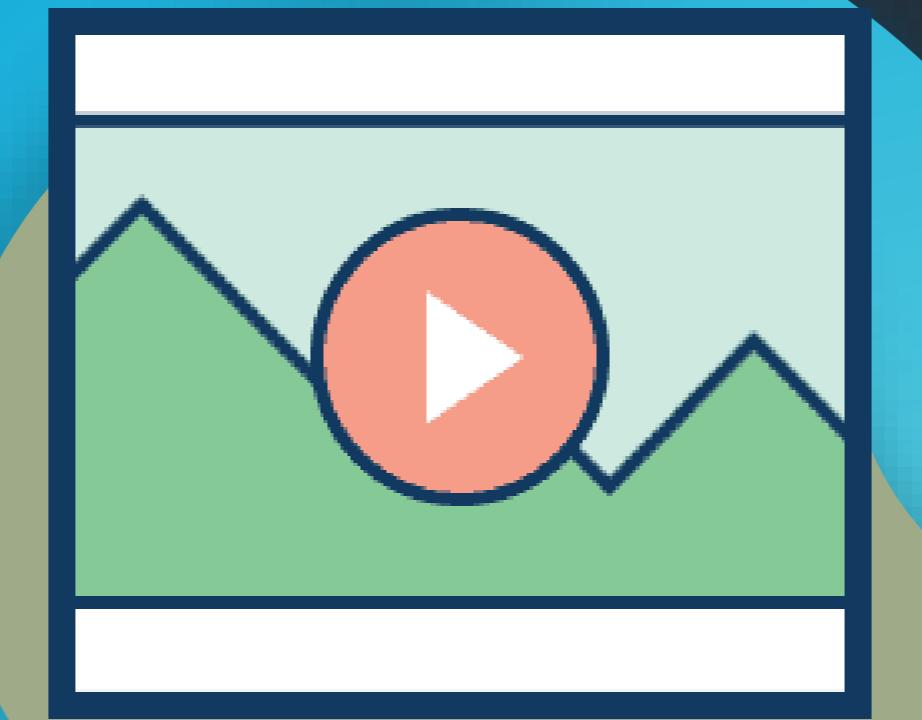
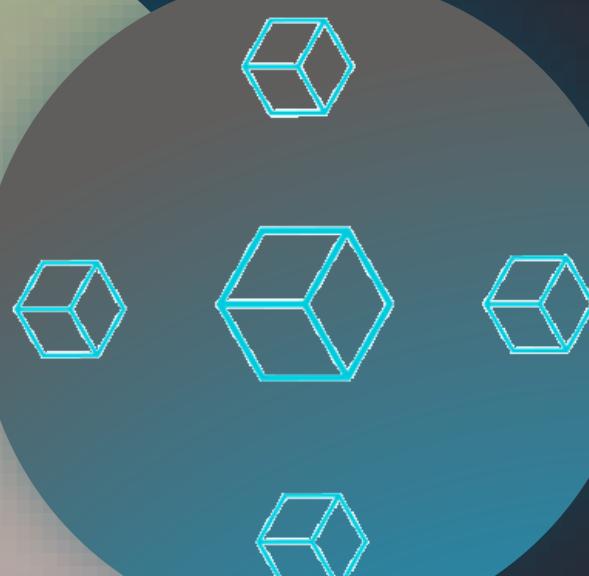


# DECENTUBE

A DECENTRALIZED VIDEO  
STREAMING PLATFORM



IPFS



# INTRODUCTION

01

In recent times, digital content delivery services are rapidly increasing, particularly in music and videos.



02

More and more netizens are using digital content or subscription-based online services rather than actually purchasing physical copies.



03

The reason for this is that digital content supports mobility and easy access to content anytime, any place.



04

However, these traditional online streaming platforms have several disadvantages such as high cost, piracy and low privacy for consumers.



05

These issues can be addressed with the help of emerging technologies like IPFS & Ethereum.



# EXISTING SYSTEM

Usage of HTTP & TCP protocol.

