



Real- ETHstate

PROJECT 3

BRUNO, OWEN, KERRY

.....

OVERVIEW

Executive Summary & Project Goals

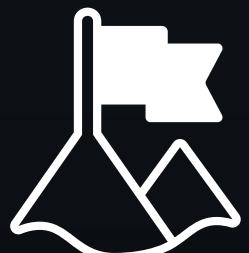
Real-ETHstate

Utilising blockchain technology in the property market to connect buyers with sellers, and renters with landlords, while cutting out middlemen to save on administration and legal costs, thereby benefiting all participants in the ecosystem.



Vision

To provide an end to end, all encompassing real-estate solution that includes property trading, property management and associated services, in an open, transparent and efficient manner thanks to the underlying technologies.



Fintech in Action

Our project has scope to implement a number of Fintech technologies including:

- Payments for buying, selling, renting via cryptocurrencies (ETH)
- Record keeping using the blockchain (IPFS)
- On chain smart contracts to manage rental agreements.

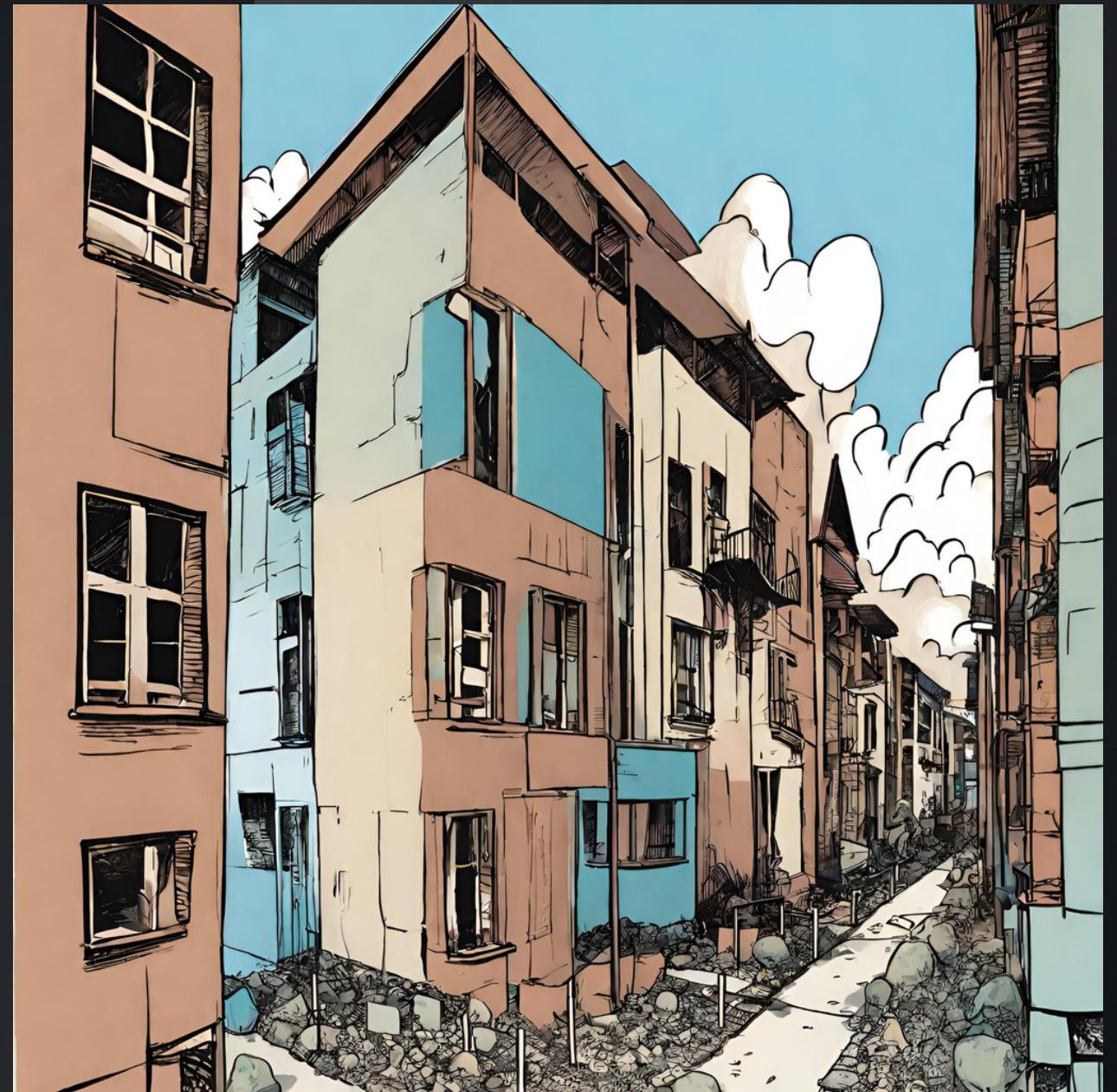
WHAT'S THE PROBLEM?

