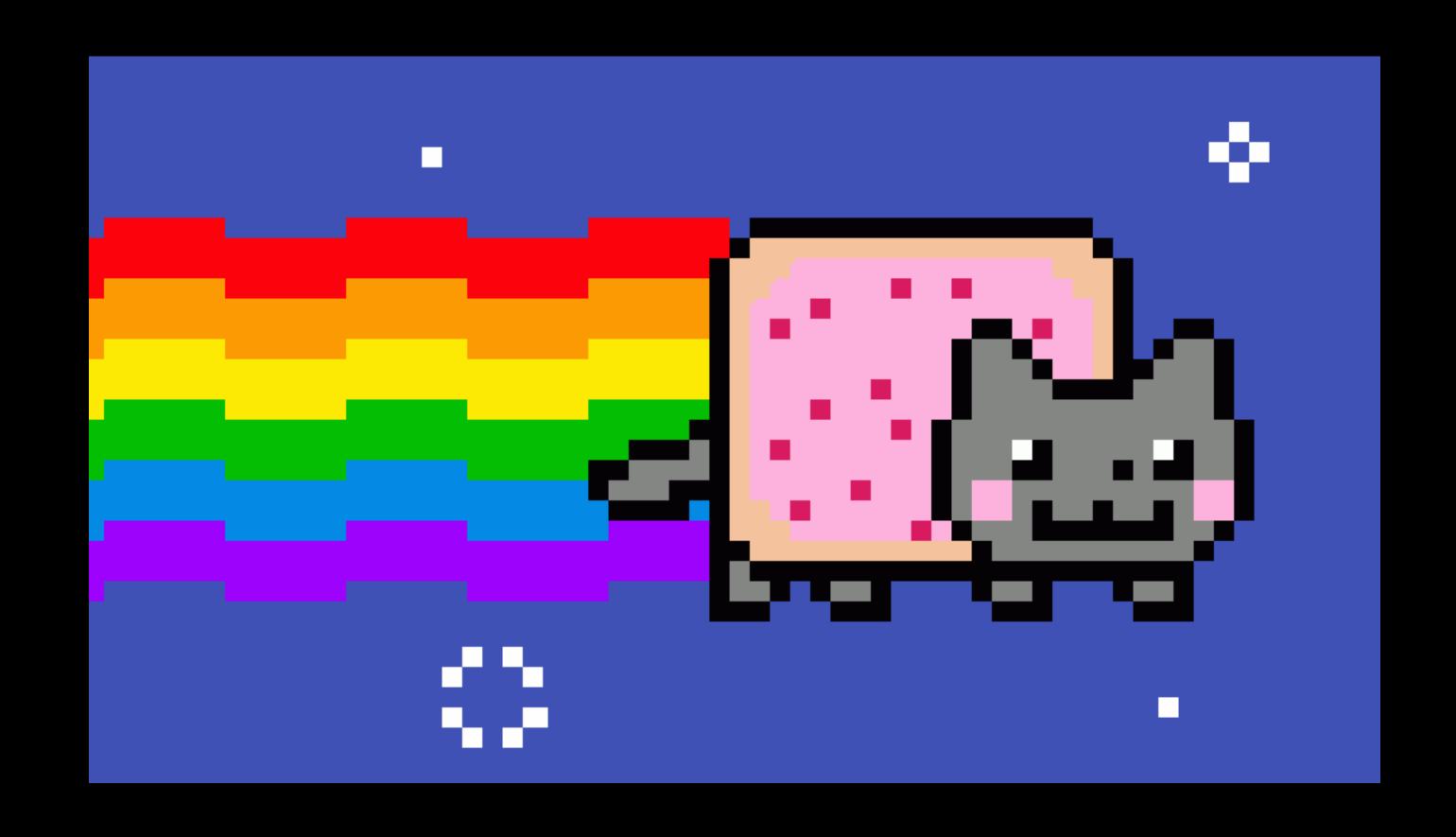
# UNDERSTANDING THE NFT ECOSYSTEM, AND SOME COPYRIGHT ISSUES

ANDRÉS GUADAMUZ, UNIVERSITY OF SUSSEX

### APOLOGIES





https://papers.ssrn.com/sol3/papers.cfm?abstract\_id=3905452

### AND A DISCLAIMER...

DRAFT VERSION

# The Treachery of Images: Non-fungible tokens and copyright

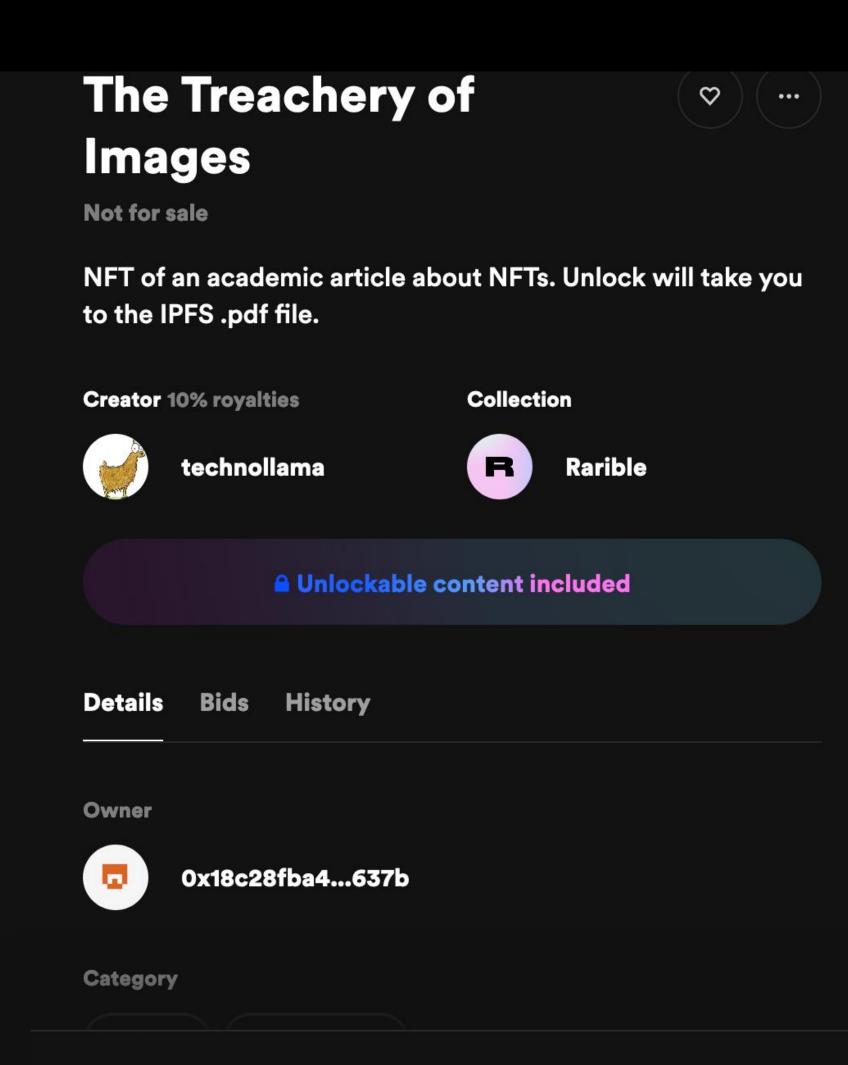
Dr Andres Guadamuz\*

#### 1. Introduction

In April 2021, a sketch by celebrated neo-expressionist artist Jean-Michel Basquiat drew considerable press coverage due to a potential copyright dispute. Basquiat, who passed away in 1988, is well known for his use of thematic juxtapositions, and as a tragic example of an artist who died in his prime in tragic circumstances. His artwork is critically acclaimed, and it often sells for very high amounts; a painting called *Untitled* sold for over \$110 million USD in 2017, making it one of the most expensive art sales in history.

Daystorm is an art collective that owned the Basquiat mixed media work called *Free Comb with Pagoda*,<sup>3</sup> and they announced that they would be making a non-fungible token (NFT) of the work. NFTs are the latest hype in the art world, which bring together smart contracts and blockchain technology, so this would not have generated a lot of interest if it were not for the fact that their announcement included the statement that the NFT would transfer not only the ownership of the digital file, but the new owner would be given the right to destroy the original work if they chose to.

This drew the ire of art enthusiasts and prompted several legal questions as to whether



### PERSONAL BACKGROUND

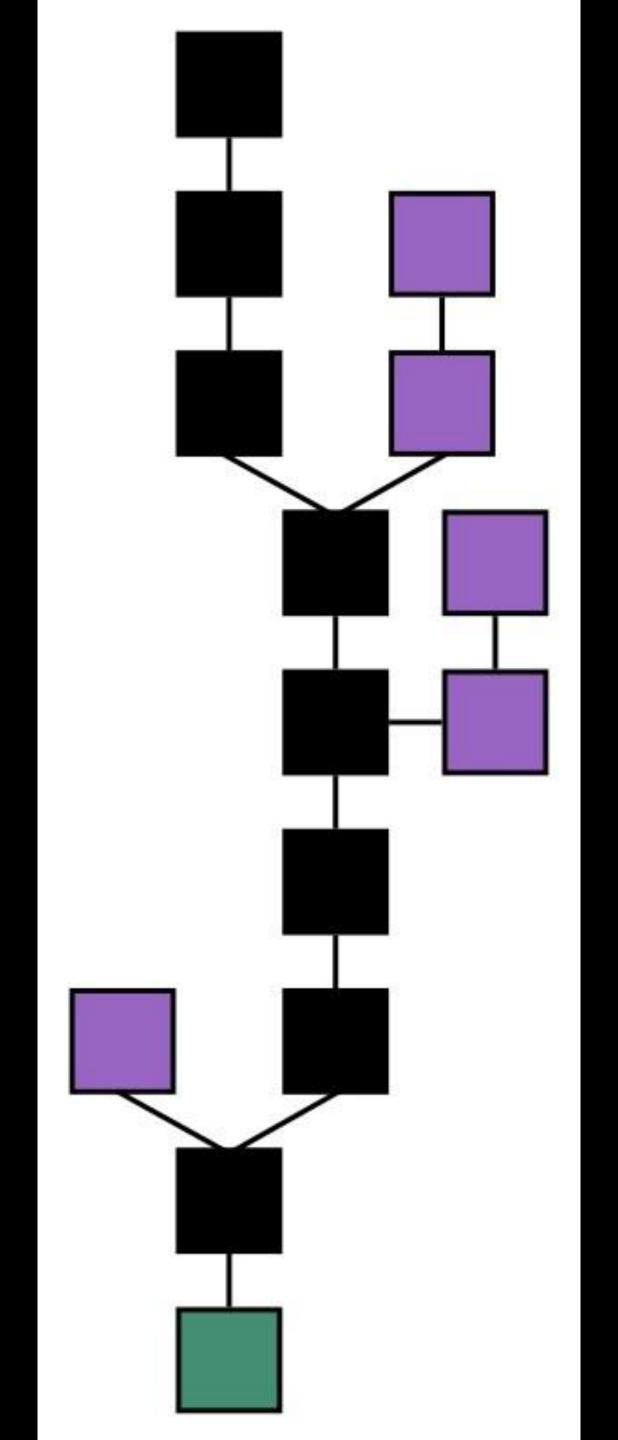
- Writing about cryptocurrencies since 2011.
- Published blockchain paper in 2014.
- Published about smart contracts 2017.
- Smart contracts and IP in 2019.
- More recent interest in NFTs 2021.