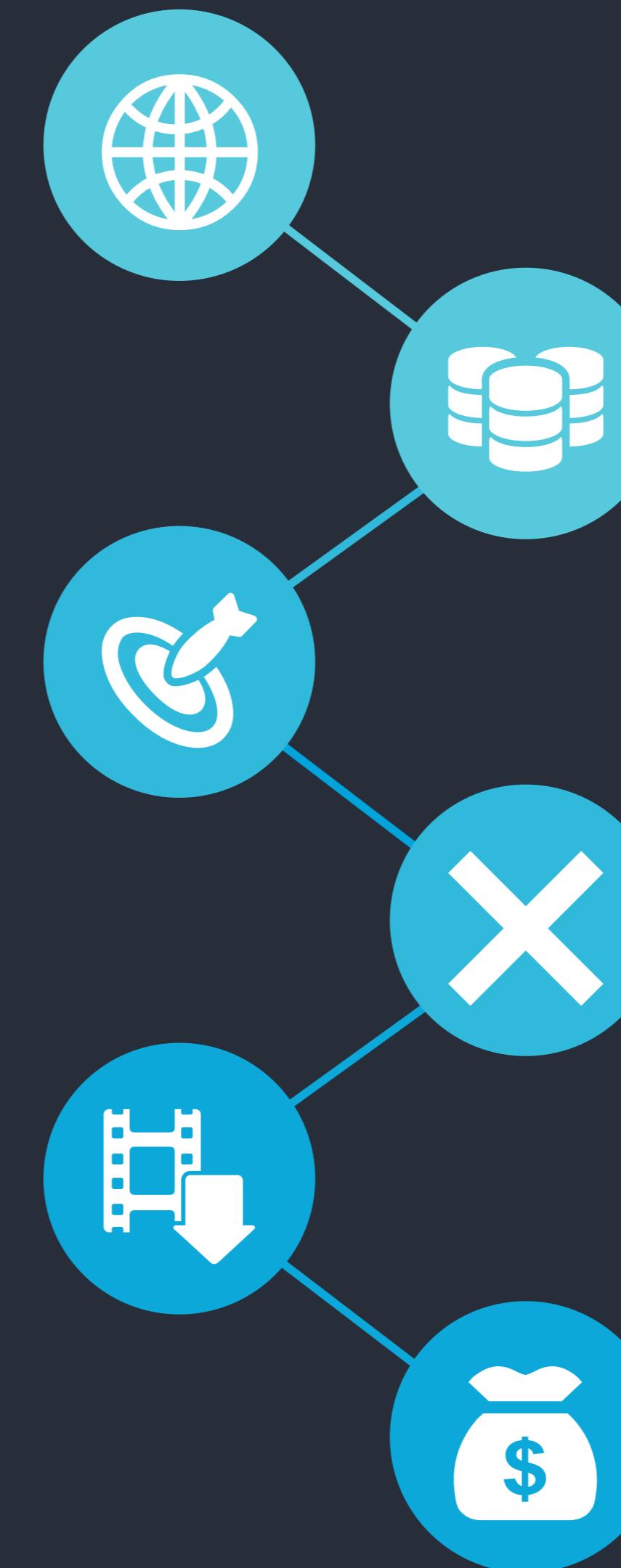
Revenue model is entirely dependent on targeted advertisements.

Illegally downloading videos.

Increased cost due to number of servers.

Censorship control over content.

Unfair revenue share provided to content creators.



# PROPOSED SYSTEM



We propose to build a decentralized video streaming platform.



A decentralized infrastructure is far more resilient to attacks and harder to shut down or censor.



We propose to use a distributed technology for video storage & Ethereum to securely store information.



IPFS or is a peer-peer hypermedia protocol which utilizes a distributed file system.



IPFS Cluster is a distributed application that works as a sidecar to IPFS peers.