Too many inefficiencies and middle-people when dealing with property...

- How do we make it simpler, faster, cheaper, and more secure?
-

Solution

- Use blockchain technology, to ensure that in an environment without a central authority, share listings on the premise of preventing listings information from being tampered.
- Compile traditional lease agreements and operational data into a smart contract which runs automatically.
- Introduces the core operation mechanism of the blockchain housing rental system and the functional division of the smart contract module of the system.



ADVANTAGES

Efficient & Faster Transactions

Blockchain can streamline the entire real estate transaction process by reducing paperwork, minimizing the need for intermediaries, and automating various steps. This leads to quicker and more efficient transactions, potentially cutting down the time required for property transfers.

Irreversibility

The blockchain saves the confirmed and verified information of each transaction, which can reduce the risk of double spending, fraud and abuse, and transaction manipulation.

Tokenization of Assets

Blockchain enables the tokenization of real estate assets, allowing properties to be divided into digital tokens. These tokens can be traded on blockchain platforms, providing liquidity to traditionally illiquid real estate investments.

International Transactions

Real time, fast transactions with much faster speed and less costs than done through a financial institution.

Decentralization

The decentralized nature of blockchain reduces reliance on a single authority, making the system more resistant to censorship and central control. This decentralization can enhance trust in the real estate ecosystem.

DISADVANTAGES

Transaction Risk

Users may lose their entire transaction if the address is entered incorrectly. Could lead to huge ramifications if transaction size is large.

Scalability Issues

As more transactions are added to a blockchain, scalability becomes a concern. Some blockchain networks may experience congestion and slower transaction speeds as the volume of transactions increases.

Security Concerns

While blockchain is generally considered secure, there have been instances of vulnerabilities and hacking in cryptocurrency-related projects.