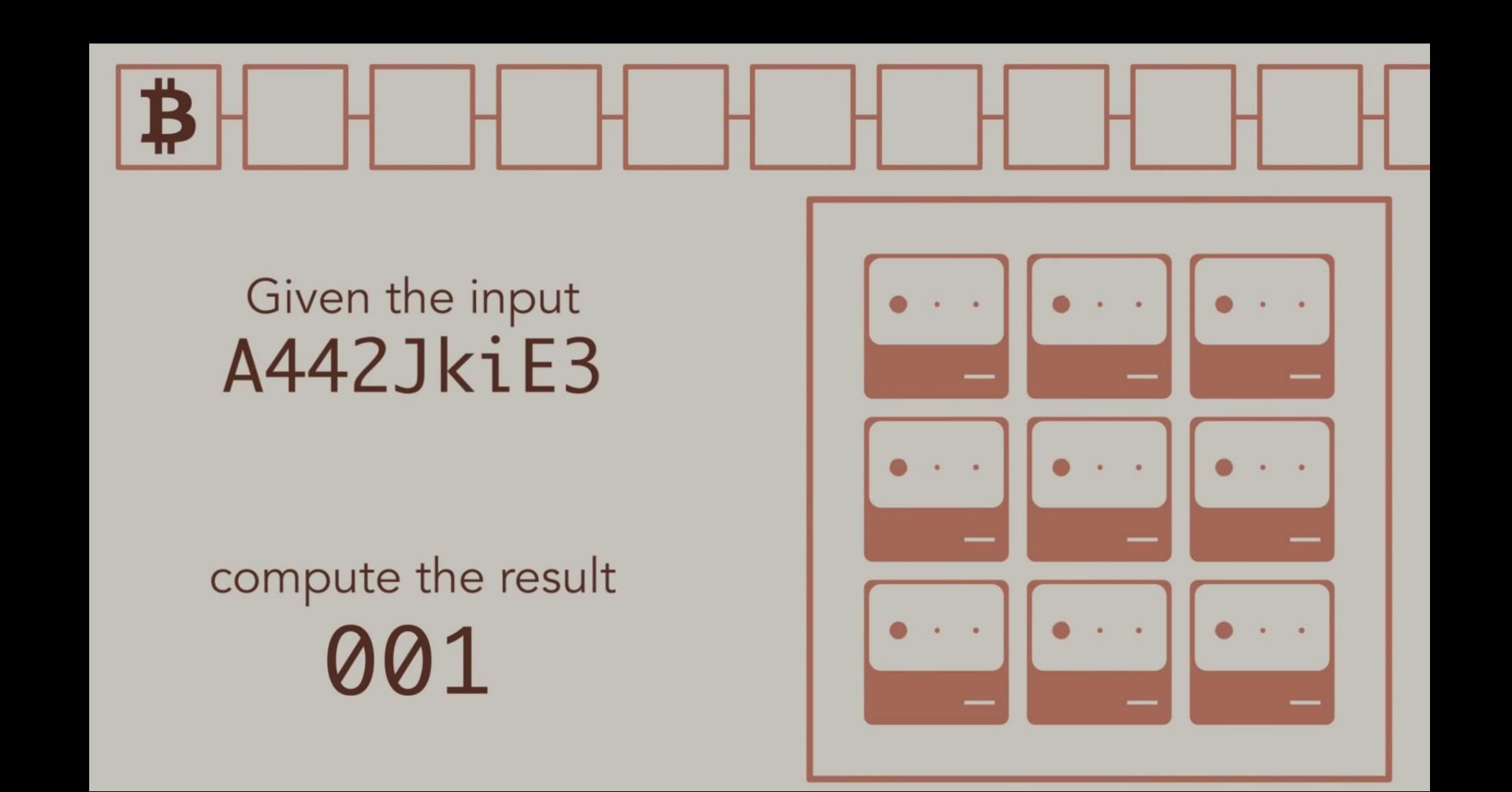
# BLOCKCHAIN AND SMART CONTRACTS

# WHATIS A BLOCKCHAIN?

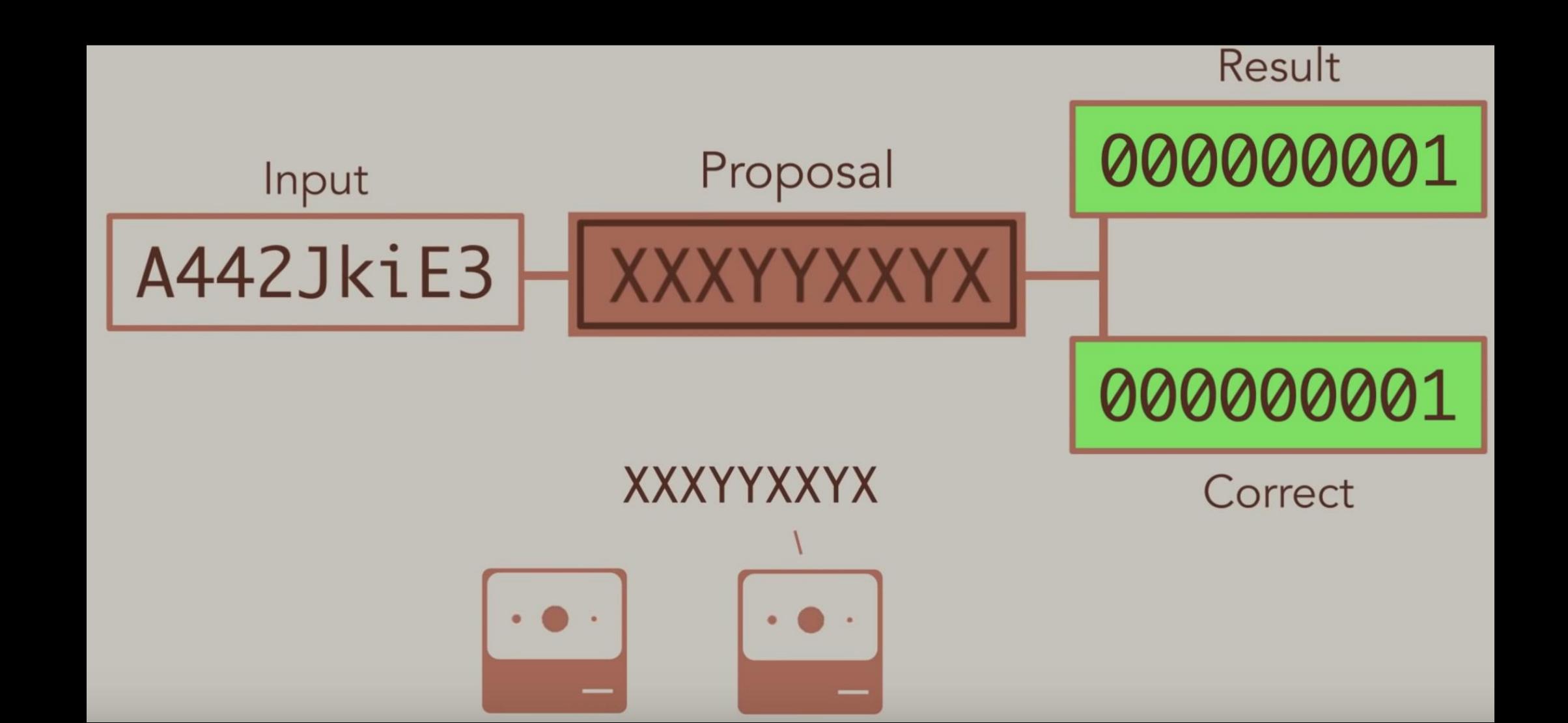
- A blockchain is quite simply an open, permissionless, cryptographic, decentralised ledger.
- The ledger is public and decentralised, and since anyone can check past, present and proposed transactions, there is increased reliability in the system.



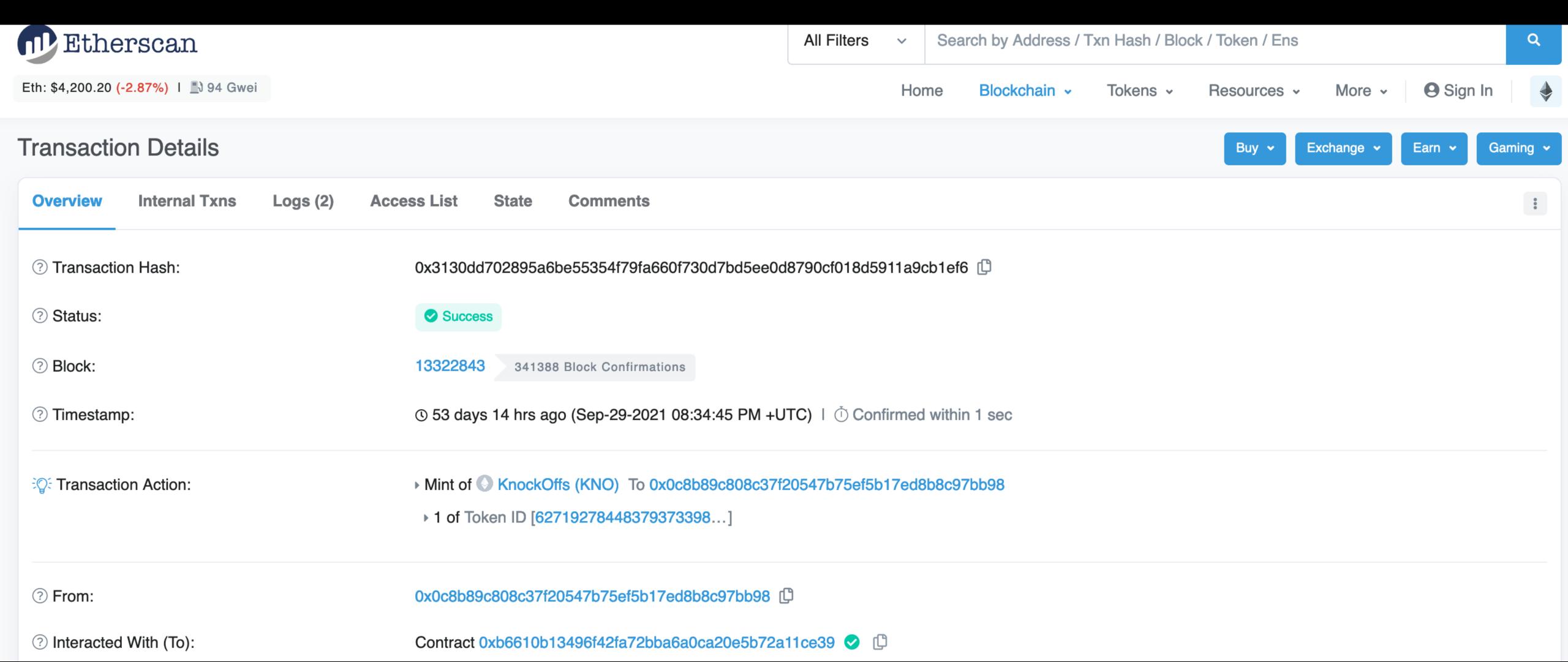
### COMPETING TO GUESS A NUMBER



#### SUCCESSFUL GUESSER GETS A REWARD

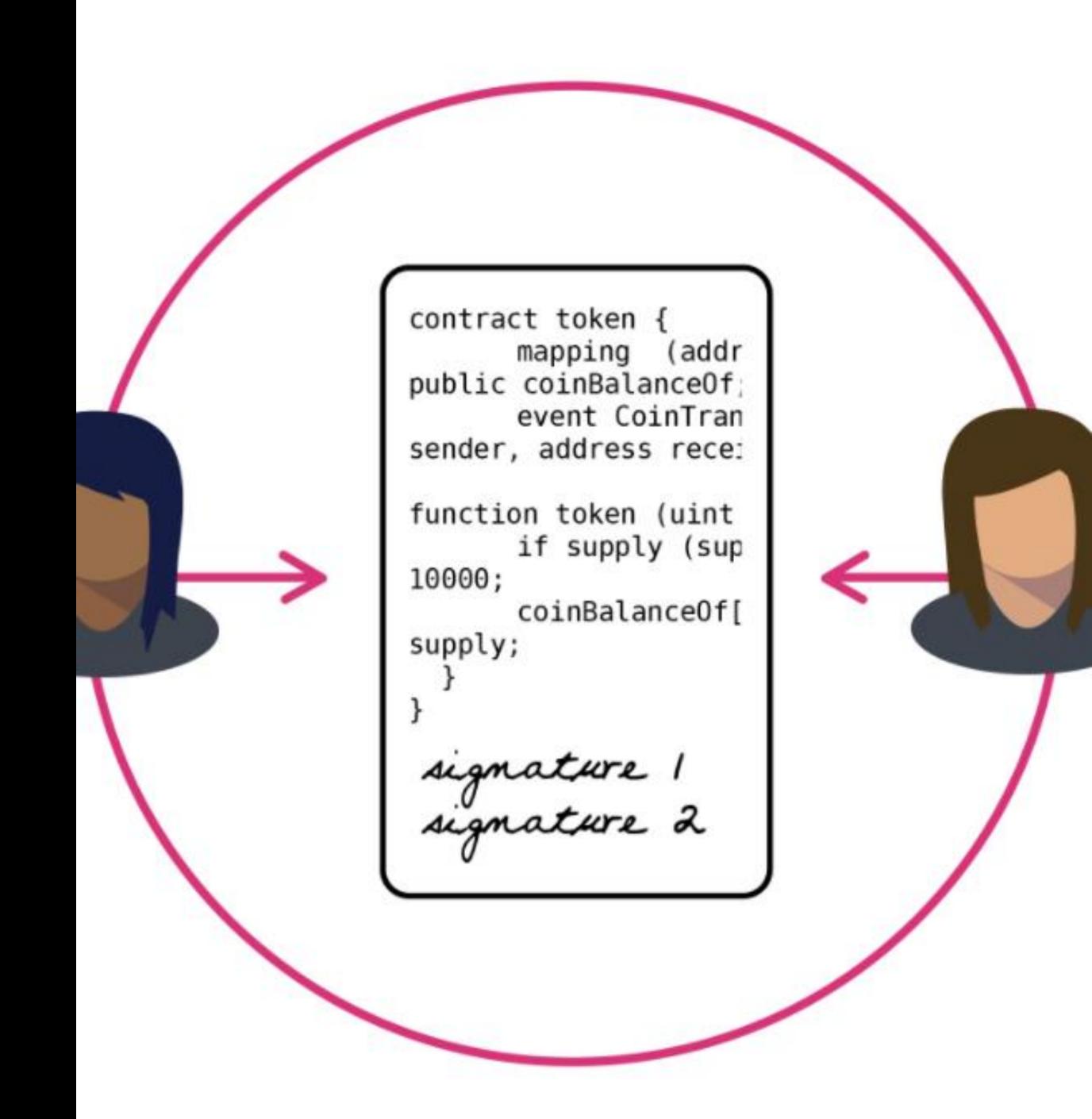


### AN ENTRY IN THE BLOCKCHAIN



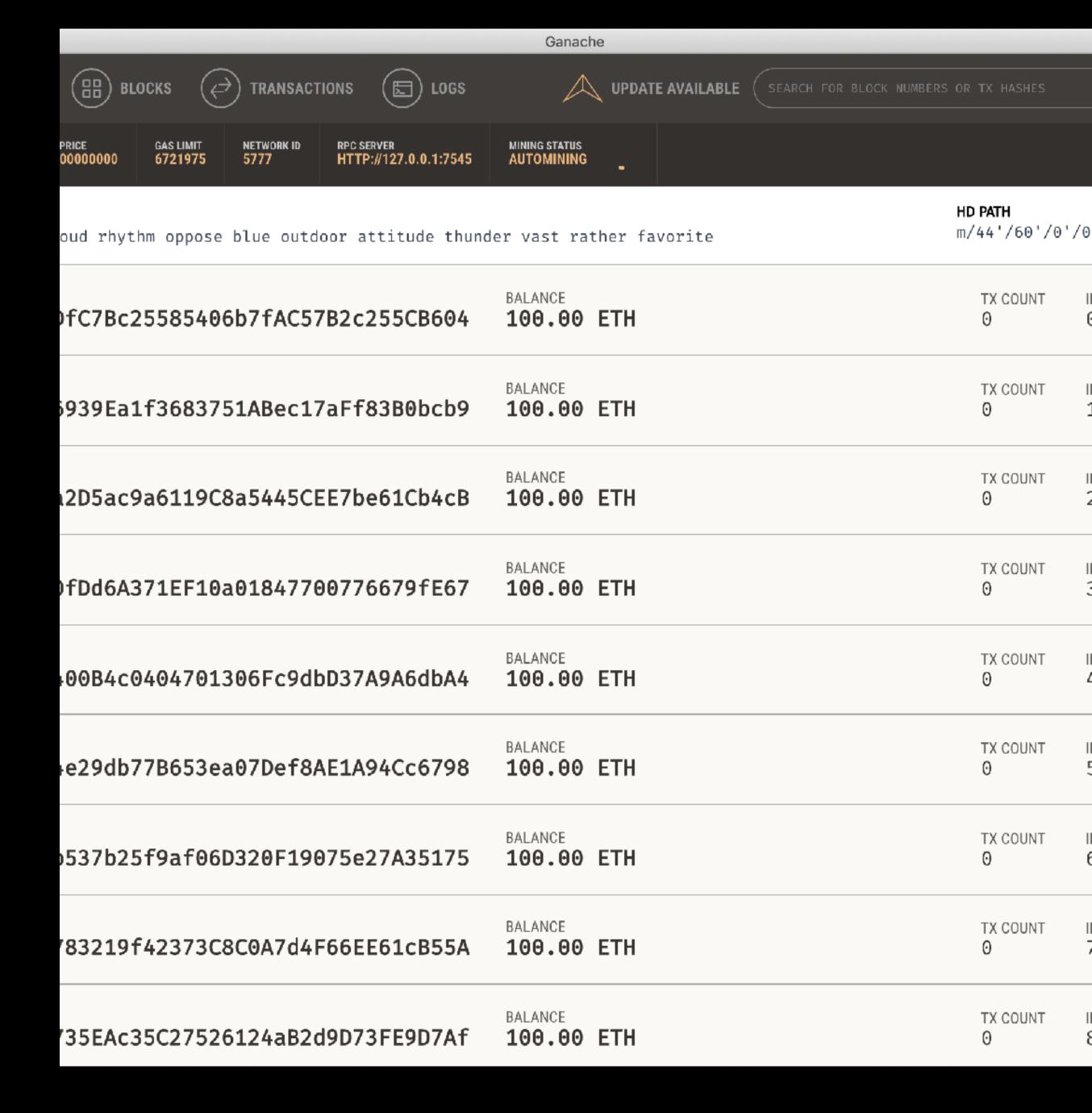
#### SMART CONTRACTS

- Implemented in code using a common language (eg Solidity).
- Pegged to a cryptocurrency for automated payments and transactions.
- Transaction and contract get written into the blockchain.
- Immutable code, openly verifiable transactions.



