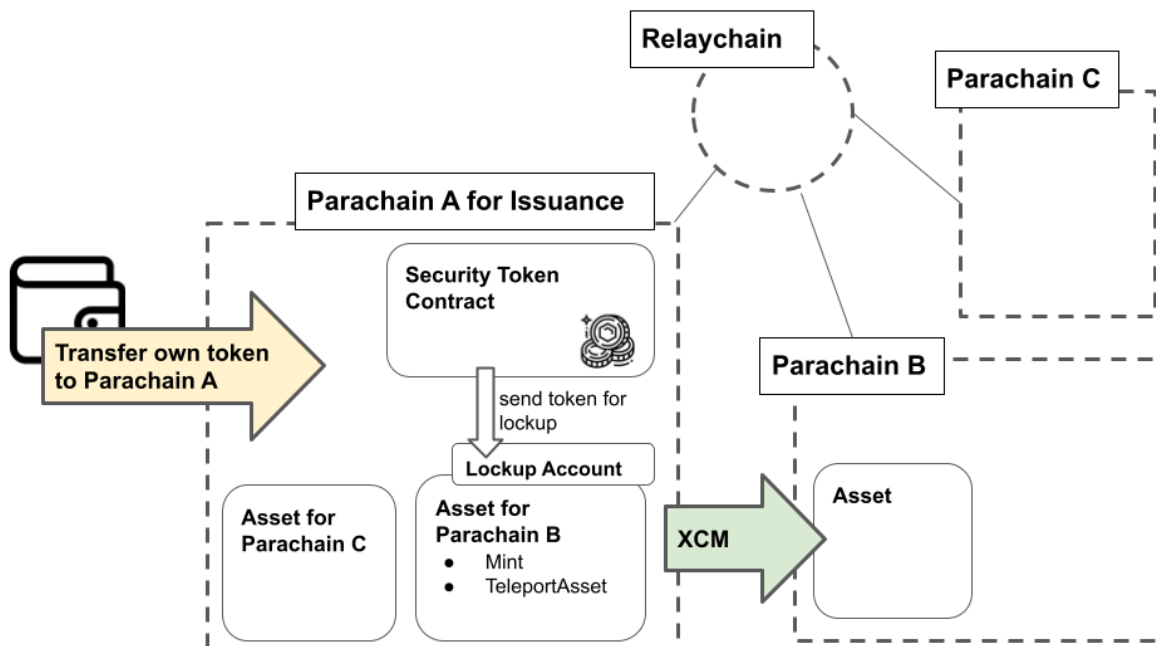
- **Allocation of income for token ownership** : Such as dividends from stocks, Some underlying assets in the real world generate income equivalent to the period of

ownership. Patents that we are interested in can also generate income. When these profitable assets are tokenized, it is necessary to think about how to allocate profits to owners. We developed an algorithm for this. Income can be allocated as tokens according to the following.

    a. Record the token owner's balance and block height when the token is moved.

    b. When incomes are generated, block height range and amount per block are recorded.(The total value of income token is also deposited to security token contract)