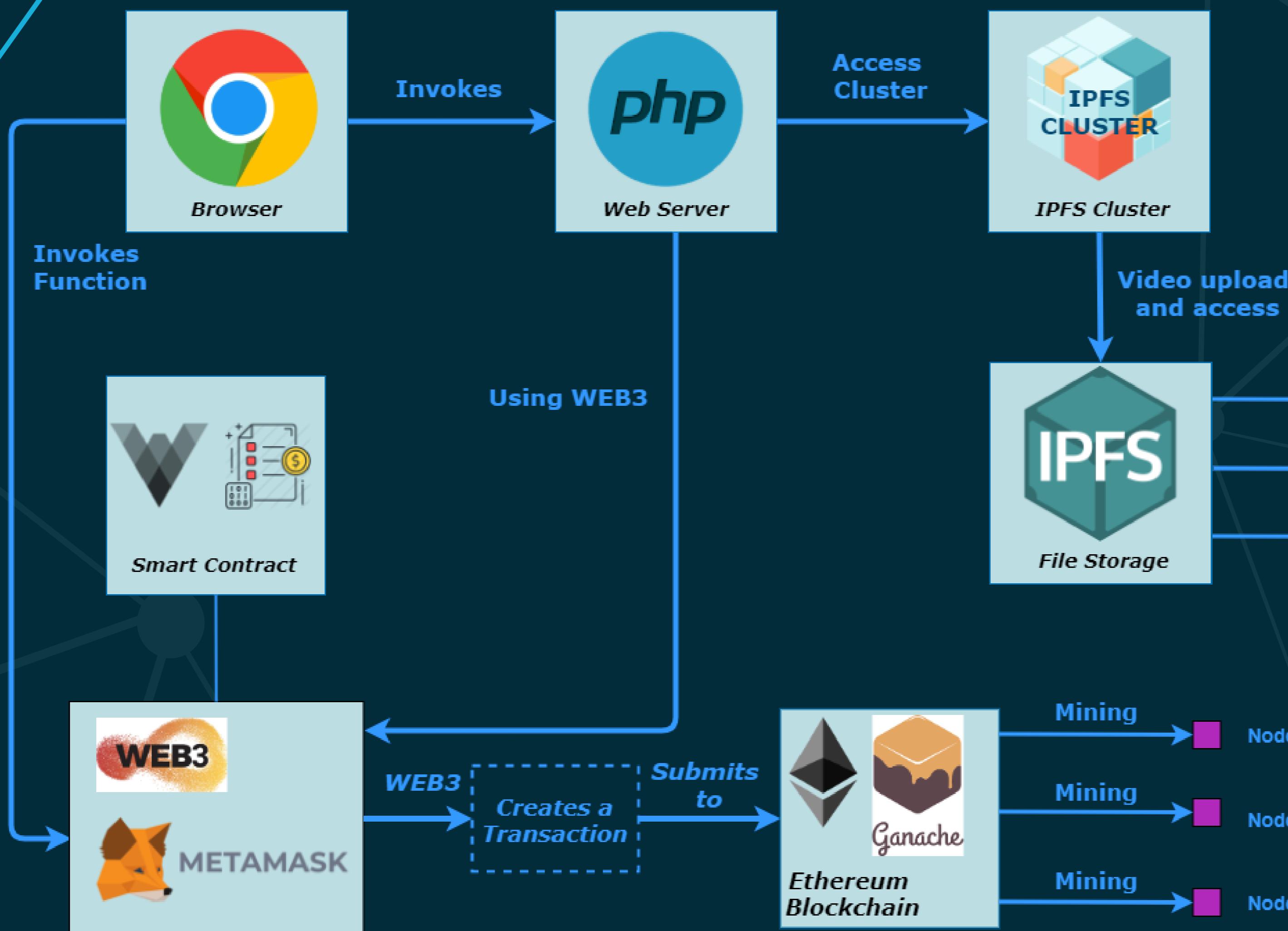


ERC-20 is a technical standard that is used to issue tokens on the smart contract-enabled Ethereum blockchain.



We have developed a crypto-incentive system , where the content creator is awarded with DTC tokens.

# BLOCK DIAGRAM



# PROBLEMS FACED DURING DEVELOPMENT



## IPFS P2P Connectivity

Connectivity to IPFS nodes across the internet was an issue.

01



## Environment Setup

Setting up the development environment was a tedious task.

02



## Running an Ethereum Node

Anyone is able to run an Ethereum node on their computer. This synchronizes all the blocks from the Ethereum network which in turn fills up the hard disk.