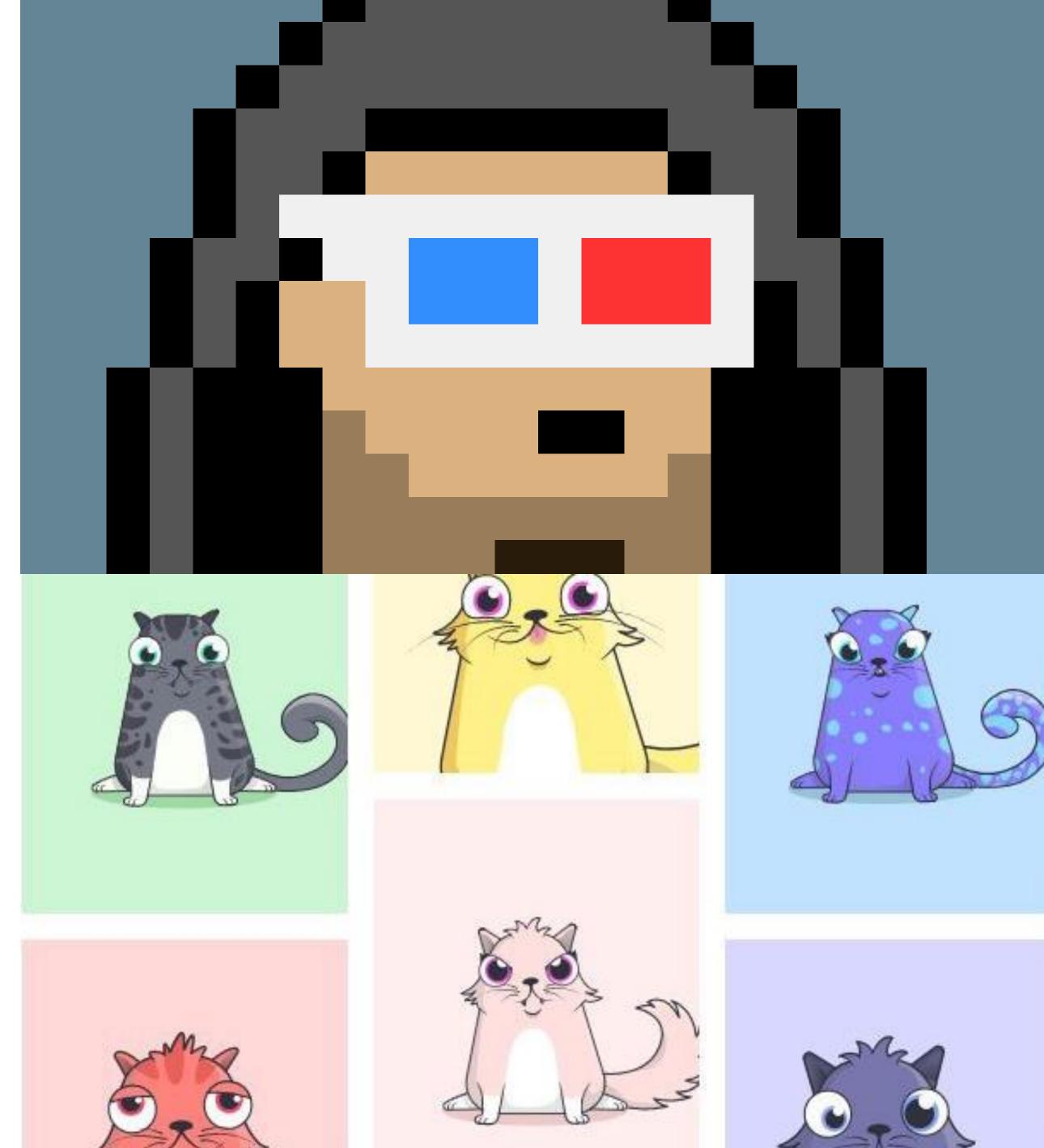
#### TOKENS

- A token is a digital representation of a good or service written on a blockchain.
- It can represent anything, a character in a game, a work of art, airline tickets, frequent flyer miles, provenance, coins.
- It's represented as a smart contract.



# NFTS





# NON-FUNGIBLE TOKENS

- Fungible goods are, by definition, interchangeable, no matter what specific item you are selling or buying. Commodities tend to be fungible - silver, gold, oil, grain.
- By contrast, non-fungible goods are those that are unique, such as a specific silver necklace, a gold statuette, or a painting.
- Non-fungible tokens are smart contracts that represent a non-fungible good, it will always link to that one item.

```
torial> truffle compile
GradientToken.sol...
Migrations.sol...
-solidity/contracts/ownership/Ownable.sol...
-solidity/contracts/token/ERC721/ERC721Full.sol...
-solidity\contracts\drafts\Counters.sol...
-solidity\contracts\introspection\ERC165.sol...
-solidity\contracts\introspection\IERC165.sol...
-solidity\contracts\math\SafeMath.sol...
-solidity\contracts\token\ERC721\ERC721.sol...
-solidity\contracts\token\ERC721\ERC721Enumerable.sol.
-solidity\contracts\token\ERC721\ERC721Metadata.sol...
-solidity\contracts\token\ERC721\IERC721.sol...
-solidity\contracts\token\ERC721\IERC721Enumerable.sol
-solidity\contracts\token\ERC721\IERC721Metadata.sol..
-solidity\contracts\token\ERC721\IERC721Receiver.sol..
-solidity\contracts\utils\Address.sol...
\build\contracts
torial> truffle test
ment'.
oken
t account an owner (53ms)
```

# DIFFERENT TOKEN STANDARDS (IN ETH ENVIRONMENT)

- Fungible tokens: ERC-20
- Improved fungible token: ERC-223
- Non-fungible tokens: ERC-721
- Token to transfer funds: ERC-777
- Token to transfer copyright: ERC-1190

### NGIBLE air tokens (ERC20)

#### NON-FUNGIBLE

Ex: CryptoKitties (ERC721)







JN Kitty #529553







Kitty #529537



Kitty #5

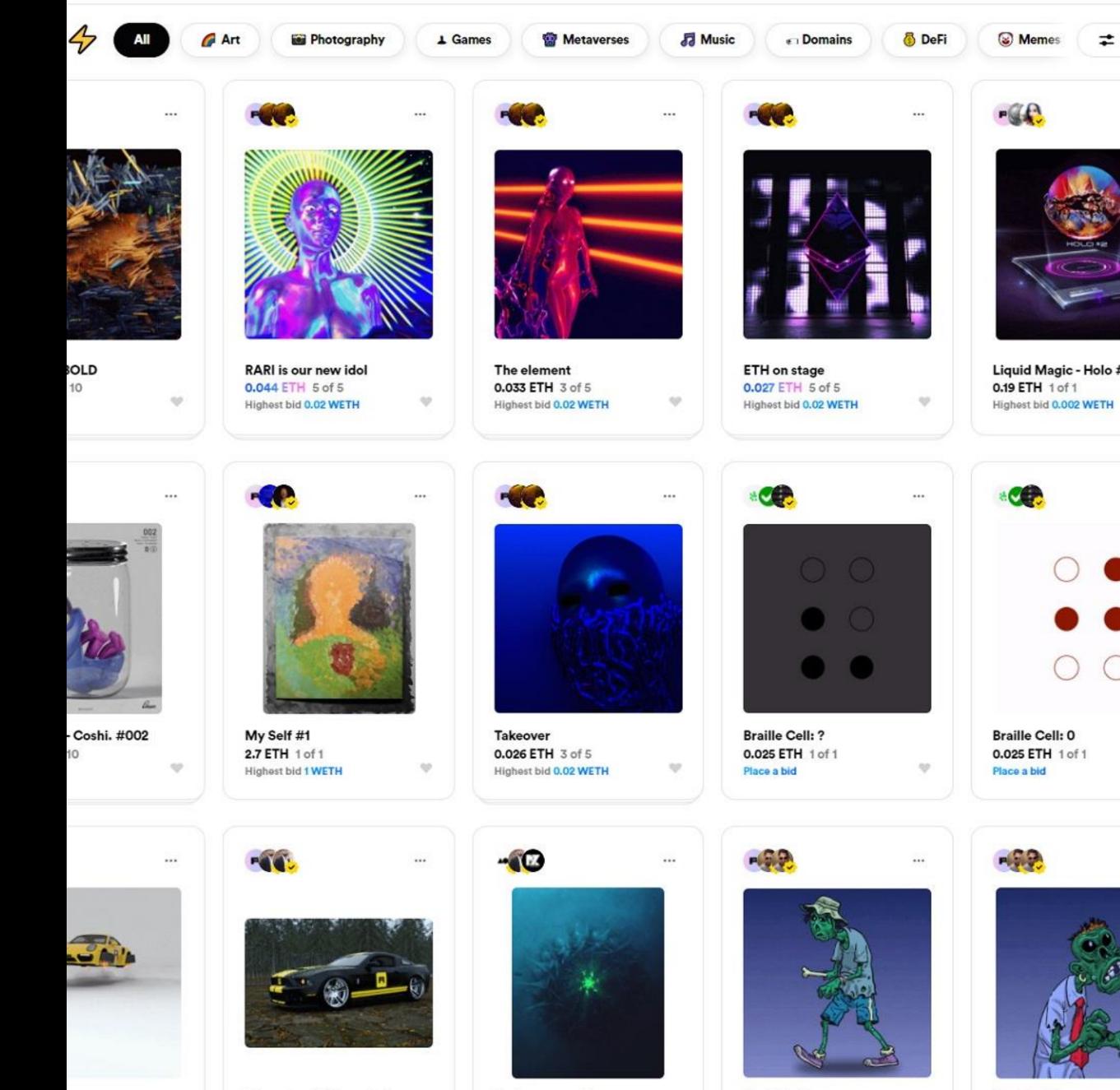
## NFTS FOR EVERYTHING

- Music
- Art
- Game items
- Sport highlights
- Collectibles (profile pictures, etc)



#### THIRD PARTIES

- While you can mint your own stuff, most people use intermediaries.
- These marketplaces act as third parties between buyer and seller, may take commission.
- Transaction fees as well to keep the network operating.
- OpenSea, Mintable, Rarible, Cent, Foundation, etc.



