



IstQ 2022

DREAM. EXPLORE. INVENT

WTF is NFT?

Petyo Dimitrov | Senior Software Architect

Our NFT use case



SaaS sales platform for digital products

NFT feature – to offer a limited number of "tokens" alongside digital product releases

Agenda



What is it?



Can I steal it?



How to "mint" it?

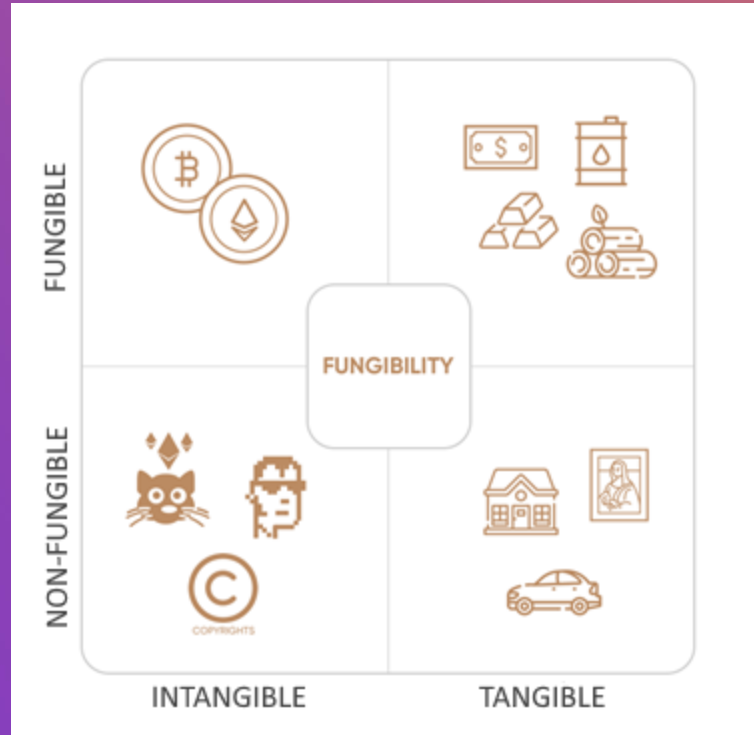


What's next?

Fungible?



Fungible?



What is it?

- Non-Fungible Token
- Started with Ethereum
- Smart contract deployed on Blockchain
- Blockchain benefits
 - Permanence
 - Ownership
 - Transparency
 - Security*

Can I steal it?



i can't find them



our nfts?



no the kids



How to "mint" it?



Select a Blockchain



ethereum



(Görli, Sepolia)

Create a wallet & add crypto



METAMASK

Implement your Smart contract

```
pragma solidity ^0.8.0;

import "@openzeppelin/contracts/token/ERC721/ERC721.sol";
import "@openzeppelin/contracts/utils/Counters.sol";
import "@openzeppelin/contracts/access/Ownable.sol";
import "@openzeppelin/contracts/token/ERC721/extensions/ERC721URIStorage.sol";

contract IstaConNFT is ERC721URIStorage, Ownable {
    using Counters for Counters.Counter;
    Counters.Counter private _tokenIds;

    constructor() ERC721("istacon", "NFT") {}

    function mintNFT(address recipient, string memory tokenURI) public onlyOwner returns (uint256)
    {
        _tokenIds.increment();
        uint256 newItemId = _tokenIds.current();
        _mint(recipient, newItemId);
        _setTokenURI(newItemId, tokenURI);
        return newItemId;
    }
}
```

Store the digital content

- InterPlanetary File System (IPFS)
- Public, distributed & resilient
- Content addressing via hashing – content cannot be changed

