Towards mutable NFTs: Non-Fungible Mutable Tokens

26th of May 2023

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Motivation

FT, **NFT**, NTT, ERC20, ERC720, ERC1155, …

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NFTs simply track ownership but are increasingly used to "represent" digital assets in decentralised spaces

https://www.krg.co.uk/uploads/metaverse.png

Motivation

Asset mutability needed to reflect real world assets behaviour

Simple NFTs not very flexible, hash commitments have no dynamicity

Dolce & Gabbana ✔️ @dolcegabbana · 19 Sep 2021 ···
8/
The Mosaic Impossible Jacket. This digital-only piece is inspired by the mosaic floor of the St. Mark's Basilica, entirely embroidered with sequins with deep green crocodile on the collar, cuffs, and hem. NFT + digital wearable + hand sketch + 1-year experiential access.

THE IMPOSSIBLE JACKET

Retain mutability control

Decentraland ✔️ @decentraland · 18 Apr ···
🔁Can't stop, won't stop!

Reliving the magic of #MVFW23 on repeat! 🔥👠

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NMTs

Each asset is associated to an "asset descriptor", i.e. key,value pairs

traditional NFT: change the off chain representation

ERC 721

Hash/URI → IPFS
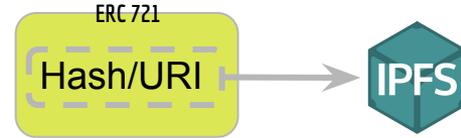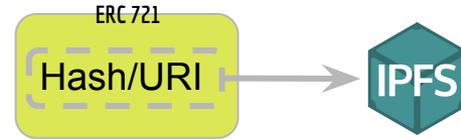
NMTs

Each asset is associated to an "asset descriptor", i.e. key,value pairs

traditional NFT: change the off chain representation

dynamic NFT: leverage token metadata

ERC 721

Hash/URI → IPFS

EXTENDED   ERC 721

metadata   Hash/URI → IPFS

NMTs

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traditional NFT: change the off chain representation

ERC 721

Hash/URI → IPFS

dynamic NFT: leverage token metadata

EXTENDED ERC 721

metadata Hash/URI → IPFS
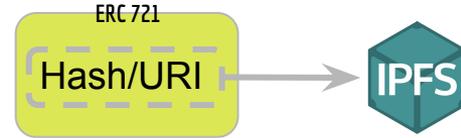
mutable NFT: link asset contracts

ERC 721

Hash(address) →

ASSET CONTRACT

metadata Hash/URI → IPFS

**Including mutability rules!**

NMTs

- **Uniqueness**: each NMT represents a unique asset independently of its descriptor content.
- **Indivisibility**: an NMT can not be divided in smaller parts even if the asset it represents may logically allow it. When transferred, an NMT is transferred in its entirety or not transferred at all.
- **Programmable transferability**: an NMT may change ownership according to a set of defined rules.
- **Authenticity**: an NMT history is fully traceable on chain. Moreover, NMTs, being managed by a smart contracts, are secure, e.g. tamper resistant.
- **Mutability**: all characteristics of an NMT linked asset can be updated according to a set of rules. Such rules may be predefined or mutable themselves. The only immutable characteristic of an NMT asset is its unique NMT induced identifier.
- **Programmability**: all logic, such as mutable characteristics update and transferability rules, of an NMT is encoded in a smart contract.

Reference example
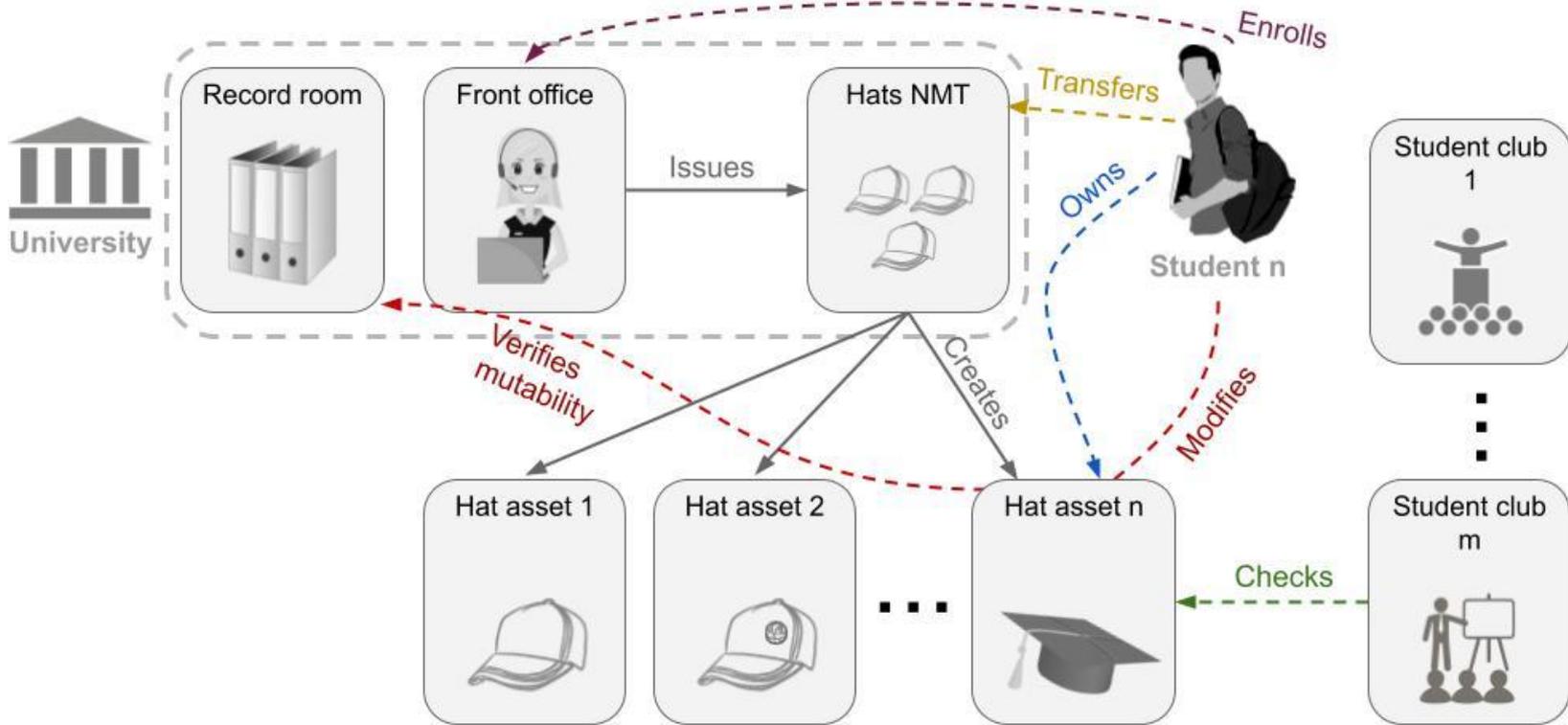
Reference example

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Questions