Undersea world

0.133 ETH 1 of 1

Highest bid 0.1 WETH

Zombie #3

Place a bid

0.119 ETH 3 of 3

Zombie #2

0.119 ETH 3 of 3

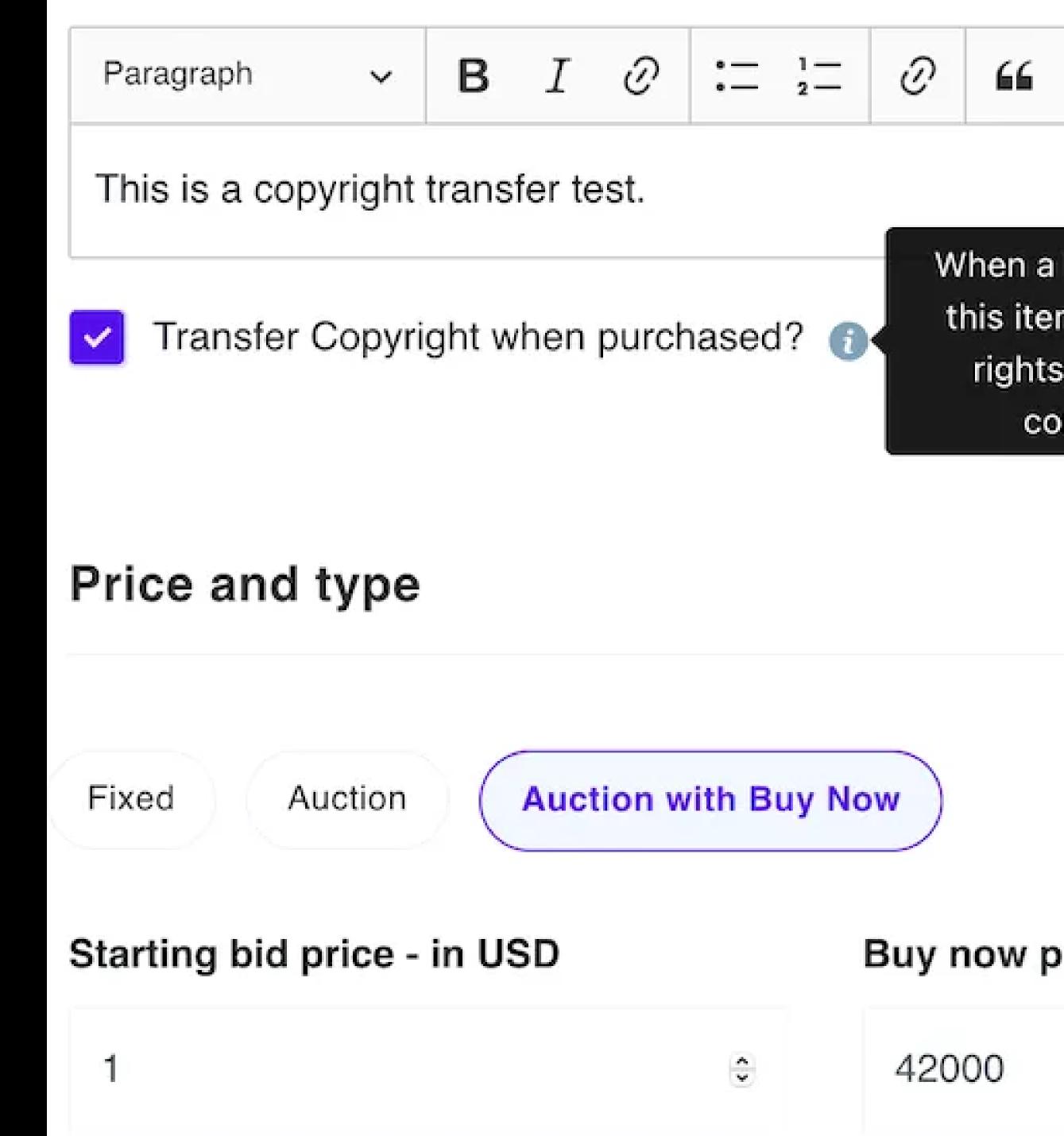
Highest bid 0.025 WETH

The spring RARI car 2.0

0.076 ETH 1 of 15 Highest bid 0.026 WETH

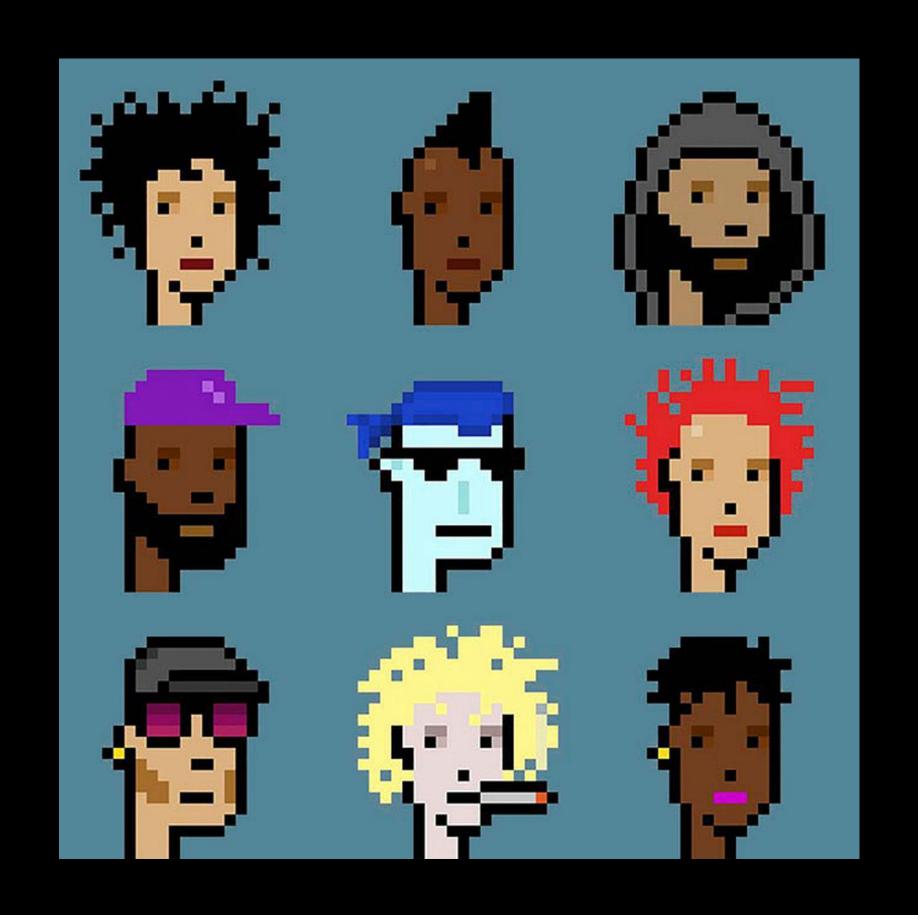
#### 3 TYPES OF NFT

- The work is uploaded in its entirety to the blockchain (very rare due to prohibitive cost).
- The NFT is a smart contract that supposedly transfers copyright (not common either).
- The NFT is just a code that is uploaded to a blockchain.

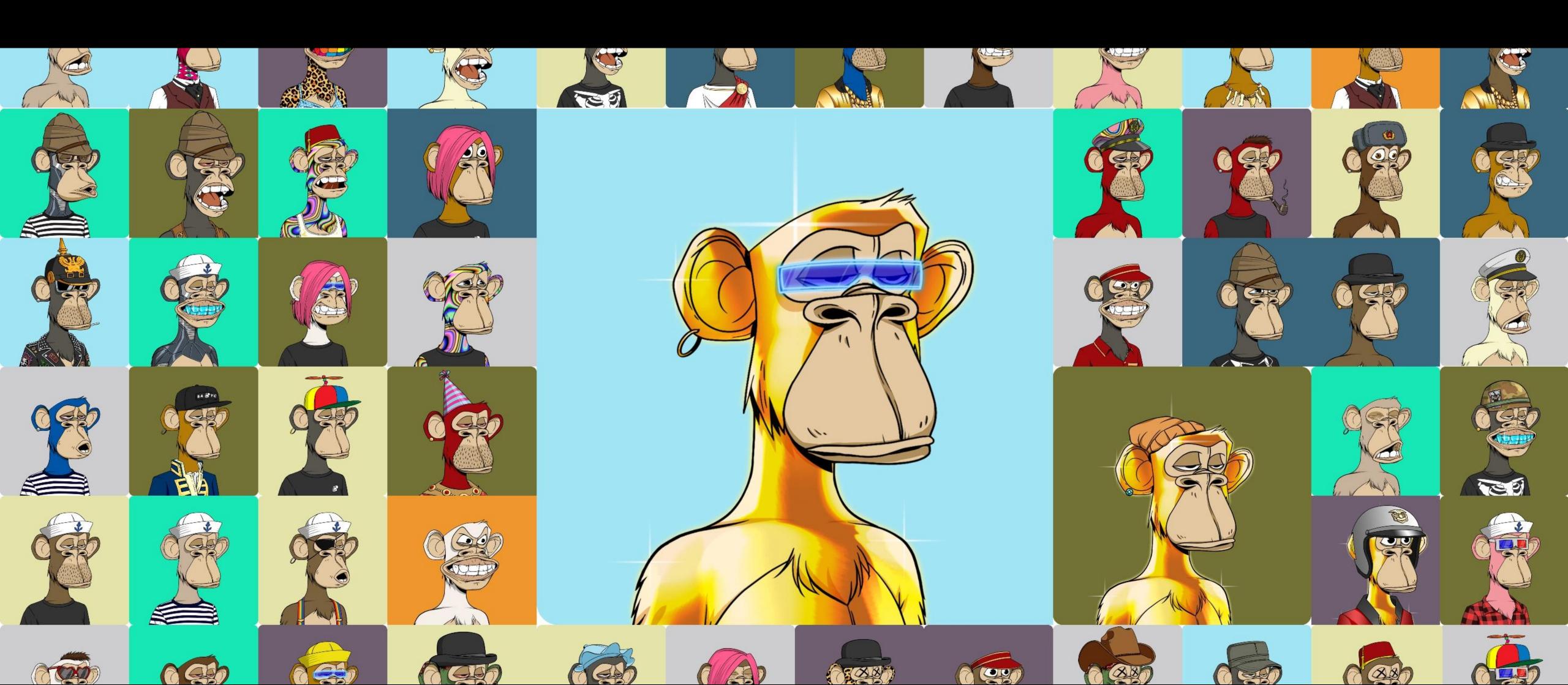


### EXAMPLE OF ON-CHAIN ASSET

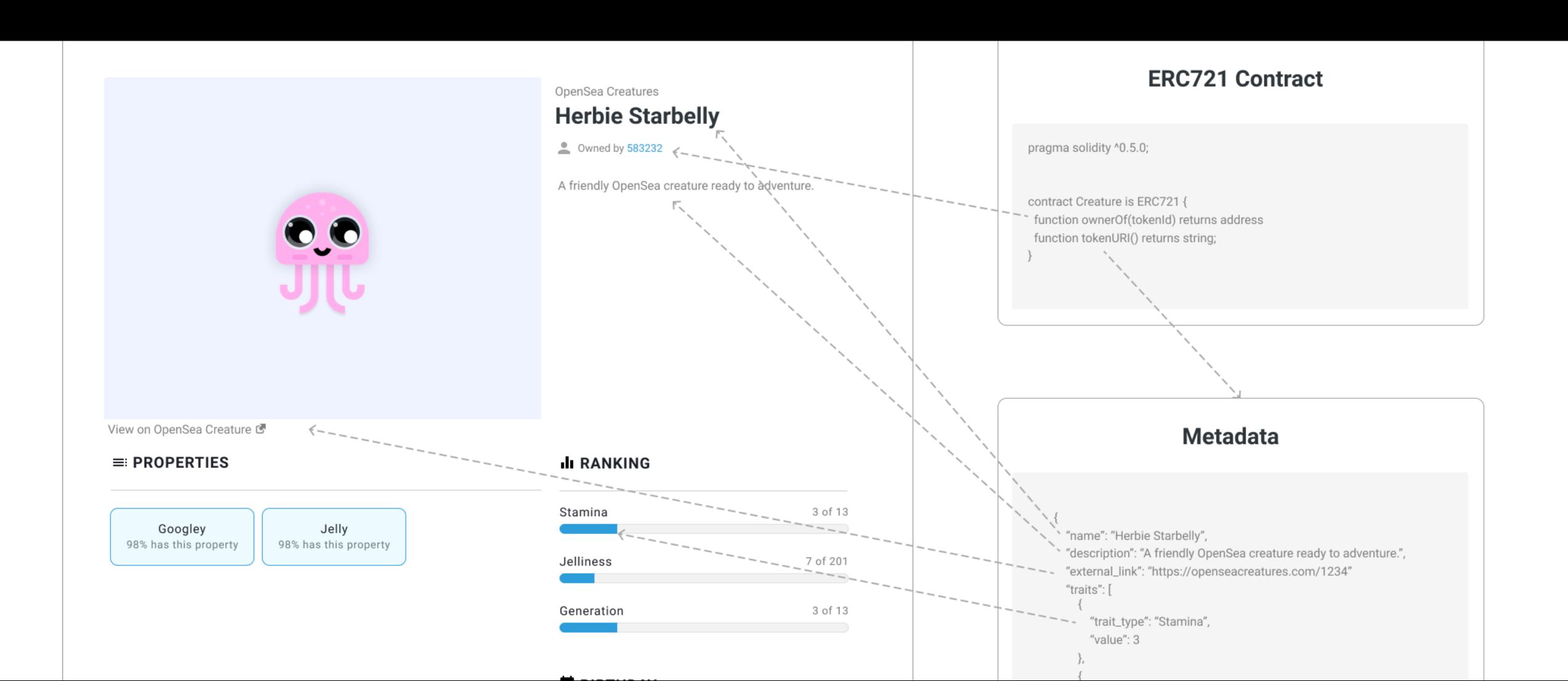




# EXAMPLE OF LICENSED ASSET



# THE MOST COMMON TOKEN



# WHAT'S IN THE METADATA?

- The ERC-721 standard has only two requirements:
- Contract address: the blockchain address.
- TokenID, this is a unique number identifier for the NFT, it can be generated by a user, or by a platform.
- The token can include all sorts of other information, the most common are the URL to the work, and the creator's wallet address.

#### Token Metadata

```
"symbol": "Mintable Gasless store"
"image": "https://dliczm3wxxz9zd.cloudfront.net/8f3b45b2-5744-45e3-
b201-774f4adb0899/000000-0000000000
/5674296857165156784247047673228983525689876364252457156244700599747989
/ITEM_PREVIEW1.jpg"
"animation_url": ""
"royalty_amount": 500
"copyright_transfer": true
"address": "0x8c5aCF6dBD24c66e6FD44d4A4C3d7a2D955AAad2"
"tokenId": "5674296857165156784247047673228983525689876364252457156244
"resellable": true
"original_creator": "0x0C8B89C808c37f20547B75eF5b17ED8b8C97bb98"
"edition_number": 1
"description": "This is a copyright transfer test. "
"auctionLength": "172800"
"title": "The original Technollama"
"url": "https://metadata.mintable.app/mintable_gasless
/5674296857165156784247047673228983525689876364252457156244700599747989
"file_key": "000000-0000000000/5674296857165156784247047673228983525689
/8f3b45b2-5744-45e3-b201-774f4adb0899_llama1.jpg"
"apiURL": "mintable_gasless/"
"subtitle": "Copyright transfer test"
"name": "The original Technollama"
"auctionType": "Auction with Buy Now"
"category": "Art"
"edition_total": 1
"gasless": true
```