03

Problems

# Solutions

01

## IPFS P2P Connectivity

ngrok exposes local servers behind NATs. Using tunneling we obtained static IP addresses.



02



## Environment Setup

Using VMWare we setup the development environment on a virtual Ubuntu machine.

03

## Running an Ethereum Node

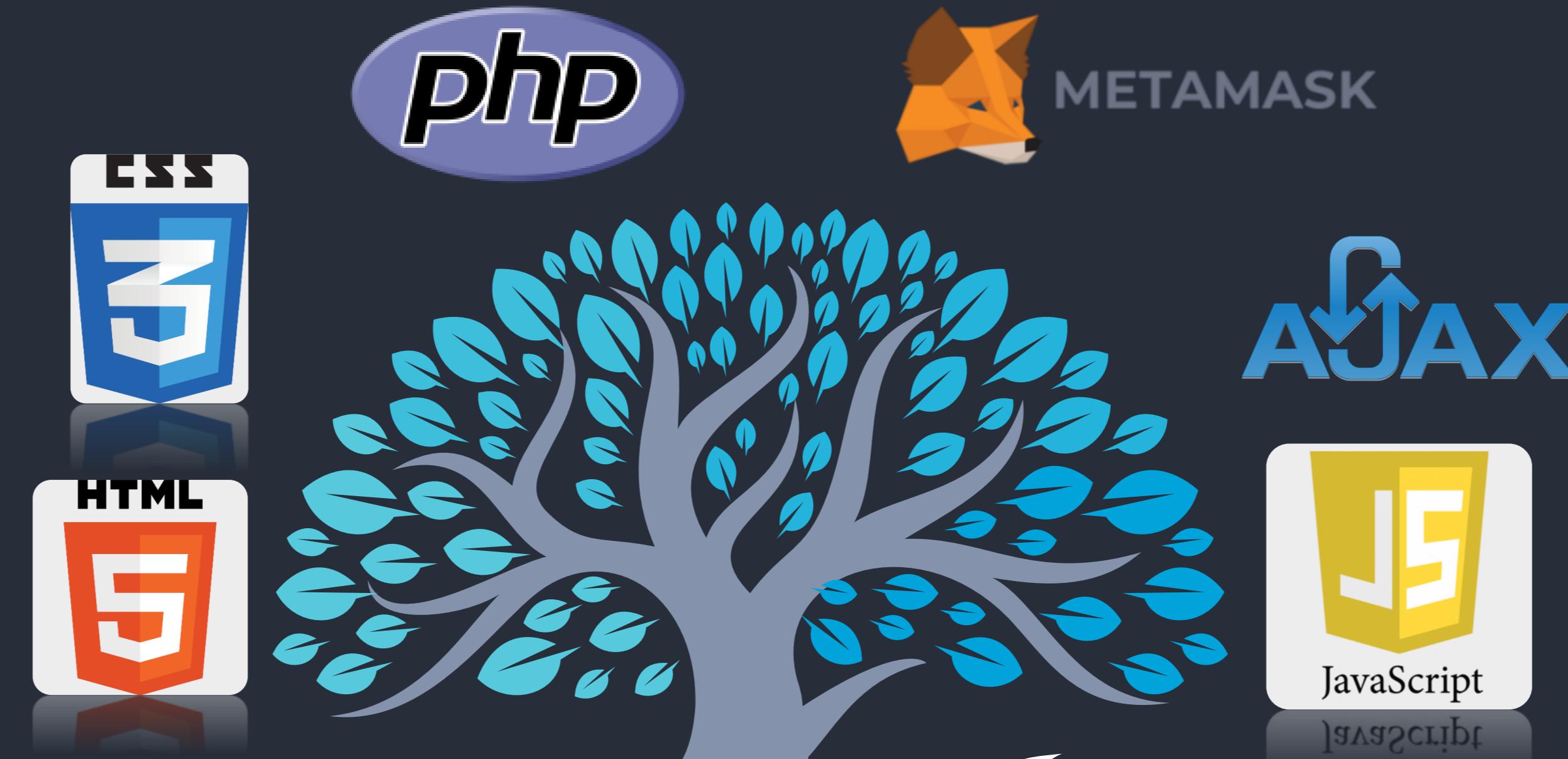
Infura API provides instant access over HTTPS and WebSockets to the Ethereum.