Complexity & Learning Curve

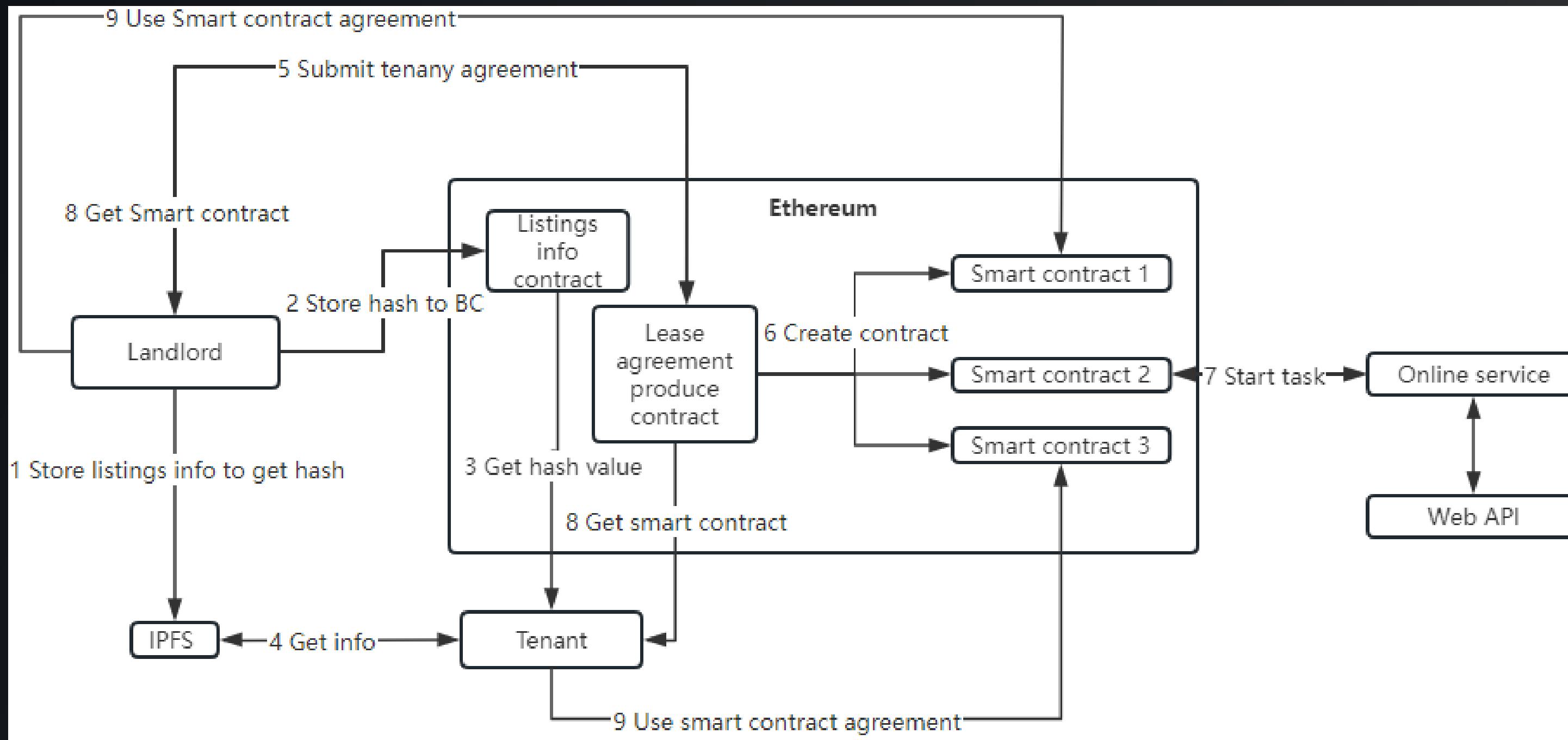
Older generation may not understand and be able to adapt to its usage.