#### Table 1

#### NFT Metadata

Item Metadata		
Contract Address	Token Metadata	
0x8c5aCF6dBD24c66e6FD44d4A4C3d7a2	{	
D955AA ad2	"symbol": "Mintable Gasless store", "image": "https://d1iczm3wxxz9zd.cloudfront.net/	
Token ID	613b908d	
86193240282618763854367501	000000000/86193240282618763854367501608353605	
608353605316760331651808345700	31676033165	
084608326762837402898	"animation_url": "",	
	"royalty_amount": 500,	
Token Name	"copyright_transfer": true,	
The Clearest Light is the Most Blinding	"address":	
	"0x8c5aCF6dBD24c66e6FD44d4A4C3d7a2D955AAad2",	
Original Image	"tokenId":	
https://d1iczm3wxxz9zd.cloudfront.net/6	"86193240282618763854367501608353605316760331	
13b908d-19ad-41b1-8bfa0e016820739c/	"resellable": true,	
000000000000000/861932402	"original_creator":	
8261887638543675016083536053	"0xBe8Fa52a0A28AFE9507186A817813eDC1	
1676033165180834570008460832676	"edition_number": 1,	
2837402898/ITEM_PREVIEW1.png	"description": "A beautiful bovine in the summer sun "auctionLength": 43200,	
Original Creator	"title": "The Clearest Light is the Most Blinding",	
0xBe8Fa52a0A28AFE9507186A817813eD	"url":	
C14	"https://metadata.mintable.app/mintable_gasless/86193	
54E004	240	
	"file_key": "",	
	"apiURL": "mintable_gasless/",	
	"subtitle": "bovine from South Texas",	
	"name": "The Clearest Light is the Most Blinding",	
	"auctionType": "Auction",	
	"category": "Art",	
	"edition_total": 1,	
	"gasless": true	
	}	

http://dx.doi.org/10.2139/ssrn.3928901

# A BASIC NFT CONTRACT CONTAINS A TWO COLUMN LIST\*:

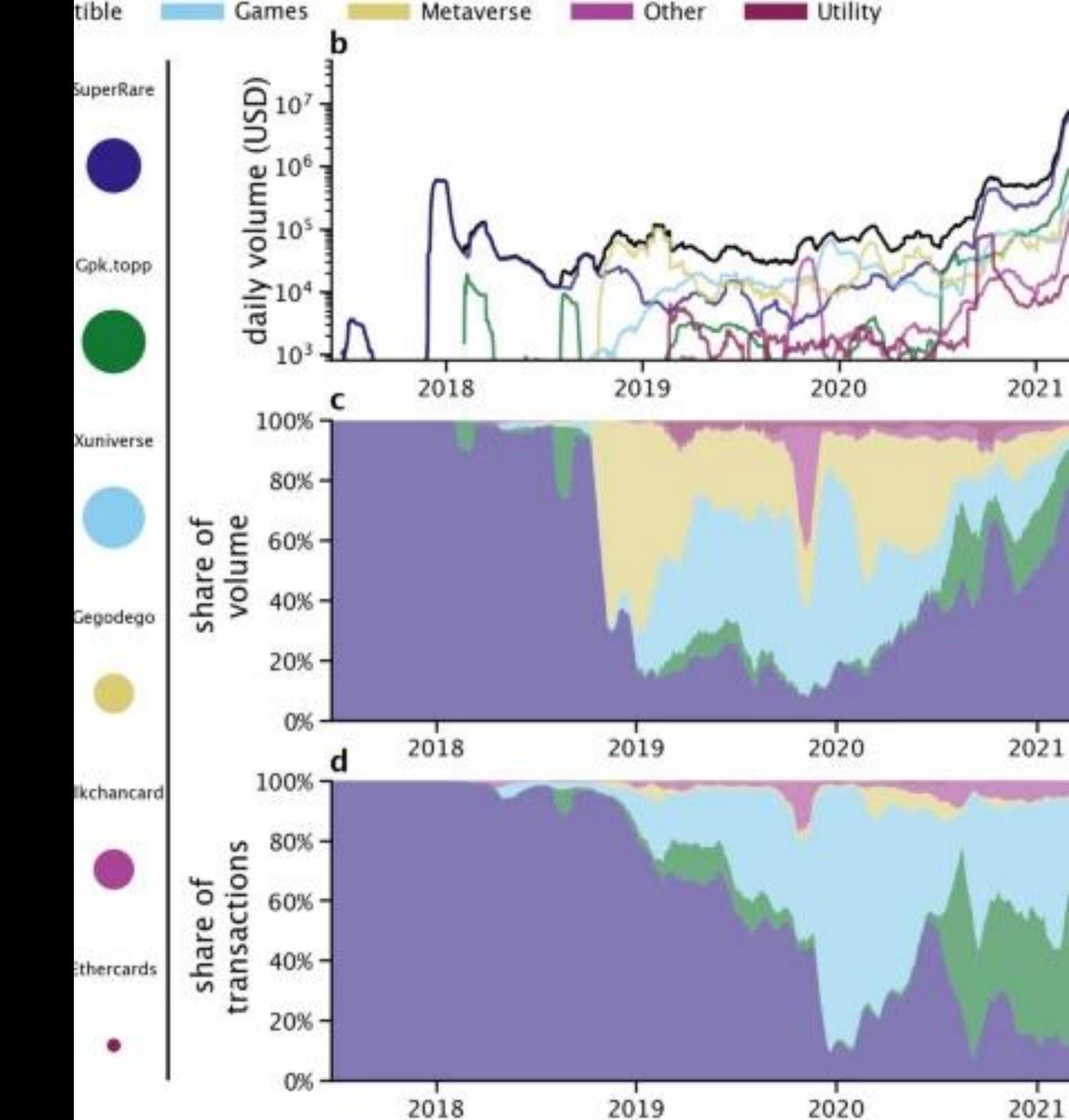
TOKEN ID	OWNER
1	0xf0950f5a951637e0307cdcb4c672f298b8bc6f29
2	0x9fb2a47fde5bbe18ddd08d17de8bda30ab869cd2
3	0x2a044fea858d6a7ab01fb45c2d104ebae2ea0933
4	0xd053efb1703703ae5bc3dcaddd0d88ebccf6c90b
5	0x7f49f67a538b8ae4123ed2765dc8a028df0dc87e
6	0xef99cc1e4b41488c3a00017b7f45bbbabb21288d
7	0x19b4796f42c006685b69e1b59c4abd0cbd5e91c8
8	0xe8a9a74415cbae81dd9eced463a091ba1c354aec
9	0x16962d78465430915ac360761c22c088c44391e2
•••	•••

#### Each NFT in the contract has:

an ID to show which token it is, an owner, represented by an Ethereum public address

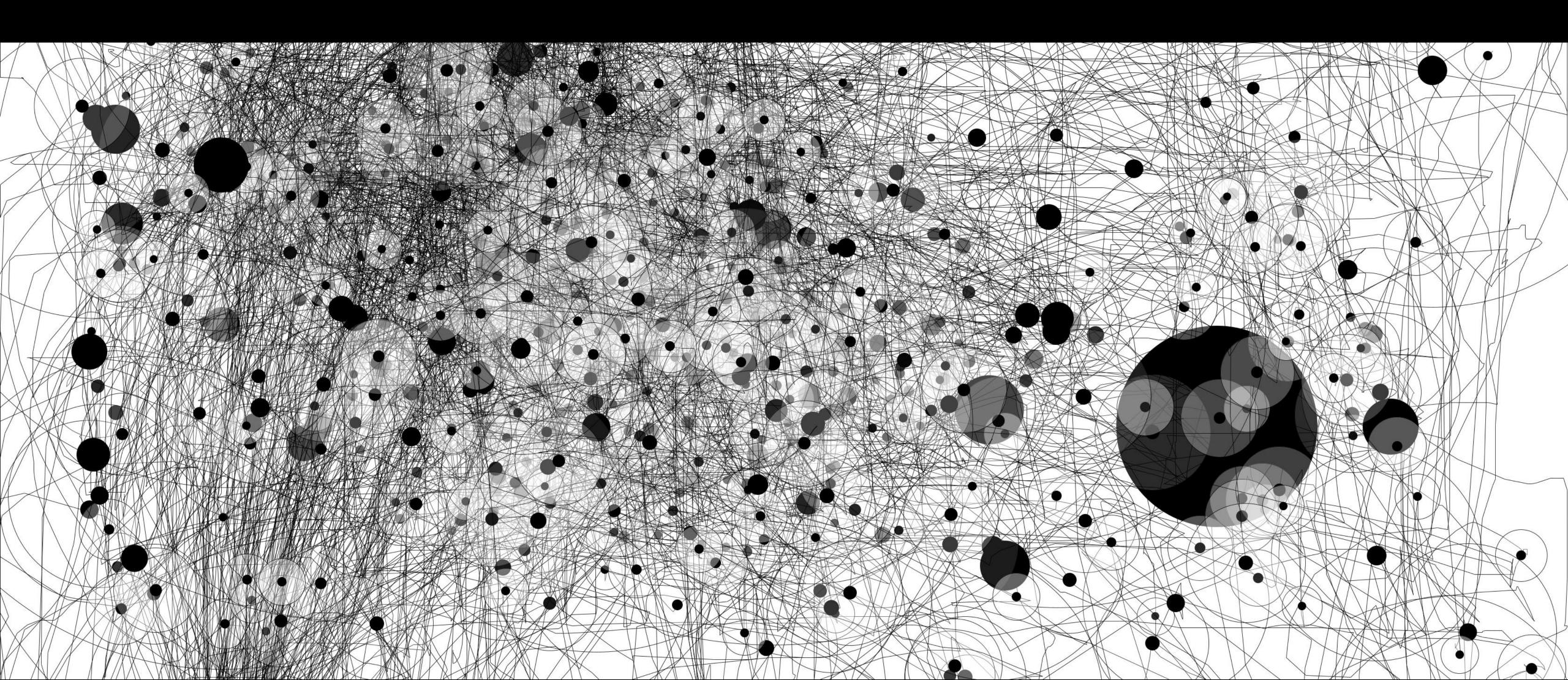
### SOME STATISTICS

- "the average sale price of NFTs is lower than 15 dollars for 75% of the assets, and larger than 1594 dollars, for 1% of the assets."
- "the top 10% of traders alone perform 85% of all transactions and trade at least once 97% of all assets."
- "NFT's price correlates strongly with the price of NFTs previously sold within the same collection".
- Source:
   <a href="https://www.nature.com/articles/s41598-021">https://www.nature.com/articles/s41598-021</a>
   00053-8

