Euclid Title Services Presents

# Real Estate Token™

Featuring: Yonathan Eshetu, Marjorie Lawrence & Thomas Scott

# Who are we?

Euclid Title is the largest title company on the East Coast with over 30 years of experience!

# Get to Know Our Team

**Yonathan Eshetu**

VP Blockchain Solutions

**Marjorie Lawrence**

Director of QA

**Thomas Scott**

Director of Product Development

# How 'Old School' Title Review Works

- Correspond with the parties
- Search public records
- Conduct Legal Review
- Transfer funds from buyer to seller
- Coordinate signing of documents

These services are NOT cheap

The status quo relies on market inefficiency

# Enter our product

**As we have said 'old school' title companies rely on a cumbersome process that has been in place for centuries.**

**It is very inefficient because it relies on teams of overpaid human actors searching for issues with a home's legal chain of title.**

**To solve this problem, our development team went back to the drawing board to reimagine title work for the 21st century.**

# Meet our VP!

Yonathan Eshetu:

-Leading Smart Contract Developer
-Background in Management Information Systems

# Back end of our product

To automate the selling process, we required two different contracts:
An auction contract & a market contract

The auction contract acted as a parent contract, but the issue of displaying the product still remained

<u>This is where IPFS comes in!</u>

IPFS is useful here and now

Archivists

It's not enough to organize the world's information—we need to store it in a way the world can remember it. IPFS provides deduplication, high performance, and clustered persistence.

Service providers

If your company delivers large amounts of data to users, a peer-to-peer approach could save you millions in bandwidth. IPFS can provide secure P2P content delivery.

Researchers

If you're working with, distributing, and analyzing huge datasets, IPFS offers fast performance and decentralized archiving.

# The Benefits of using IPFS

**Each of our pictures stored for the listing that we sell has its own unique fingerprint, otherwise known as a CID (Content Identifier).**

**In the event, one of our files is uploaded with a newer version, we'll receive a new cryptographic hash!**

IPFS gives us the reassurance that our files won't be duplicated since these files are resistant to tampering. Which will prevent attempts to resell any of our listings.

# pendingReturn

A component of the auction contract that allows those who have been outbid to receive their funds.

```
function pendingReturn(address sender) public view returns (uint) {
    return pendingReturns[sender];
}
```

# Meet our Director of QA!

Marjorie Lawrence:

-Background in Federal Project Management
-Over a decade of industry experience

# QA & Testing

Once mining is completed and we have obtained Ether, it is time for the smart contract to be deployed. We then perform testing on the performance transactions. We have standardized it on Ganache and Truffle too emulate an Ethernetum blockchain to perform testing of the smart contract.

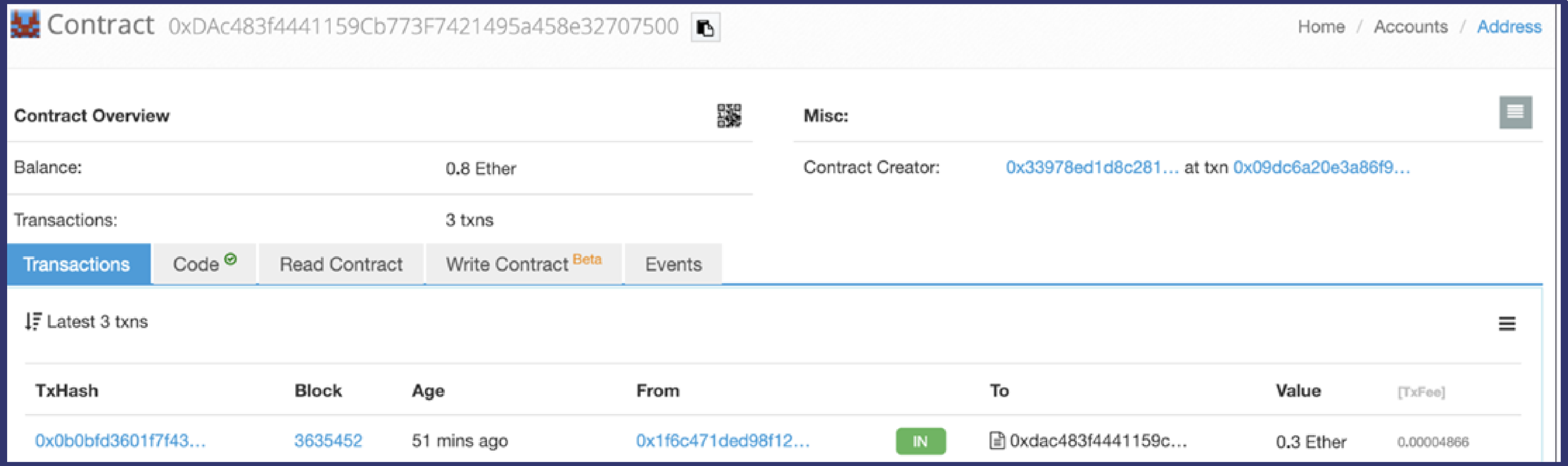
As the Director of QA, my responsibility is to ensure that the development team conducts manual testing of contract modules for simple authorization and access control mechanisms.

# Testing Environment

The process used is called a local blockchain. It is a slimmed down version of the real thing. It is disconnected from the Internet, runs on a local machine. No Ether is needed. New blocks are mined instantly.

We also utilized Ganache and Truffle for individual testing.