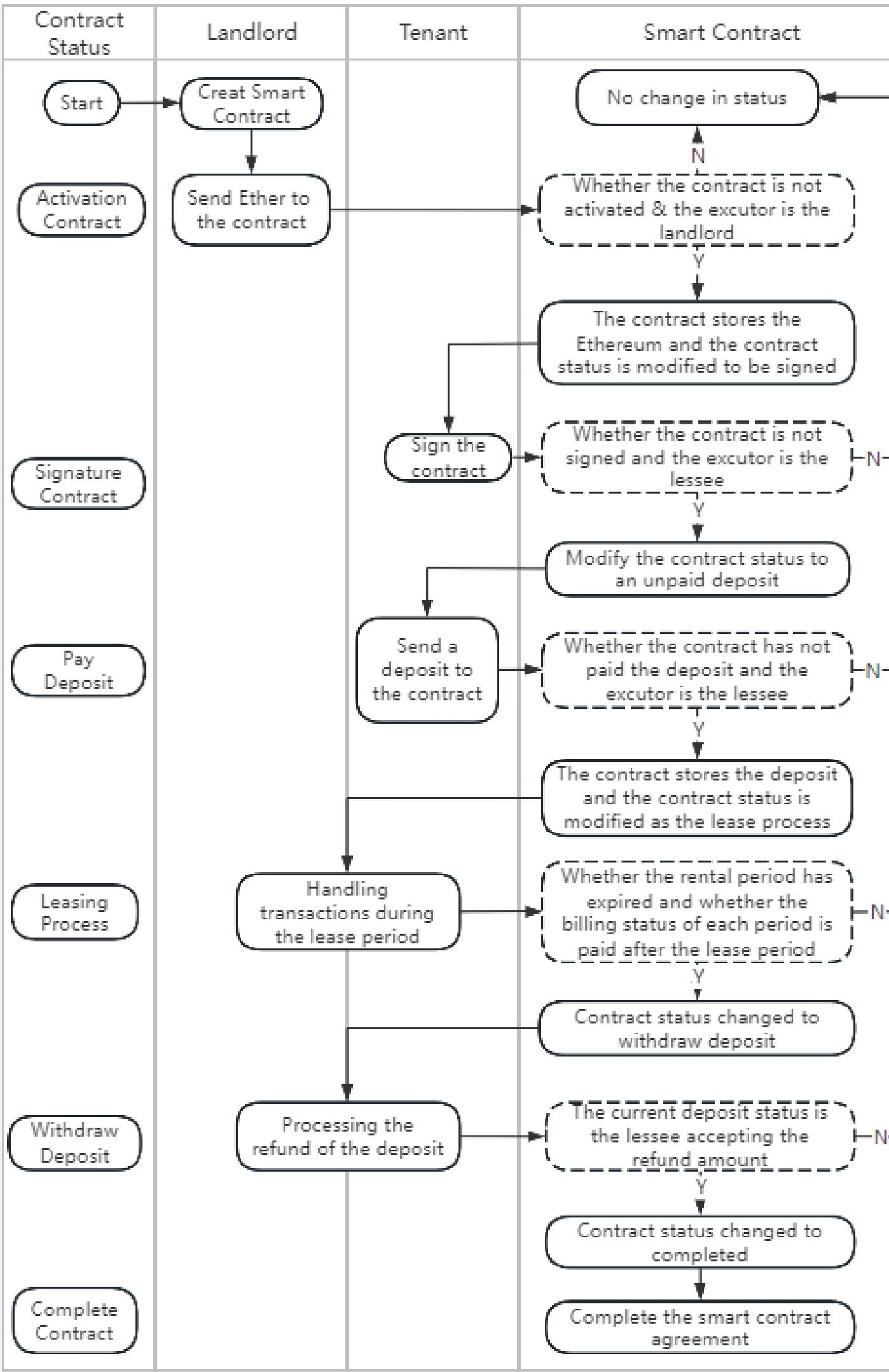
Private Keys

Forgetting or losing access to your private keys may mean that you lose your wallet and all your assets in it.