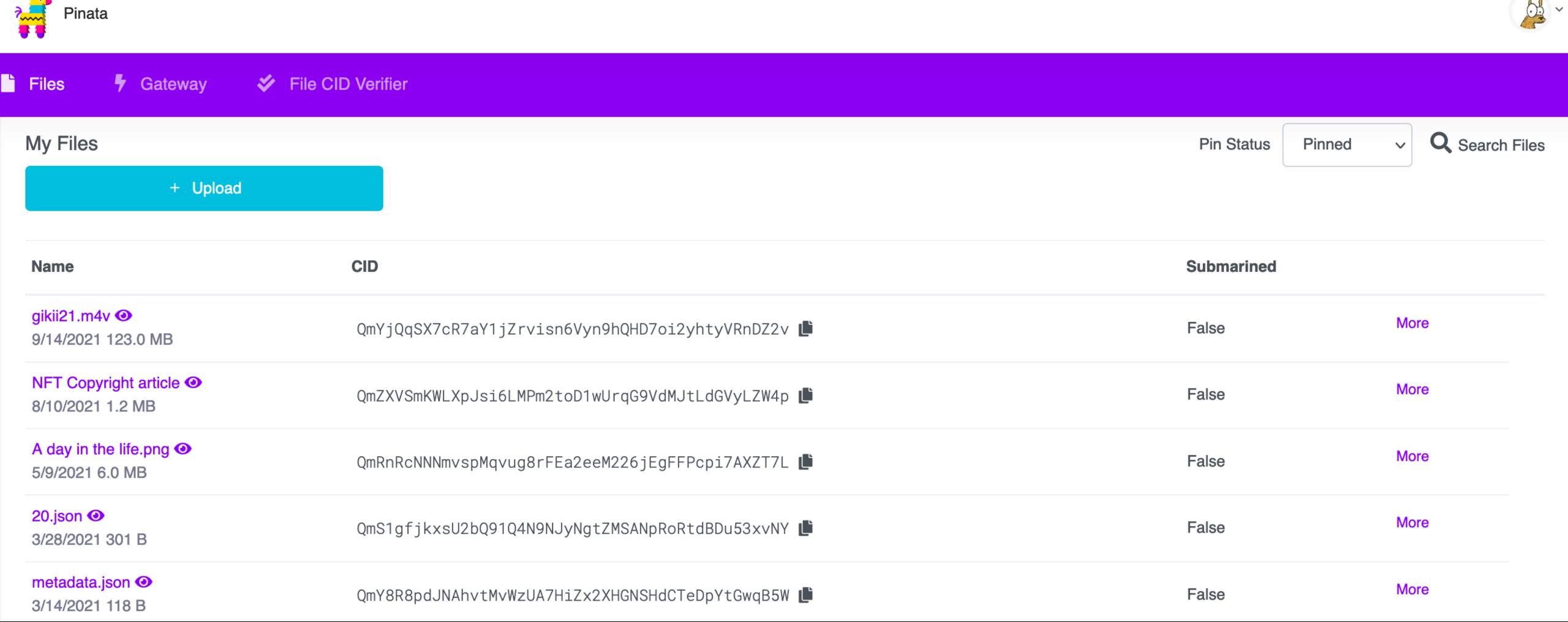


# ANATOMY OF AN NET

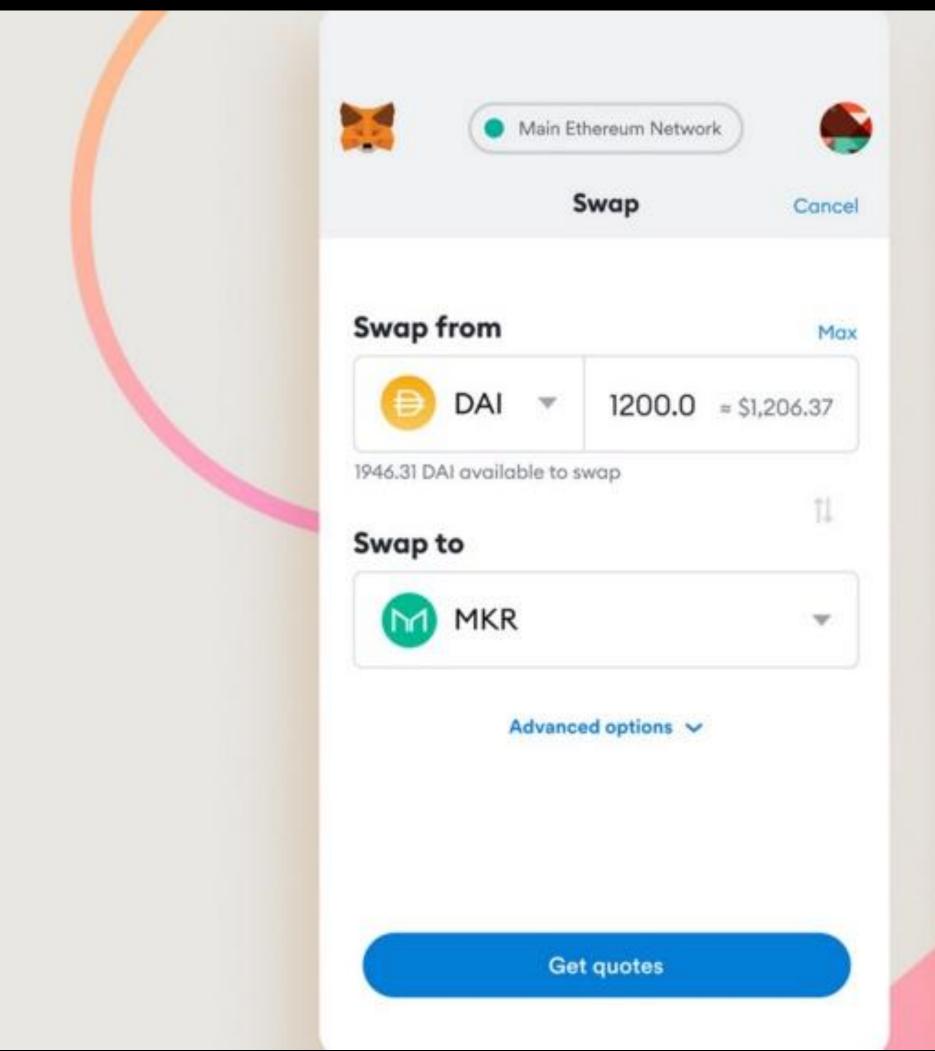
# START WITH A WORK

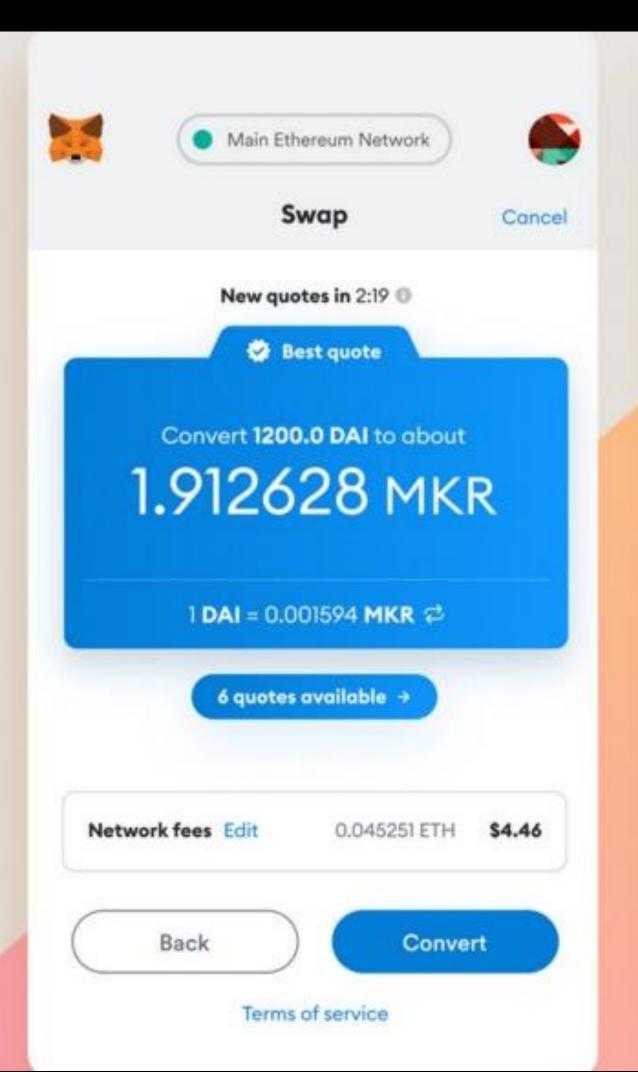


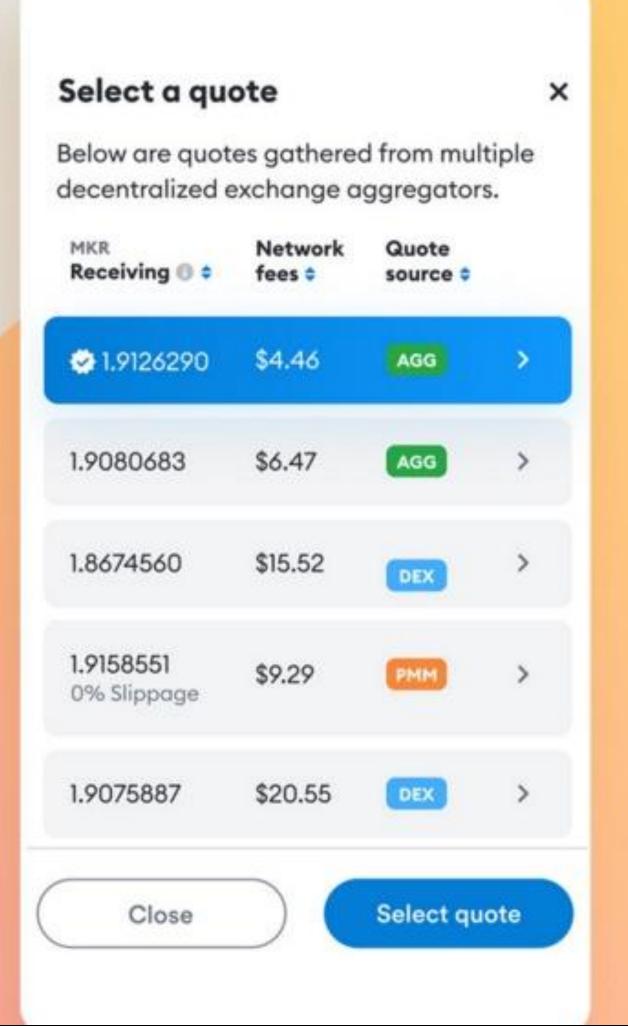
# UPLOAD TO IPFS SERVICE



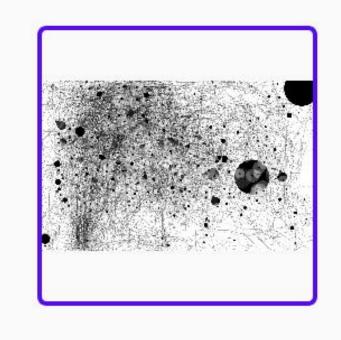
#### USE WALLET TO CONNECT TO PLATFORM

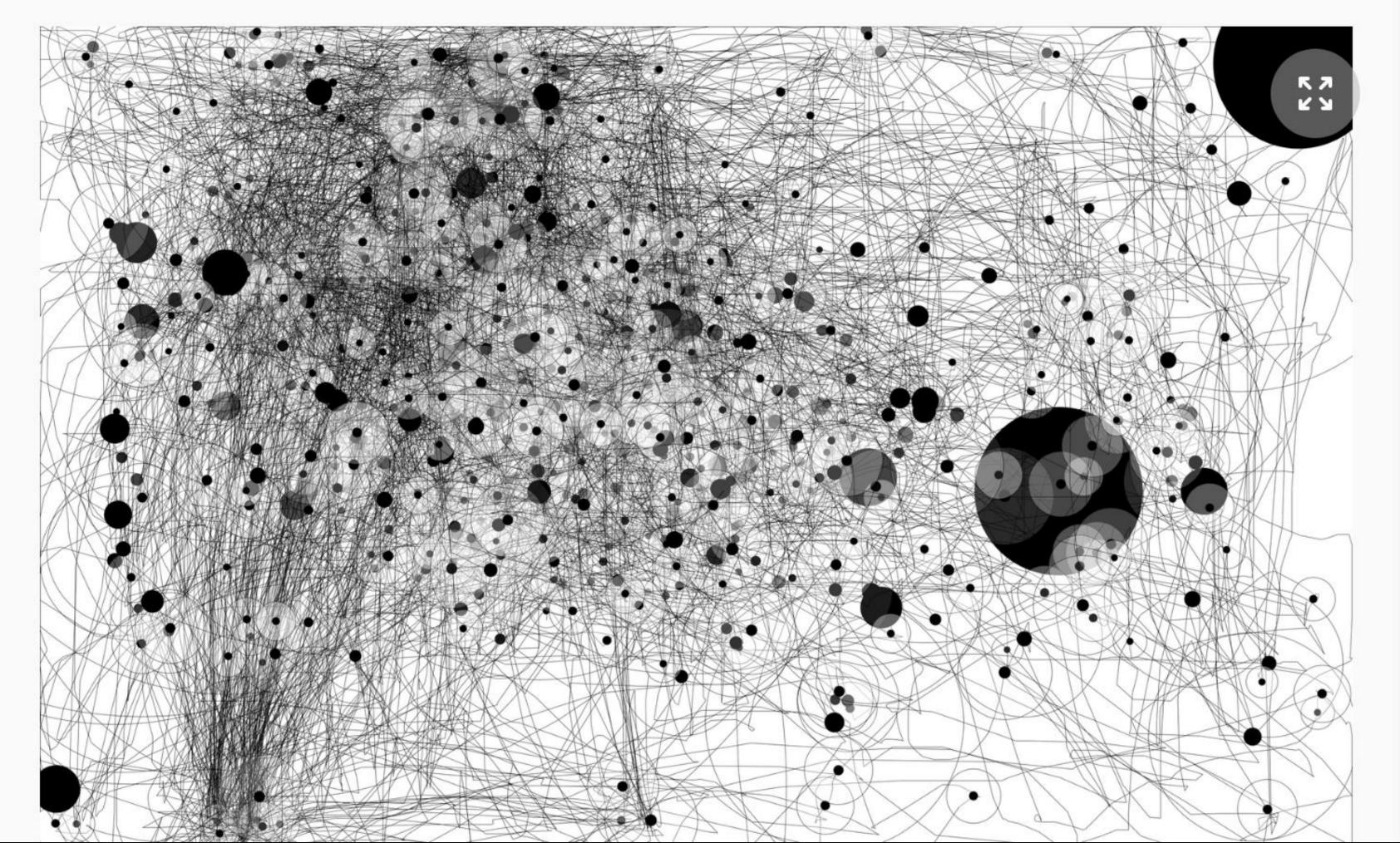






# MINT USING PLATFORM





Mintable Gasless store

#### A day in the life

Copyright article experiments

Seller



technollama

Rating



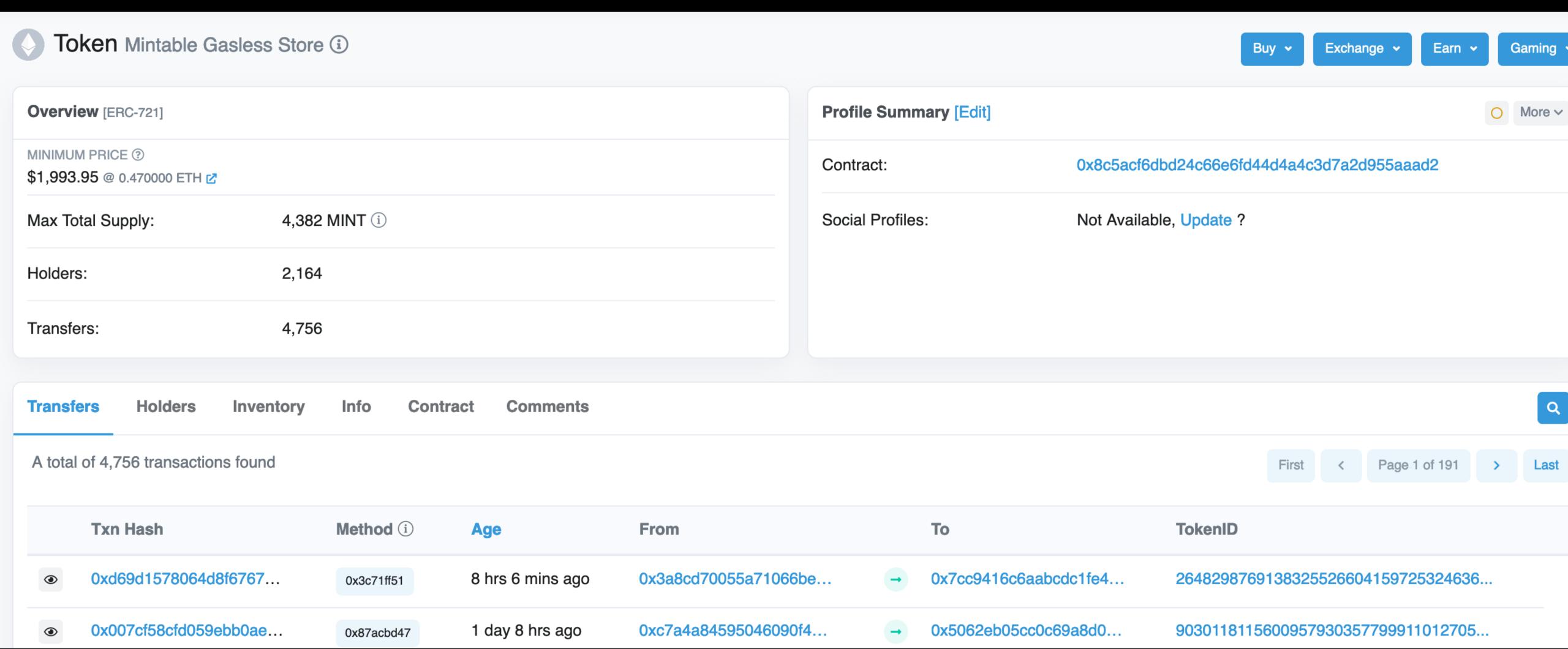
**Price** 

**=1** (\$4253.2)

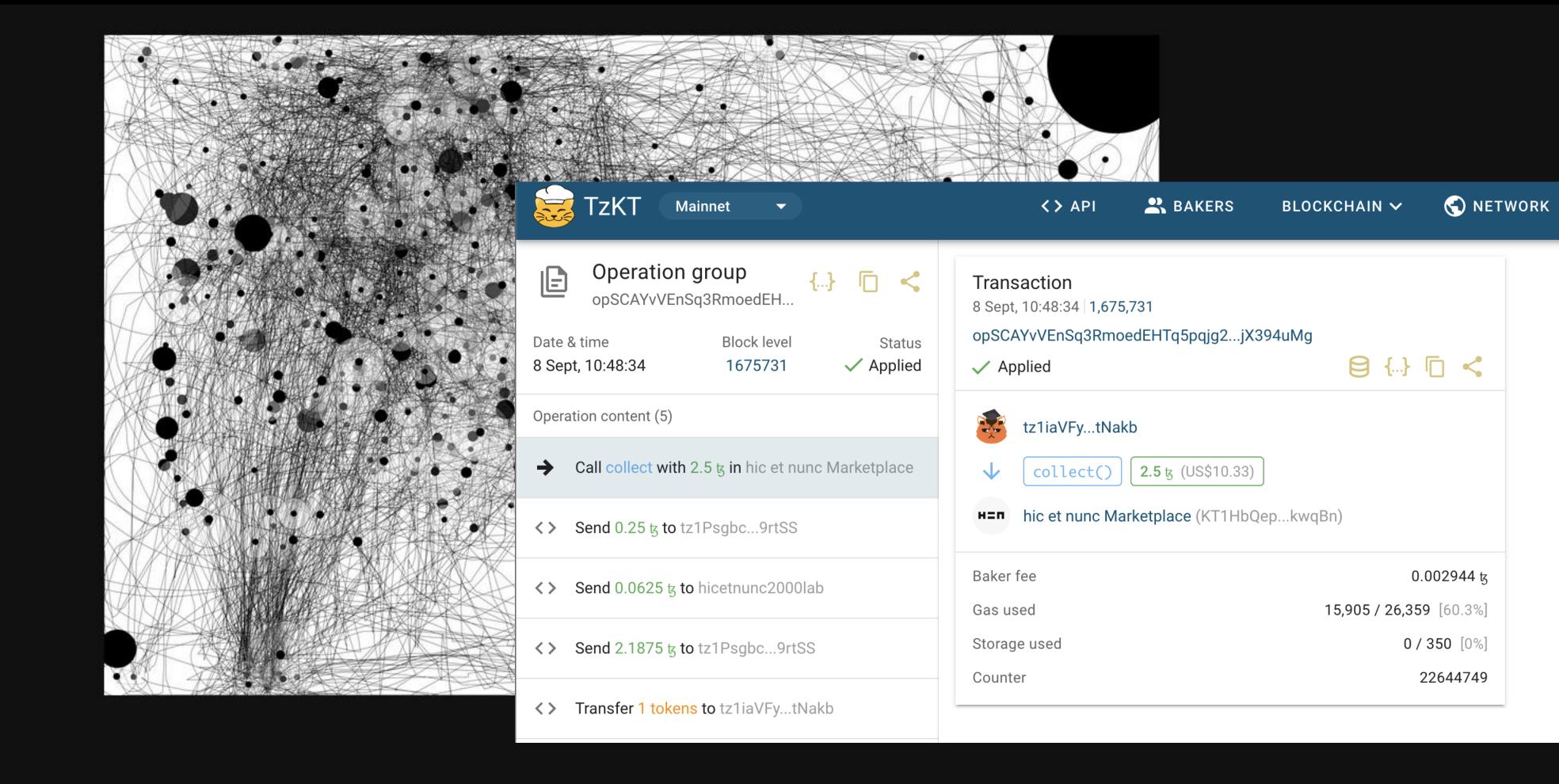
**Buy Now** 



#### AND IT EXISTS ON THE BLOCKCHAIN FOR ALL TO SEE



## HOWEVER...





Search collections and tokens











BIDS











Refresh

# COPYRIGHT

#### ISSUES

- Authorship
- What rights are transferred with an NFT?
- Royalties
- Licences
- Copyright infringement
- Platform enforcement and centrality
- Moral rights
- Issuing extra copies



#### AUTHORSHIP

- First owner is the author of the work.
- Question about collective works, joint authorship, work for hite, some works generated by unprofessional outfits.
- There could be a question about lack of originality, lots of procedurally generated works. These works could be in the public domain.
- Ethos is to circumvent/disrupt IP.



#### TRANSFER OF RIGHTS

- For the most part, an NFT does not transfer any ownership.
- Ownership of the token, not the underlying asset.
- Some NFTs claim to transfer copyright, but they don't meet formal requirements (transfer must be in writing and signed).
- Some NFT projects give licences.

#### Transaction

8 Sept, 09:23:34 1,675,568

onmJji4RDxTvkdZbgh7DBViDDS9L...i1YaG6E1









tz1Psgbc...9rtSS



collect()

**2** ts (US\$8.30)



hic et nunc Marketplace (KT1HbQep...kwqBn)

Baker fee

Gas used

15,905 / 26,3

Storage used

Counter

# ROYALTIES

- One of the potentially best use cases for NFTs is royalties.