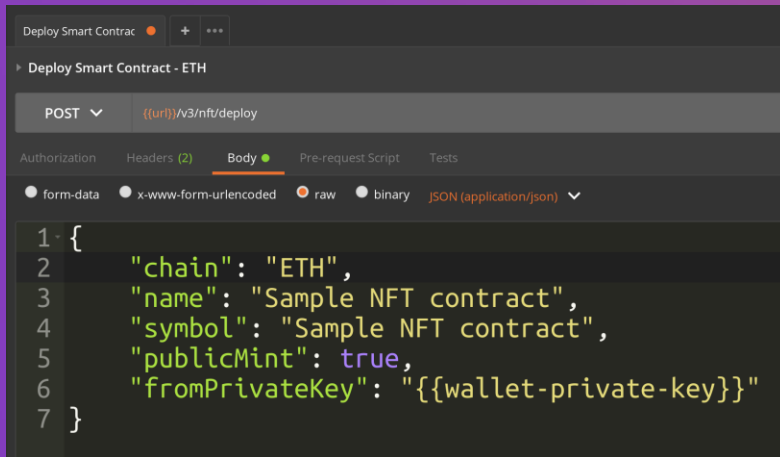


`ipfs://bafybeiebenrq5mszbmpqrs24x1454lqdnvuryr173v3hkq445gvoqpjqv/`

Use an API

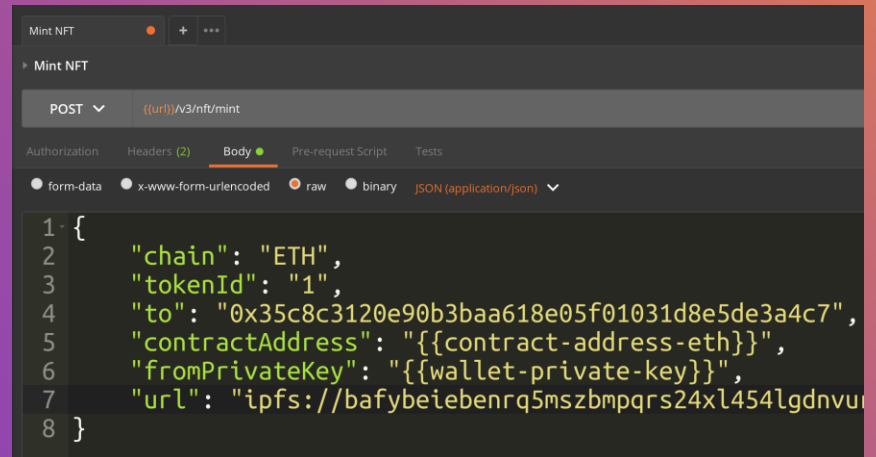


Use API calls to deploy the contract and mint the NFT



The screenshot shows an API client interface for a 'Deploy Smart Contract - ETH' endpoint. The method is set to 'POST' and the URL is a placeholder. The 'Body' tab is selected, showing a JSON payload with the following fields: 'chain' (ETH), 'name' (Sample NFT contract), 'symbol' (Sample NFT contract), 'publicMint' (true), and 'fromPrivateKey' (placeholder). The content type is set to 'JSON (application/json)'.

```
1 {  
2   "chain": "ETH",  
3   "name": "Sample NFT contract",  
4   "symbol": "Sample NFT contract",  
5   "publicMint": true,  
6   "fromPrivateKey": "{{wallet-private-key}}"  
7 }
```



The screenshot shows an API client interface for a 'Mint NFT' endpoint. The method is set to 'POST' and the URL is a placeholder. The 'Body' tab is selected, showing a JSON payload with the following fields: 'chain' (ETH), 'tokenId' (1), 'to' (0x35c8c3120e90b3baa618e05f01031d8e5de3a4c7), 'contractAddress' (placeholder), 'fromPrivateKey' (placeholder), and 'url' (ipfs://bafybeiebenrq5mszbmpqrs24xl454lgdnvu). The content type is set to 'JSON (application/json)'.

```
1 {  
2   "chain": "ETH",  
3   "tokenId": "1",  
4   "to": "0x35c8c3120e90b3baa618e05f01031d8e5de3a4c7",  
5   "contractAddress": "{{contract-address-eth}}",  
6   "fromPrivateKey": "{{wallet-private-key}}",  
7   "url": "ipfs://bafybeiebenrq5mszbmpqrs24xl454lgdnvu"  
8 }
```

View the results

The screenshot shows the celo blockchain explorer interface. At the top, there is a navigation bar with the celo logo and menu items for Blockchain, Contracts, APIs, More, and Alfajores. A search bar is located on the right. The main content area is divided into two columns. The left column, titled "Sample NFT tokens", shows "Token ID: 2" and "ERC-721 1 Transfers". The right column displays a thumbnail for the "Ista 2022" annual conference, with the tagline "Dream. Explore. Invent". Below these columns, there are two tabs: "Token Transfers" (highlighted in green) and "Metadata". The "Token Transfers" tab shows a list of transactions. The first transaction is labeled "Token Minting" and includes the following details: "0xf755c3176dd30facdf0861caf2db94a61eadeff87954fd33ab13c01a7ab4c112" (highlighted in orange), "0x000000-000000 → 0x35c8c3-e3a4c7", "Block #14039721", and "2 minutes ago". The transaction is also labeled "TokenID [2] Sample NFT tokens".



0xf755c3176dd30facdf08
61caf2db94a61eadeff879
54fd33ab13c01a7ab4c112

Lessons learned from our use case

- Ethereum is fancy but more expensive and slower
 - ETH: 10-100 EUR, duration: minutes
 - CELO: ~0.0005 EUR, duration: seconds
- Many "sales" materials online – but few good developer resources
- Dynamic area (prices, deprecated testnets, new Blockchains)

What's next?



Investment?



Image by jcomp on Freepik

Illegal activities



Image by Racool_studio on Freepik

Intellectual property



Image by pikisuperstar on Freepik

Summary



Thanks!

Questions?