CORE OPERATING

The core operating mechanism of the rental system





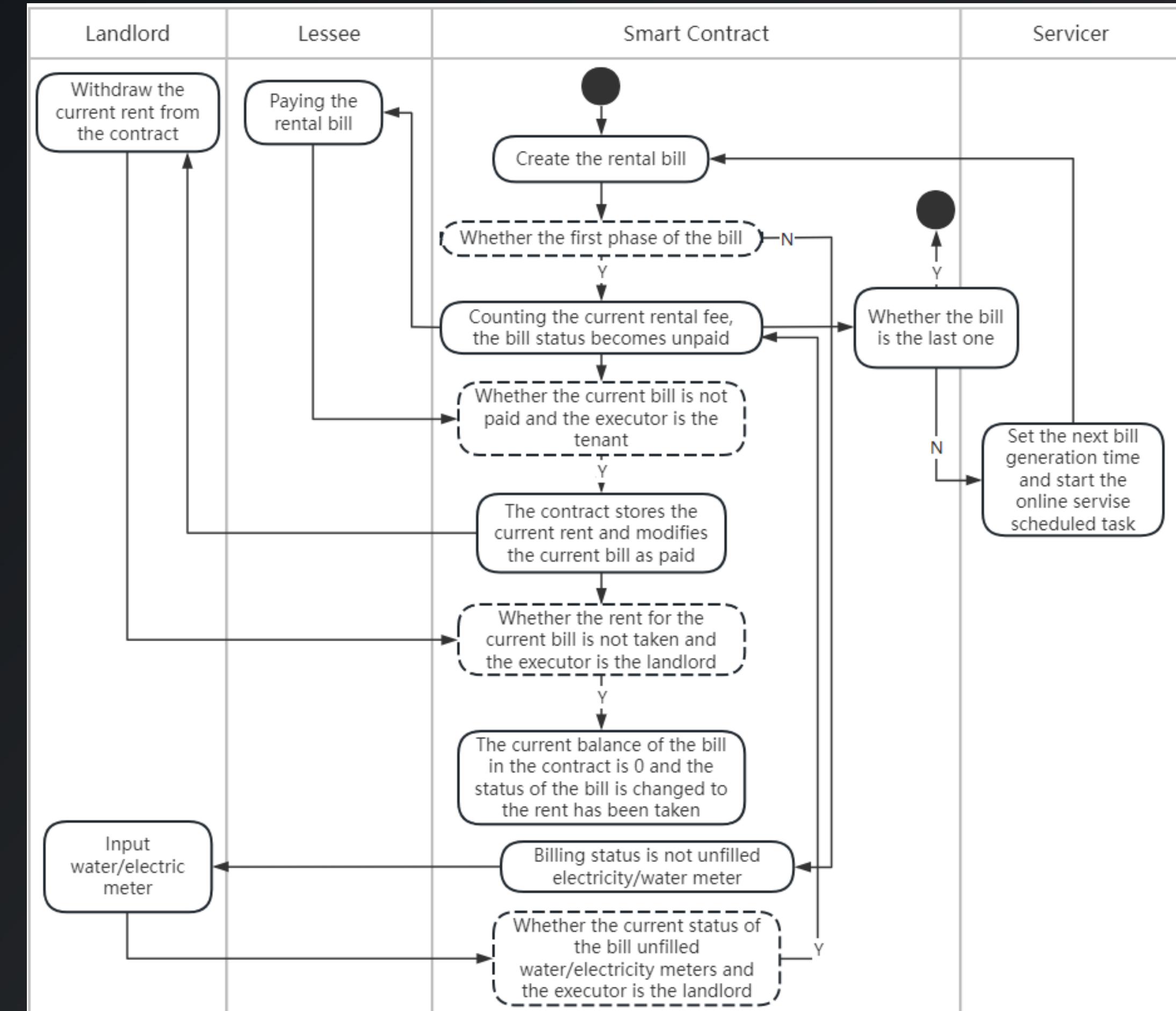
SMART CONTRACT FLOW CHART

THE SPECIFIC PROCESS OF THE SMART CONTRACT DIVIDED INTO SIX STATUSES CHANGES

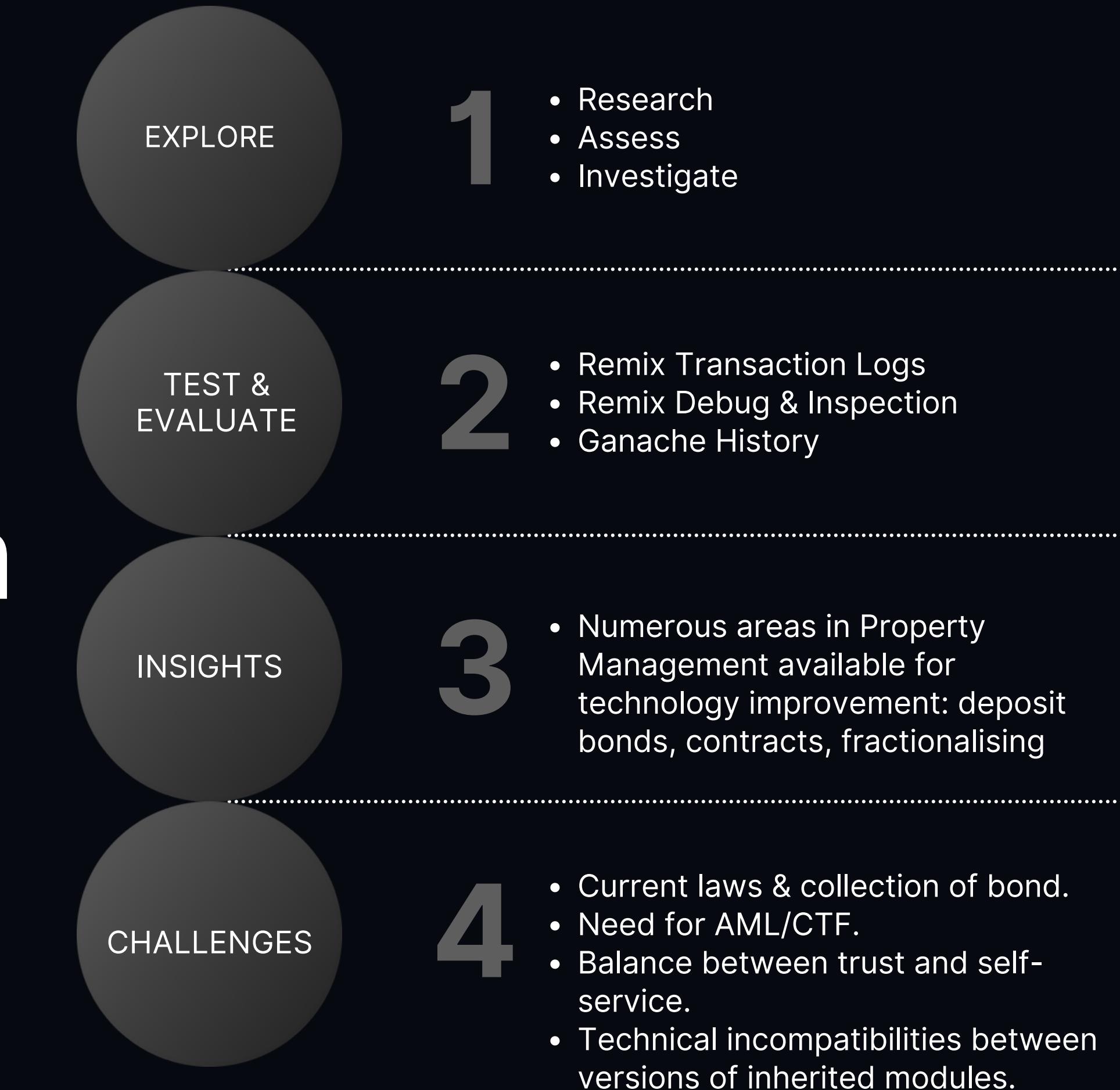
RENTAL PROCESS

Work flow chart of the smart contract during the lease period

This is the most time consuming process for a smart rental contract. After the entry into force of the contract, the lease will automatically create bills of the first period. Each subsequent period will be based on the lease date of the contract as the collection date, and the rental bill for each period will be automatically generated by the servicer on a monthly basis. Each period of the rental bill will have four statuses.