- Innovative ways of distributing royalties, also allows users to "own" a part of the work.
- Some projects are playing with the technology with interesting results.
- Built-in royalties in some platforms, artist gets percentage of each resale. This is however platform specific.



### LICENCES...

- When present, licences are often contradictory, confusing, badly drafted.
- Personal use (as profile pictures), and limited commercial rights (merch), but not many other rights.
- What about buyers down the chain of resales who have not agreed to the licence?



## FUNDING

- This image has been released into the public domain after sale of NFT.
- Potential for funding using NFTs, the copyright element is irrelevant, people sell items to fund projects.
- https://www.freehawaiiphoto.com/dow nload



# COPYRIGHT INFRINGEMENT?

- People are minting works that do not belong to them, or without permission.
- Is it infringement?
- Minting is not an exclusive right of the author, it's not copying, not publishing, could be communication to the public, but the link could direct to an existing work (is it a new public? Svensson et al).
- I don't think so, my most controversial statement so far is that minting a work without permission need not be copyright infringement.



Mintable Gas

Fake Ba

Yet another co

Seller



Rating

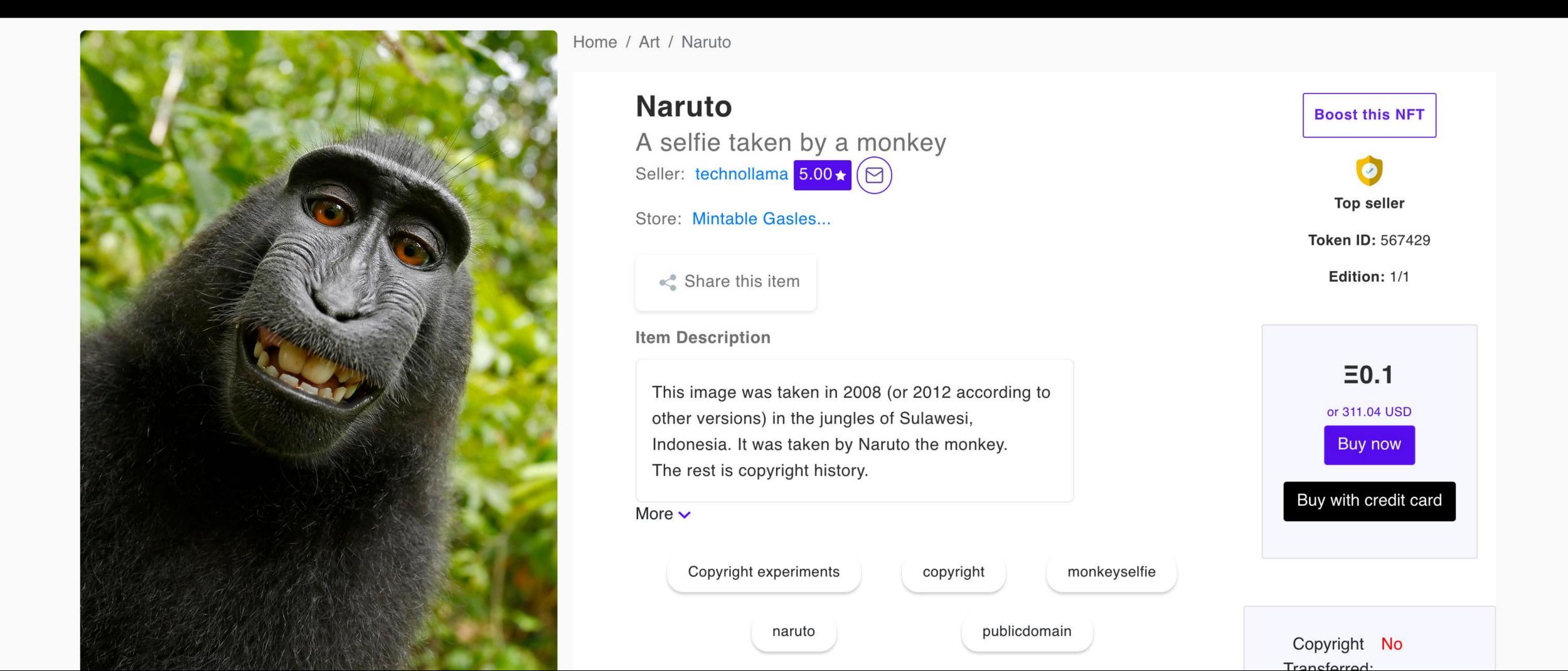


Price

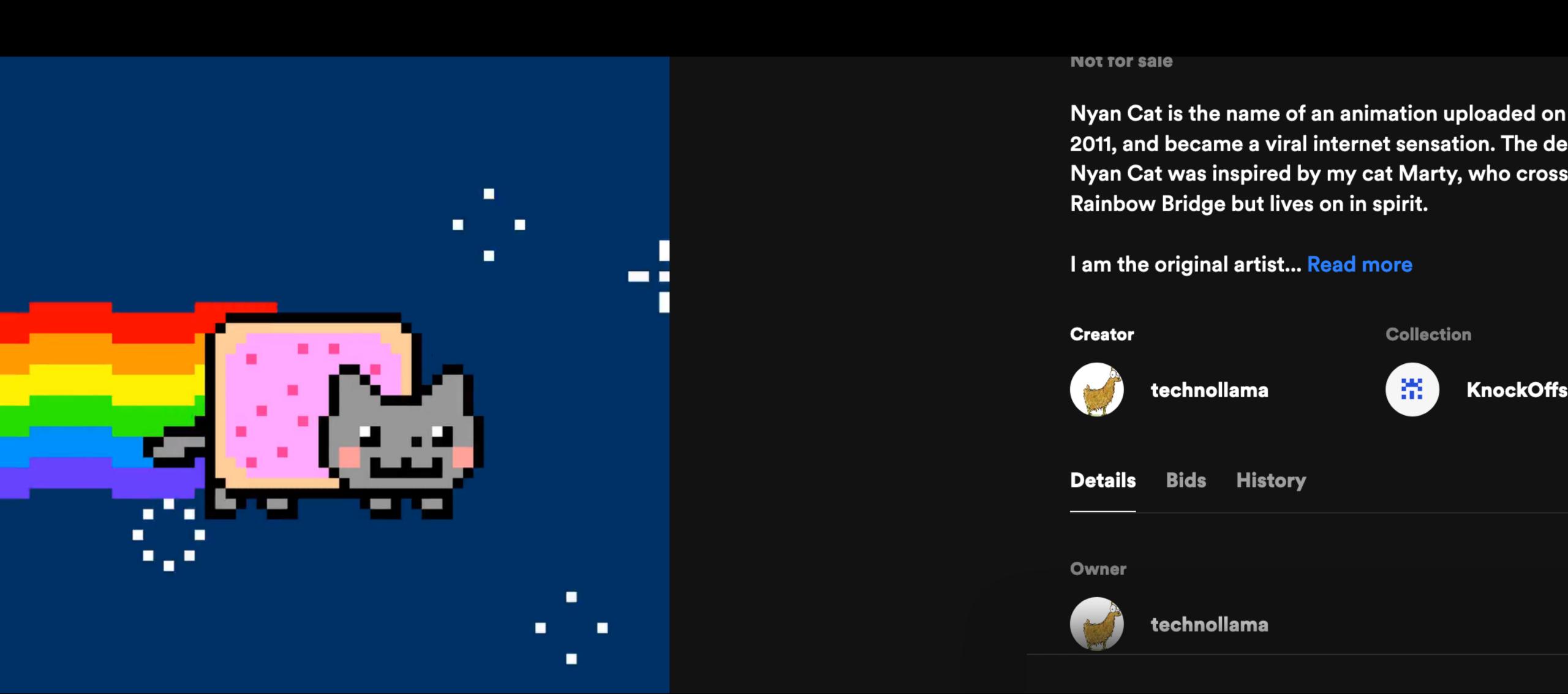
Ξ0.124

Bu

# COPYRIGHT INFRINGEMENT?



# COPYRIGHT INFRINGEMENT?



# MIRAMAX SUES TARANTINO OVER NETS







### COPYFRAUD

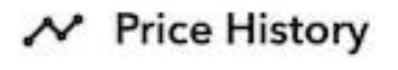
- Copyfraud is generally understood as making a false or dubious copyright claim over a work that is in the public domain.
- Works that are in the public domain can be used by anyone, but sometimes an institution will make a copyright claim over one such work. There is little or no effect to copyfraud, (only Chile has made it a criminal offence to falsely make a copyright claim over a work in the public domain).
- Reputational damage?