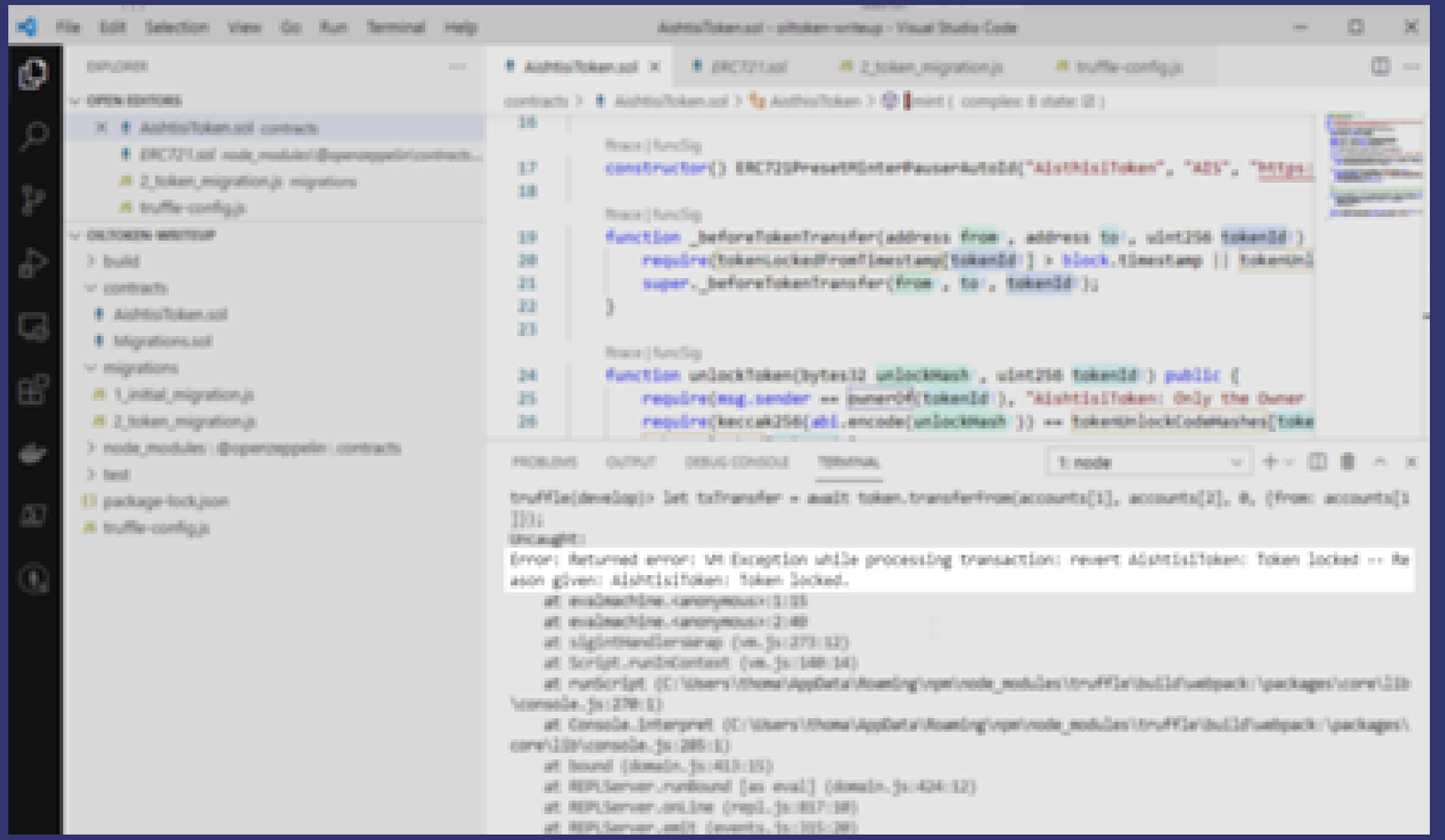
# Status of Contract Example



# Functions Transfer

event Transfer(address indexed _from, address indexed _to, uint256 indexed _tokenId);

Unlock Token after transfer of ownership



# Current Owner of Token after Transfer

await token.ownerOf(0) accounts[2]

```
truffle(develop)> await token.ownerOf(0);
'0xc03d9F27B701a1d52ebAEA7386435De2a436ae65'
truffle(develop)> accounts[2]
'0xc03d9F27B701a1d52ebAEA7386435De2a436ae65'
truffle(develop)>
```

# Reentrancy & Title Theft

Title theft most commonly occurs when one person fraudulently puts the deed to a house in another person's name, refinances a home's mortgage, or takes out a brand new mortgage using a home's value as collateral.

Our product is as a 'sandbox' that lets you securely test for attacks such as reentrancy

```
contract Reentrancy {
    HousingAuction public housingauction; // State variable that represents the auction contract

    constructor(address _auctionaddress) public {
        // Target locked
        housingauction = HousingAuction(_auctionaddress);
    }

    function fallback() external payable {
        // To halt the attack
        if (address(housingauction).balance >= 3 ether) {
            housingauction.withdraw(); // Doesn't work like intended but the skeleton is here for studying and a potential fix *
        }
    }

    function attack() external payable {
        require(msg.value >= 3 ether); // Requirement for amount to have in order to continue the attack (in wei).
        // bid function asks for address that will send wei
        housingauction.bid(0x5Ab6671Fb5D8218B437CDD98A0b5ea5633cEa40A); // Potential solution to error: Enter the auction address and AFTER DEPLOYMENT, use fallback
        // Now, withdraw the funds. In doing so, the fallback() function will be triggered
        housingauction.withdraw(); // Doesn't work like intended but the skeleton is here for studying and a potential fix *
    }
}
```

# That's a wrap!

We will now open the floor to questions