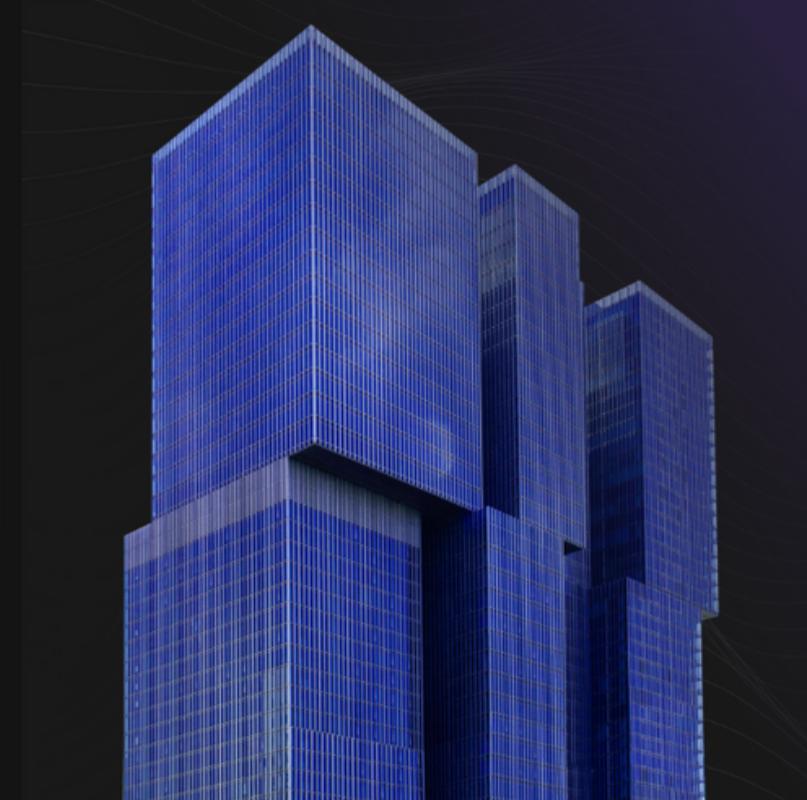
Our Approach



APP WALK THROUGH

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Real-ETHstate

Admin - Add Property

Owner - Open Property to Rent

Tenant - Tenancy Application

Code and snapshots

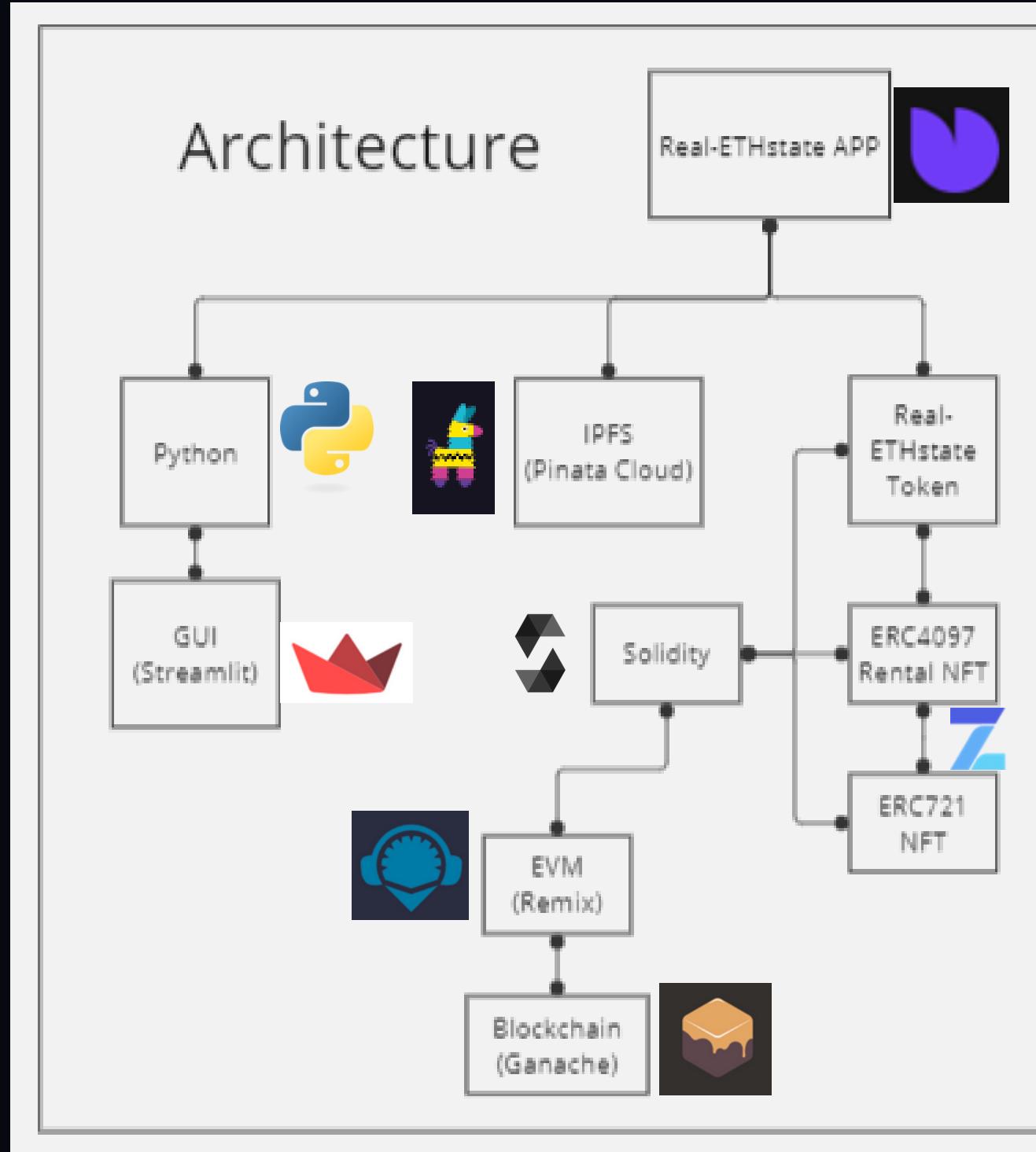
The screenshot shows the Real-ETHstate web interface. On the left, there's a sidebar with a purple logo and navigation links: 'Real-ETHstate', '+ Admin - Add Property' (which is highlighted in grey), 'Owner - Open Property to Rent', and 'Tenant - Tenancy Application'. The main content area has a header 'Discover your Dream Property with Real-ETHstate Inc.' and a sub-header 'Add a Property'. Below this, there's a list of steps: '1. Details of the property', '2. Property Owner's Account Number', and 'Owner's EOA Account' with the value '0x1234567890abcdefABCDEF1234567890abcdefAB'. At the bottom is a large 'Register a Property' button.