The Amsterdam Colle

# The Night V [OFFICIAL]

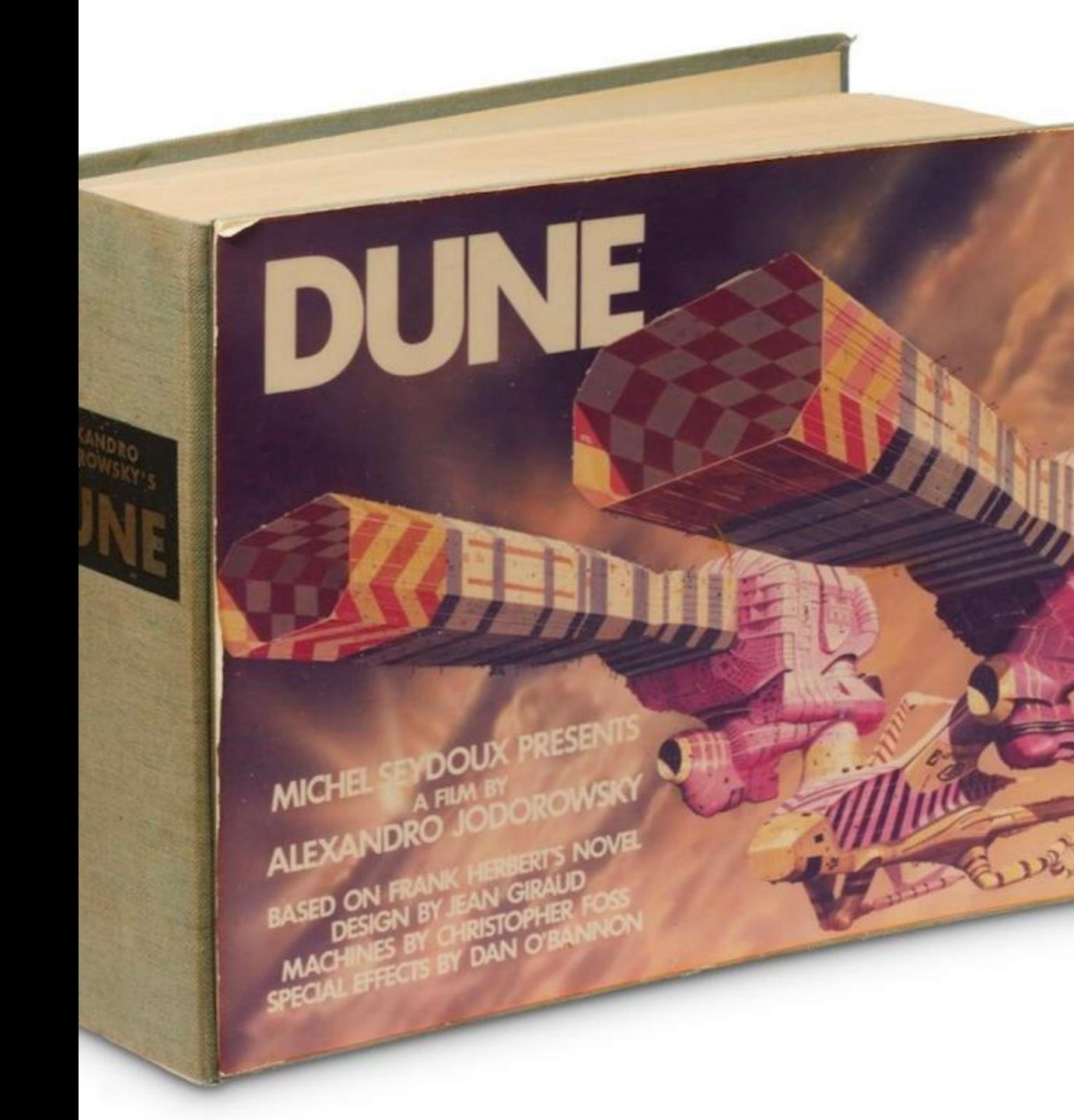




All Time 🗸

# DAOS

- Decentralised Autonomous Organisations.
- Governance token is issued by a group to organise and manage funds with some underlying function. Use smart contracts to organise the group.
- Patchy history, some spectacular failures.
- What are they? Who owns the assets? Is it a co-op?



# PLATFORM ENFORCEMENT (PLATFORM IS LAW)

- Most disputes are being resolved by the platforms (and strong community enforcement).
- Infringing or stolen items removed from sale, which makes this an issue of intermediary liability.
- Web3 is supposed to favour decentralisation, but platforms have lots of power potentially.





# This artwork has received a DMCA takedown notice.

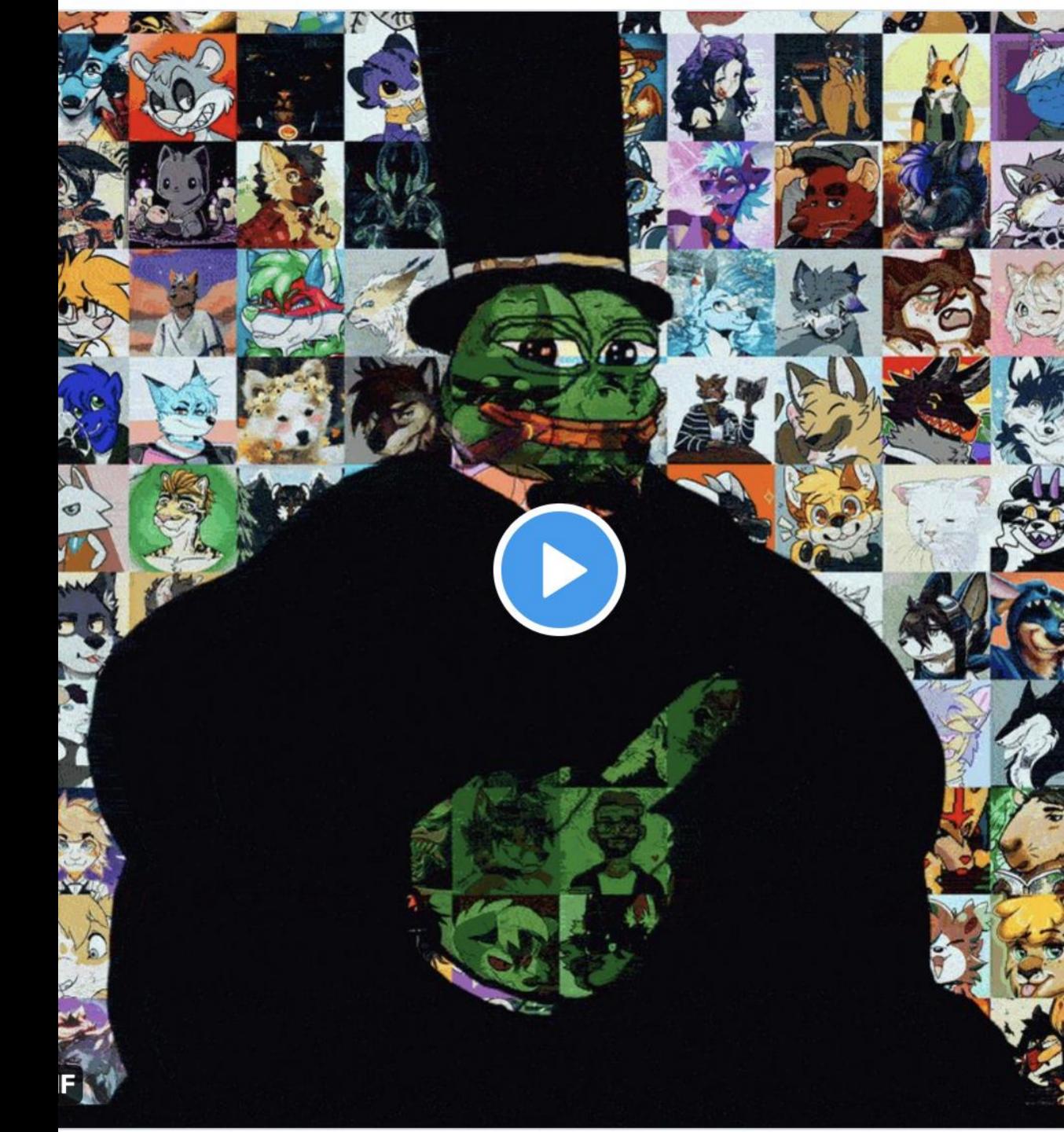
Complaint submitted by

Danielle Ruiz; Marcin Tomascz; Clara Kubicka; Rachel Johnson

Learn about the DMCA process →

# MORAL RIGHTS

- Next are of conflict, people are taking other people's profiles and minting them.
- This image sold for \$100k. Portrays furries who are critical of the NFT scene. What happens?
- Now removed, but right of integrity?



# ISSUING ADDITIONAL COPIES

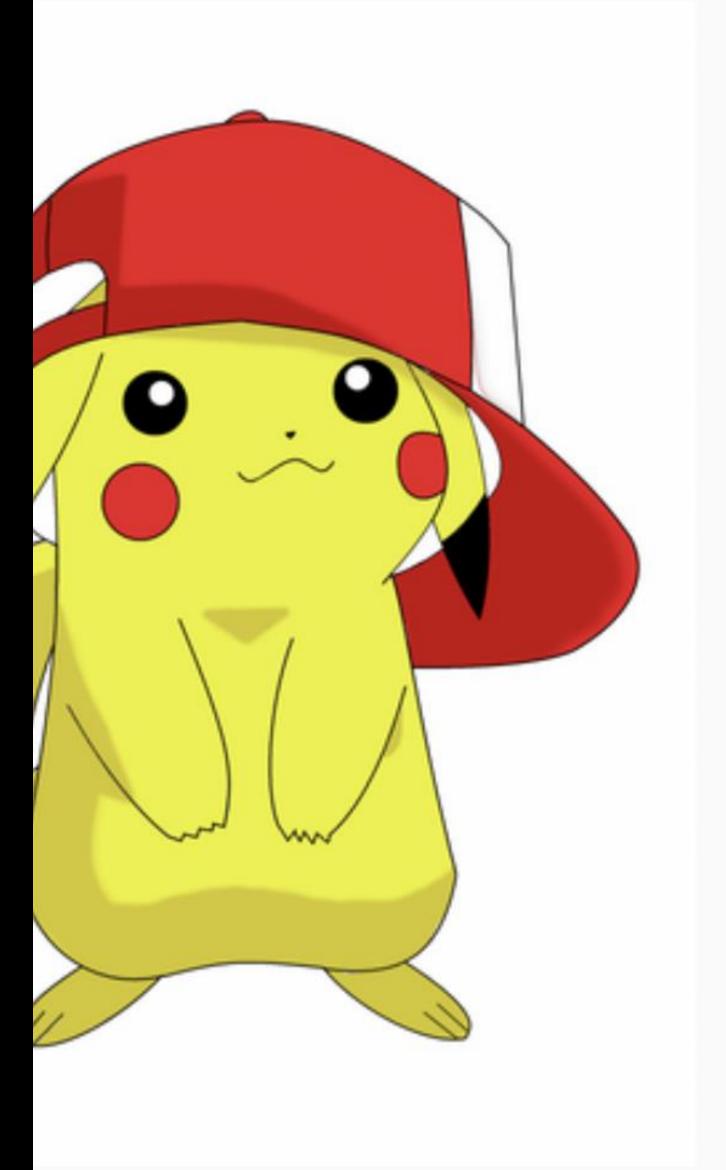
- A big "what if" before has been: what if an NFT author issues additional NFTs?
- This is analogous to things that already happen, photographers and artists have been sued for issuing extra prints and lithographs.
- Sobel v. Eggleston, No. 12-cv-02551 (S.D.N.Y. 2013). Photographer issued extra copies, sued, wins lawsuit.
- Not a copyright question as such, more about contract, unjustified enrichment?



Pepe the Frog creator Matt Furie decided to run an NFT auction, selling off an image of the controversial character in which it was waist-deep in a pool, its ass-crack peeping over the surface. Everything that has happened since is exactly how you would imagine such an auction in the insipid Web3 space would go down.

# OTHER IP

- There may be scope for using NFTs for proof of ownership, but I'm personally sceptical of their usefulness in this.
- Registration?
- Trade mark infringement is likely.





Mintable

POK

SUGAR

Seller



Rating

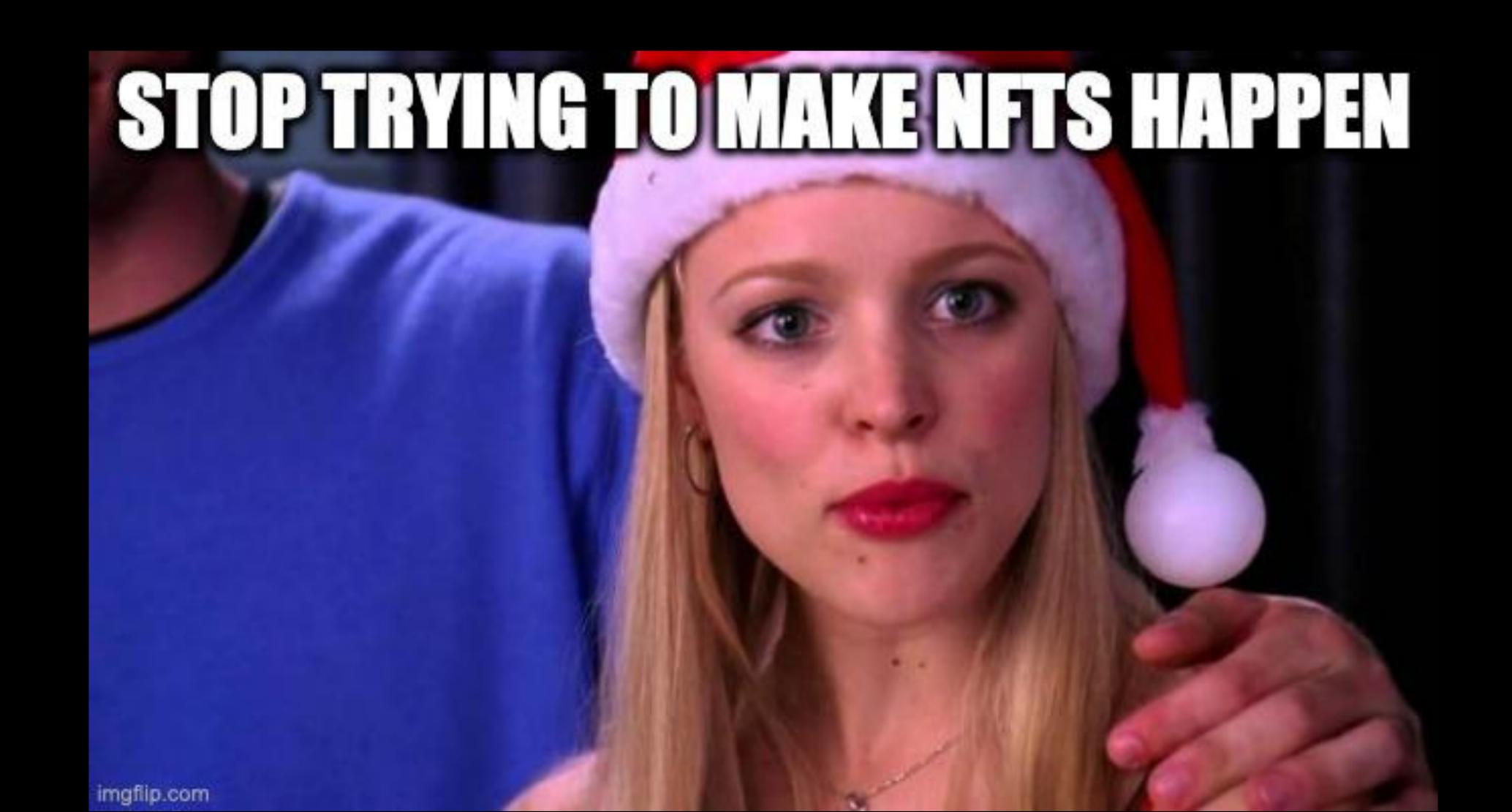


Price

**Ξ0.0** 



# CONCLUDING...



### Thanks!

#### @TECHNOLLAMA