    c. Security token owners who meet the criteria can withdraw proceeds from the holding period.
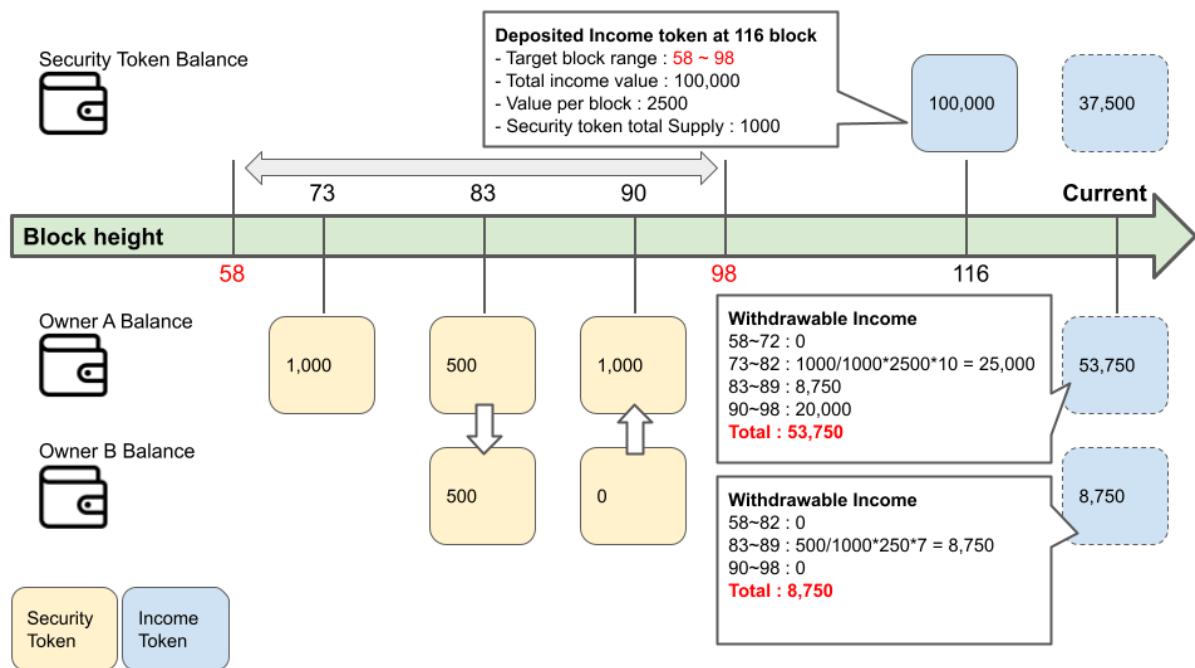
Milestones

Our business objectives are two main ones.

1. Developing an SDK that anyone can easily build a STO platform.
2. Building our own platform to tokenize patent assets.

The milestones to be unveiled below this document are about the development of SDK before platform construction.

Notice : *As mentioned earlier, the standards presented by the current STO guidelines in Korea are very insufficient. Depending on the interpretation of the guidelines, there are many parts that are not clear. Therefore, the direction of implementing the platform in the future may change accordingly.*

The milestone written below may also change a lot depending on changes in domestic STO regulations.

Build Off-chain solutions
- Platform API server & UX
- Cloud infra-structures

Build On-chain solutions
- Scalable STO parachain
- Interoperable functions

With Hackadot!
- Prototypes

May	June	July	August	September	October

Gantt chart

	May					June				July					August				September				October				
	1	8	15	22	29	5	12	19	26	3	10	17	24	31	7	14	21	28	4	11	18	25	2	9	16	23	30

On-Chain
- Income-generating Security Token(Prototype, Solidity)
- Multi-Sig proxy contract(Prototype, Solidity)
- Prioritizable Multi-Sig Account
- Custom Asset - Token Inssuance Template
- Parachain environment configuration
- Income-generation Security Token wasm(Ink)
- Transfer asset, Remote extrinsic call (XCM, Asset, Wasm)
- Integration Test
- Hackadot Demo scenario
- AMM wasm(Ink, for Income distribution)
- Asset based Security token
- ORML token based Security token
- Income token transfer call(XCM, Asset, Wasm)
- Income withdrawal from cross chain(XCM, Asset, Wasm)
- Integration Test
- SDK Packaging(STO Parachain package)

Off-Chain
- Inssuance Platform - Service DB Modeling
- Inssuance Platform - API Modeling
- Inssuance Platform - API Development
- Common - User Authentication, Authorization
- Inssuance Platform - Web UI Development
- Distribution Platform - Service DB Modeling
- Integration with Open-banking(ex : Mydata standard)
- Distribution Platform - API Modeling
- Distribution Platform - API Development
- Integration with MPC Wallet
- Distribution Platform - Web UI Development
- Cloud Infra structure setup (k8s)
- Integration Test

(link:
https://docs.google.com/spreadsheets/d/1yRFA-OnRBpsF3O1LACQns0jfh5xPgwIERhwmb-Wx6Nc/edit#gid=0)