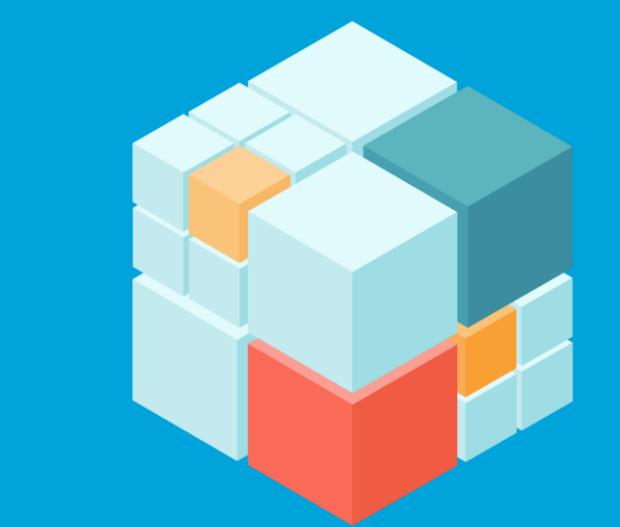
# SOLUTIONS

# TECHNOLOGY STACK

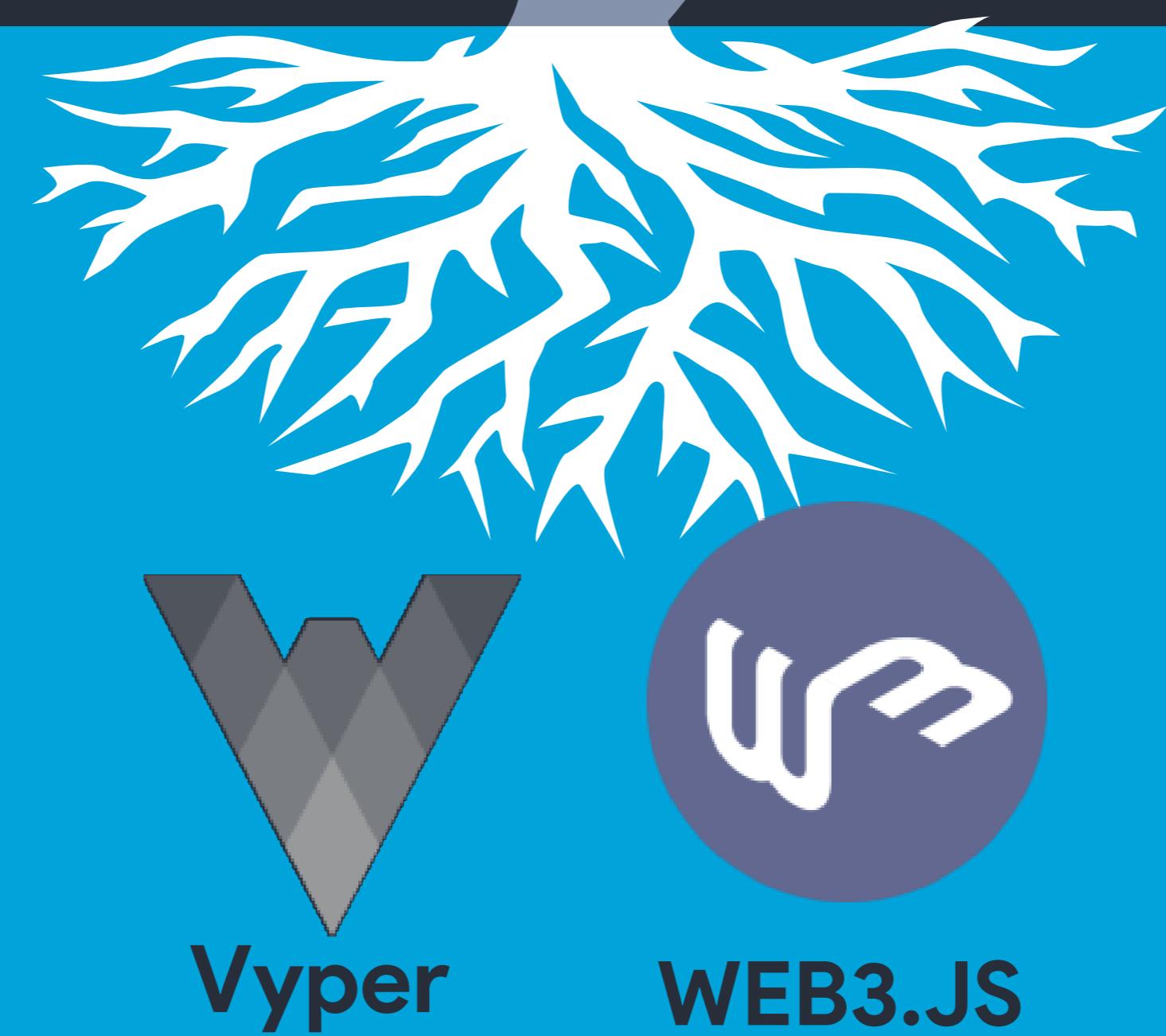
## FRONT-END



## BACK-END

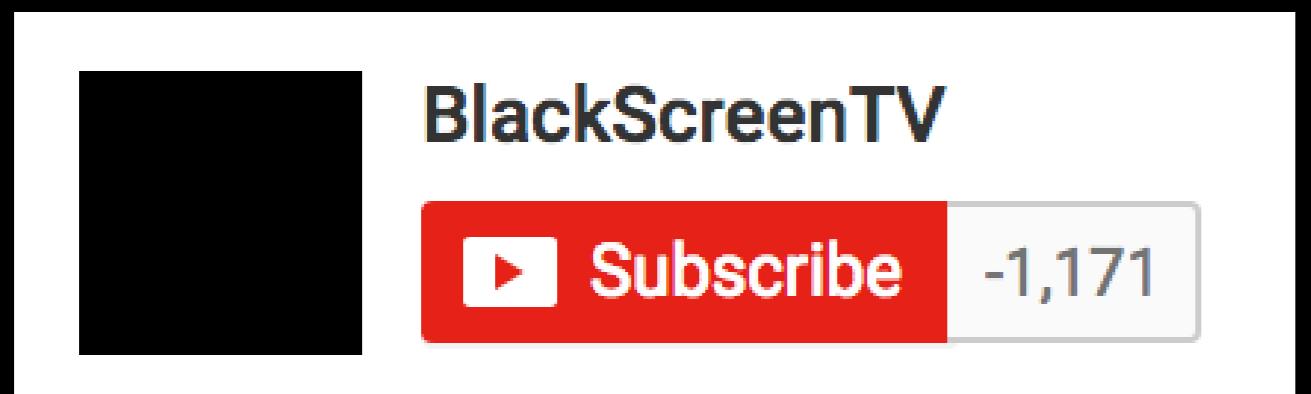


IPFS Cluster



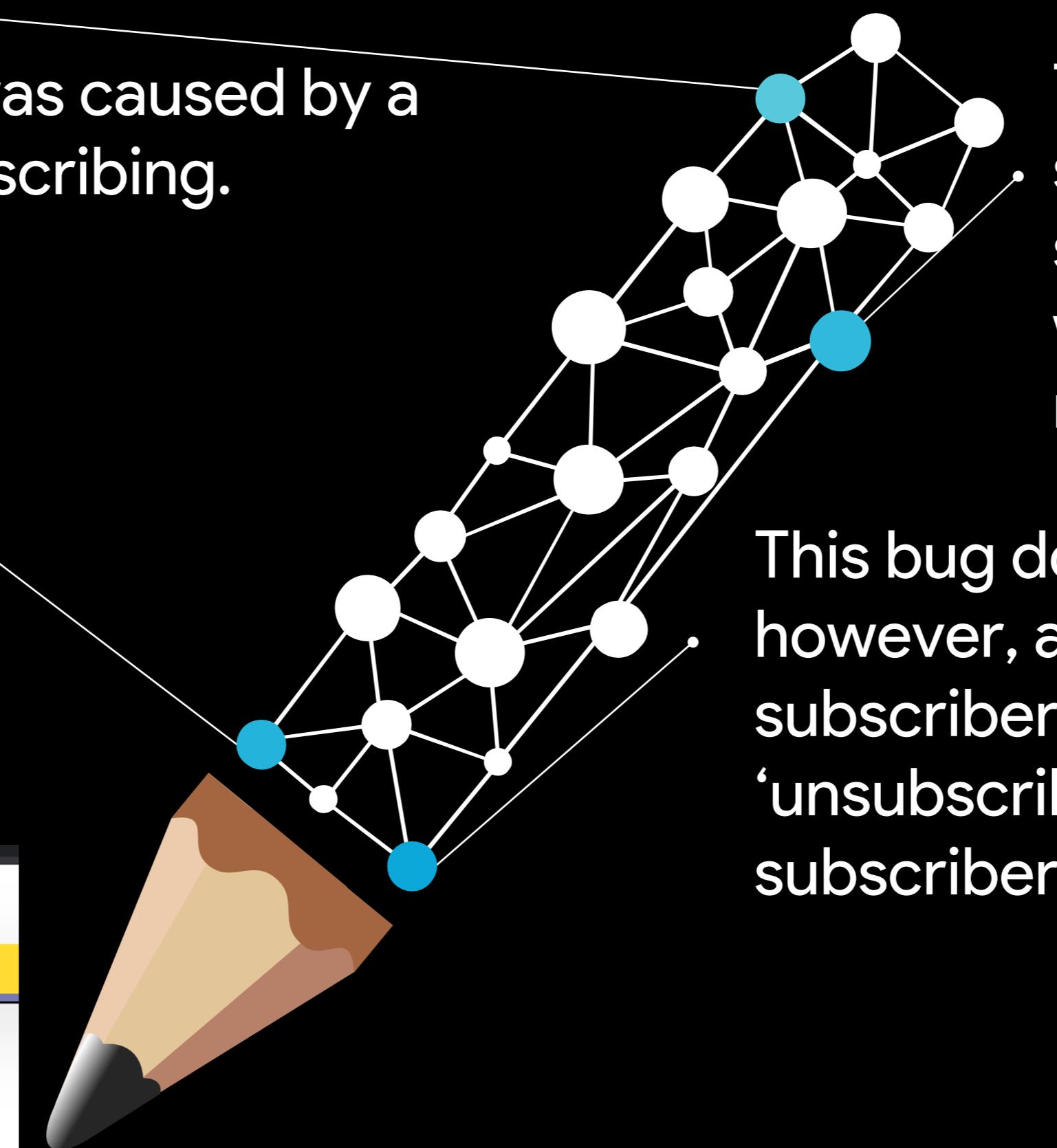
Ganache

# YouTube's GLITCHES to be noted:



The glitch was first reported by YouTube user **BlackScreenTV**, who theorized that it was caused by a counting error when subscribing and un-subscribing.

A number of YouTube channels were experiencing huge subscriber count losses, as the result of a glitch that occurred one Wednesday afternoon.



The glitch caused many top channels to seemingly lose thousands of subscribers on Wednesday afternoon, with several channels dropping into the negatives.

This bug does not affect real subscriptions, however, and channels aren't losing any subscribers that didn't explicitly click 'unsubscribe' this glitch only affects the total subscriber count displayed.

Did you know we have a TECH FESTIVAL? Check it out →

**YouTube glitch causes channels to lose tons of subscribers in minutes (Update)**



by MIX — APPS

SOCIALBLADE BLOG

Home > Top Lists > YouTube glitch results in huge subscriber count losses, negative sub counts

