# Housing Agency System

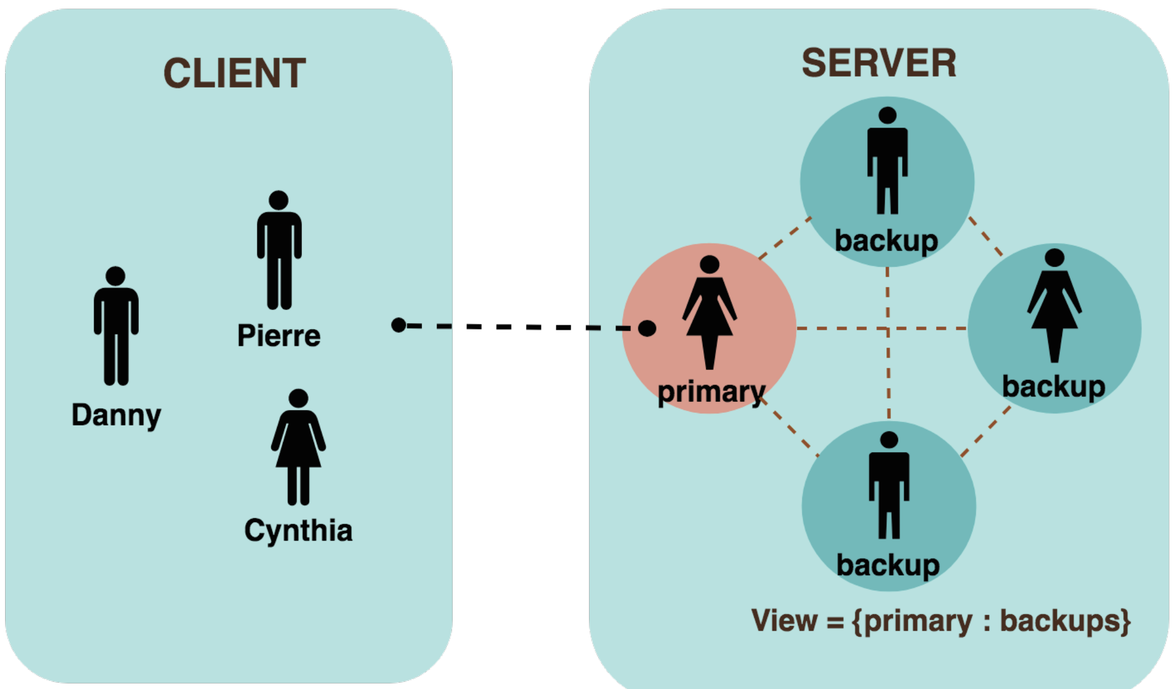
## Abstract

As STO (Security Token Offering) is gaining more and more attention, we consider that the concept can be applied to the real-estate transactions. Meanwhile, by introducing the consortium blockchain, the mechanism brings lots of advantages to the market.

First of all, the users can trade houses without being charged the additional service fee. Moreover, the users can obtain the real-time information on the real-estate market which is shared to everyone. And the most important feature is that a house can be owned by a crowd of people at the same time as long as they possess the corresponding tokens.