This screenshot shows the 'Register a Property' page. It includes fields for 'Property Location' (Unit/Street Number and Name, Suburb State Postcode Country), 'Property Type' (radio buttons for NotSpecified, House, Townhouse, Apartment, Unit, Villa, Other, with NotSpecified selected), 'Property Title Reference' (Lot/Plan Number), 'Property URI' (IPFS location of documents, images and floorplan), and a 'Register Property' button. At the bottom, there's a copyright notice '(C) Copyright 2024 Real-ETHstate Inc [Terms and Conditions](#)'.

```
1 // SPDX-License-Identifier: CC0-1.0
2 pragma solidity ^0.8.0;
3
4 import {ERC4907} from "./ERC4907.sol";
5 import "@openzeppelin/contracts/token/ERC721/extensions/ERC721Burnable.sol";
6 import "@openzeppelin/contracts/access/Ownable.sol";
7
8 contract Real_ETHstate is ERC4907 /* ERC721Burnable, Ownable */ {
9     /// @dev Define the PropertyTypes enumeration. Note: enums are treated as a uint8 even though they have descriptive names.
10    enum PropertyTypes { NotSpecified, House, Townhouse, Apartment, Unit, Villa, Other }
11
12    struct PropertyInfo {
13        /// @dev Street Address of the property. E.g.: `Block C Unit 1, 234 Bridge Road
14        string street_address;
15
16        /// @dev Land registry Lot / Plan number reference. E.g.: `1863/1000001`, or `31
17        string lot_plan_number;
18
19        /// @dev The type of property as an enumeration
20        PropertyTypes property_type;
21
22        /// @dev IPFS URI of the Property
23        string property_uri;
24
25        /// @dev rentInWei - the weekly rent amount in Wei being requested (attribute is managed by the owner)
26        uint256 rentInWei;
27
28        /// @dev isRented - is the property currently rented out (attribute is managed by the owner)
29        bool isRented;
30    }
31
32    // ...
33
34    // ...
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36    // ...
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38    // ...
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```

The code block contains several sections of Solidity code. The first section defines a struct 'PropertyInfo' with fields for street address, lot/plan number, property type (an enum with values NotSpecified, House, Townhouse, Apartment, Unit, Villa, Other), property URI, rent in Wei, and a boolean 'isRented'. The second section is a large multi-line comment block containing placeholder code for various functions and variables, likely related to the 'Real_ETHstate' contract's logic.

Technologies

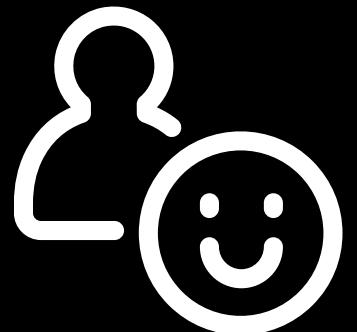


ERC-4907: Rental NFT, an Extension of EIP-721

Add a time-limited role with restricted permissions to EIP-721 tokens.

REFLECTION

Legislation enabling
rental bond beyond Fair
Trading



“
There will be increased
transactional volume
done as costs are
reduced and process is
streamlined.
”

Open doors to
fractionalising property



“
There were a lot of
hypothetical use cases in
the property management
and auction space which
we could have done given
more time.

“
This use case
can also be
applied to other
asset classes

Scope for third parties to
leverage Real-ETHstate
for other use cases

THANK YOU

FOR WATCHING