



OST

Eastern Switzerland
University of Applied Sciences

NFTrophy

Challenge Task – Blockchain

Simon Hager | Janis Wolf | Marius Zindel

16/12/2021

Department of Computer Science

First things first

Who we are



Janis Wolf

- Wetzikon, ZH
- Full time student
- 5th Semester
- Network & Cyber Security
- DS1: CineShare



Marius Zindel

- Maienfeld, GR
- Full time student
- 5th Semester
- Network & Cyber Security
- DS1: CineShare



Simon Hager

- Jona, SG
- Full time student
- 5th Semester
- Software Engineering
- DS1: CineShare

First things first

Agenda

- Introduction
- Technology
- Implementation
- Demonstration
- Requirements

The background image shows a serene lake scene. On the left, a large, leafy tree stands on a grassy bank. Several small boats, mostly covered with blue tarps, are moored along the shore. In the background, a large, modern building with a prominent red-brown facade and many windows is visible. The water is calm, reflecting the sky and the surrounding greenery. A white swan is swimming in the water in the lower right corner.

Introduction

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Introduction

Goal

- We had many ideas
- Wanted to do something that does not exist yet
- Finally, we agreed on NFTrophy



NFTrophy

Introduction

Why NFTrophy?



“Becker war 2017 von einem britischen Gericht für zahlungsunfähig erklärt worden. Die Gegenstände sollten daraufhin von dem Auktionshaus meistbietend versteigert werden, um Gläubiger auszuzahlen.”

Source: Spiegel Online 24.06.2019

Introduction

What should NFTrophy capable of

- Create new Events (competition)
- Create new Token (medals / trophies)
- Transfer Tokens
- Admin / User accounts
- Simple UI

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Technology

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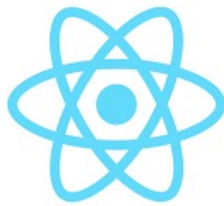
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Technology

System Components

Contract

- Remix IDE
- Solidity
- Ropsten Testnet



Frontend

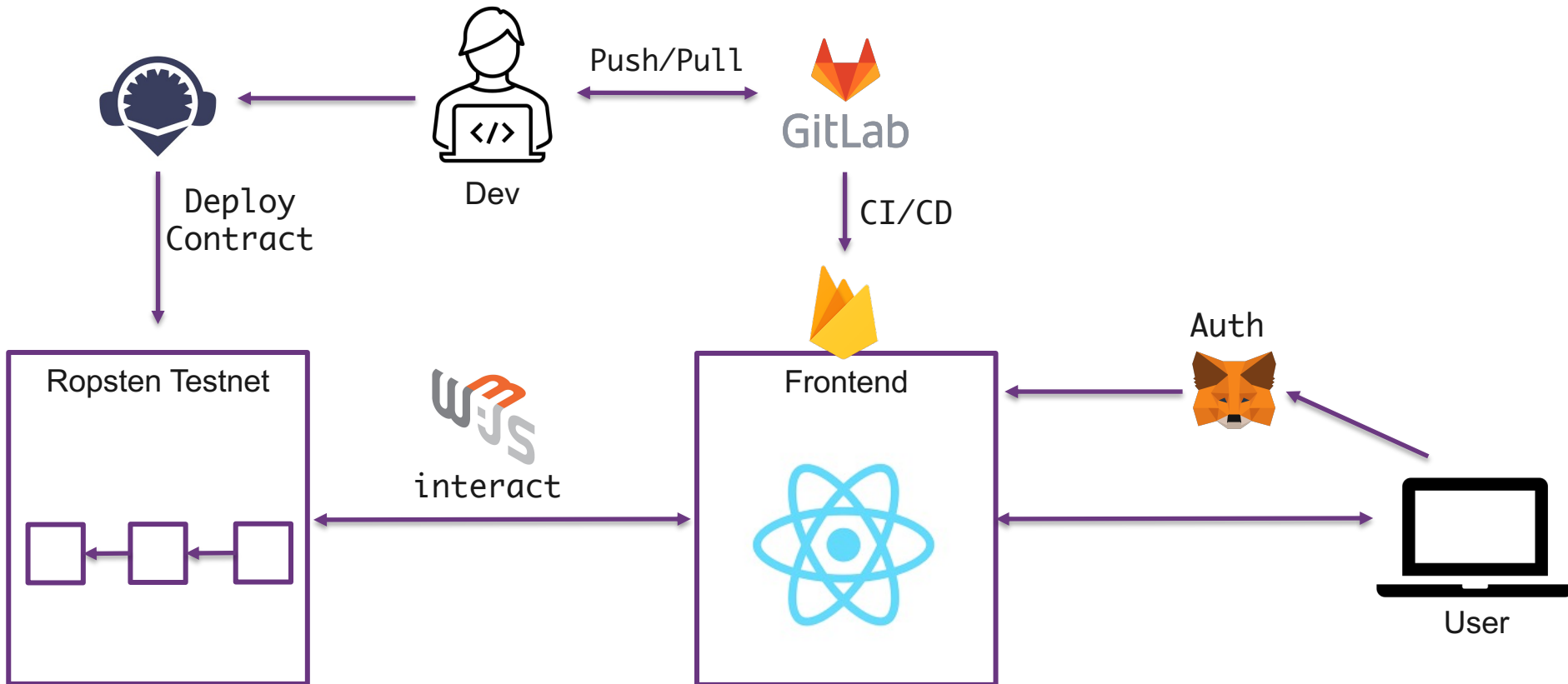
- React
- web3.js
- useDApp

Deployment

- GitLab CI/CD
- Firebase



System Design



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Implementation

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Implementation

Contract

```
// Administrators functions
function amIadmin() external view returns(bool) { ... }
function addAdmin(address _addr) external{ ... }
function removeAdmin(address _addr) external{ ... }
function getAllAdmins() external view returns(address[] memory){ ... }

// Event functions
function createEvent(uint256 eventId, address to) external { ... }
function getTotalEventCount() external view returns(uint256){ ... }
function isContractOwner() external view returns(bool) { ... }
function getMyEventCount() external view returns(uint256){ ... }
function getOwnEvents() external view returns(uint256[] memory){ ... }
function getAllEvents() external view returns(uint256[] memory){ ... }

// NFT functions
function createNft(address to, uint256 tokenId, uint256 eventId) external { ... }
function transferToken(address recipient, uint256 tokenId, uint256 eventId) external { ... }
function getOwnTokens() external view returns(uint256[] memory){ ... }
function name() external pure returns (string memory){ return "NFTrophy"; }
function symbol() external pure returns (string memory){ return "NFTrophy"; }
function tokenURI(uint256 _tokenId) external pure returns (string memory){ ... }

// additional functions -> see contract
...
```

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Demonstration

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Demonstration

Links

- Firebase: <https://console.firebase.google.com/project/nftrophy-51cd7/overview>
- UI: <https://nftrophy-51cd7.web.app/home>

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Requirements

Requirements

- A working prototype for your use-case
- Use latest stable releases of chosen libraries and frameworks
- An NFT stored on a public blockchain (can be testnet)
- Transfer of an NFT triggered directly or indirectly via the frontend/backend (can be testnet)