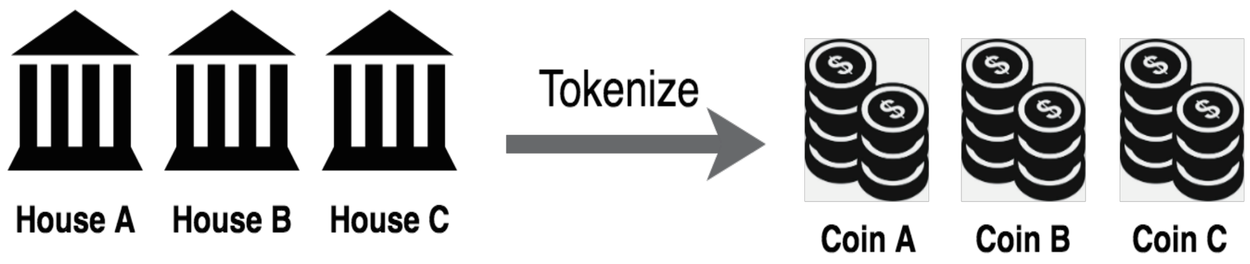
## Consortium chain

Consortium blockchains emerged as an interesting architecture concept that benefits from the transactions' efficiency and privacy of private blockchains, while leveraging the decentralized governance of public blockchains. As opposed to the public chain, Consortium chain use PBFT(Practical Byzantine fault tolerance) where only the primary user can generate the block while specific users (called servers here) can verify the block, which is time-saving.




## Multiple coins

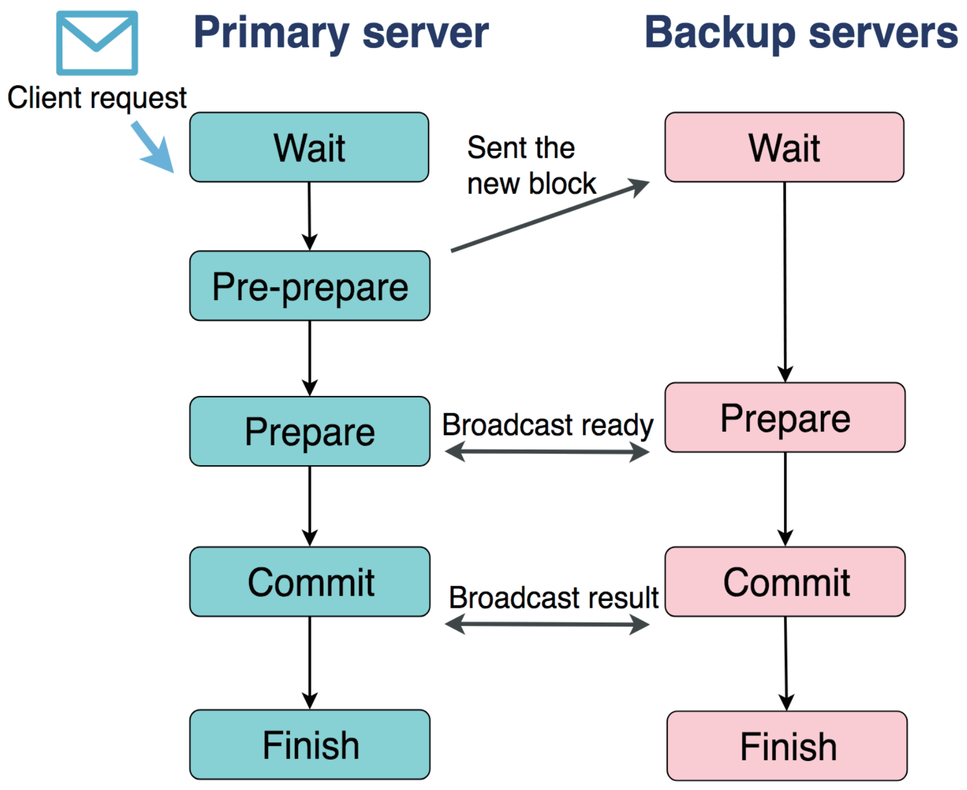
By representing a house as a pile of tokens, it is possible that a house can be owned by hundreds of people as long as they have the corresponding tokens. In detail, when an arbitrary client want his or her house to be on the blockchain, the client can send a request to the primary node to ask for the type signature. Once acquiring the type signature, the client can start to trade the coins to other users and to receive other coins from other users.




## Consensus

First of all, all the verification nodes elect a 'primary'(like a leader) to be responsible for new block generation and broadcast to all the verification nodes.(maybe pre-elect or take turns) At the same time, the other evalution nodes are called 'backup'. And 'view' means the combination of 1 primary and many backups.

To reach a consensus, there are stages below:.




## Model