Top Lists

YouTube glitch results in huge subscriber count losses, negative sub counts

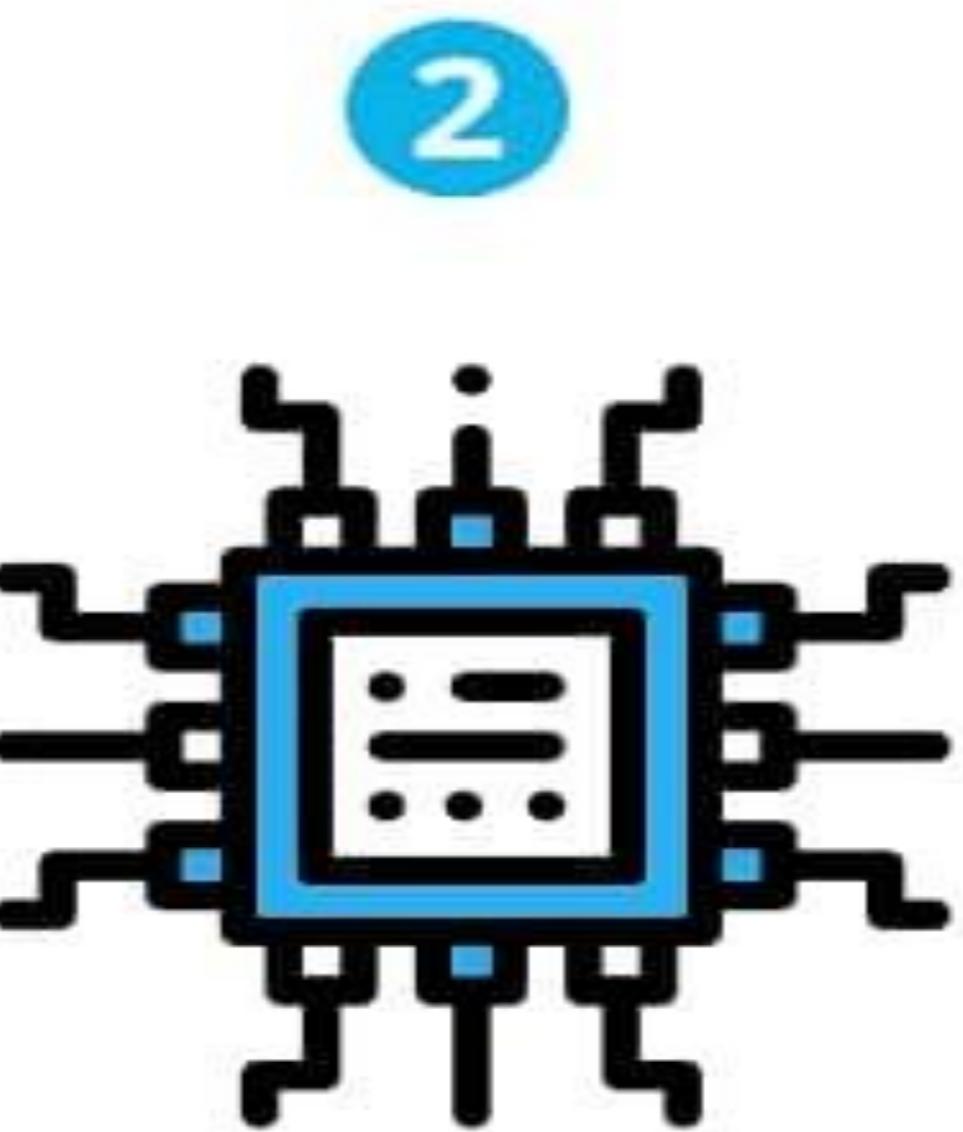


**SMART CONTRACTS**





Smart Contracts are **written as code** and committed to the blockchain. The code and conditions in the contract are **publicly available** on the ledger.



When an event outlined in the contract is triggered, like an expiration date or an asset's target price is reached-- the **code executes**.



Regulators can watch contract activity on the blockchain to **understand the market** while still **maintaining the privacy** of individual actors.

```
@public
def upload_video(_video_path: bytes[50], _video_title: bytes[20]) -> bool:
    _index: uint256 = self.user_videos_index[msg.sender]

    self.all_videos[msg.sender][_index] = Video({ path: _video_path, title: _video_title })
    self.user_videos_index[msg.sender] += 1

    log.UploadVideo(msg.sender, _index)

    return True
```

## upload\_video() function



```
@public
@constant
def latest_videos_index(_user: address) -> uint256:
    return self.user_videos_index[_user]

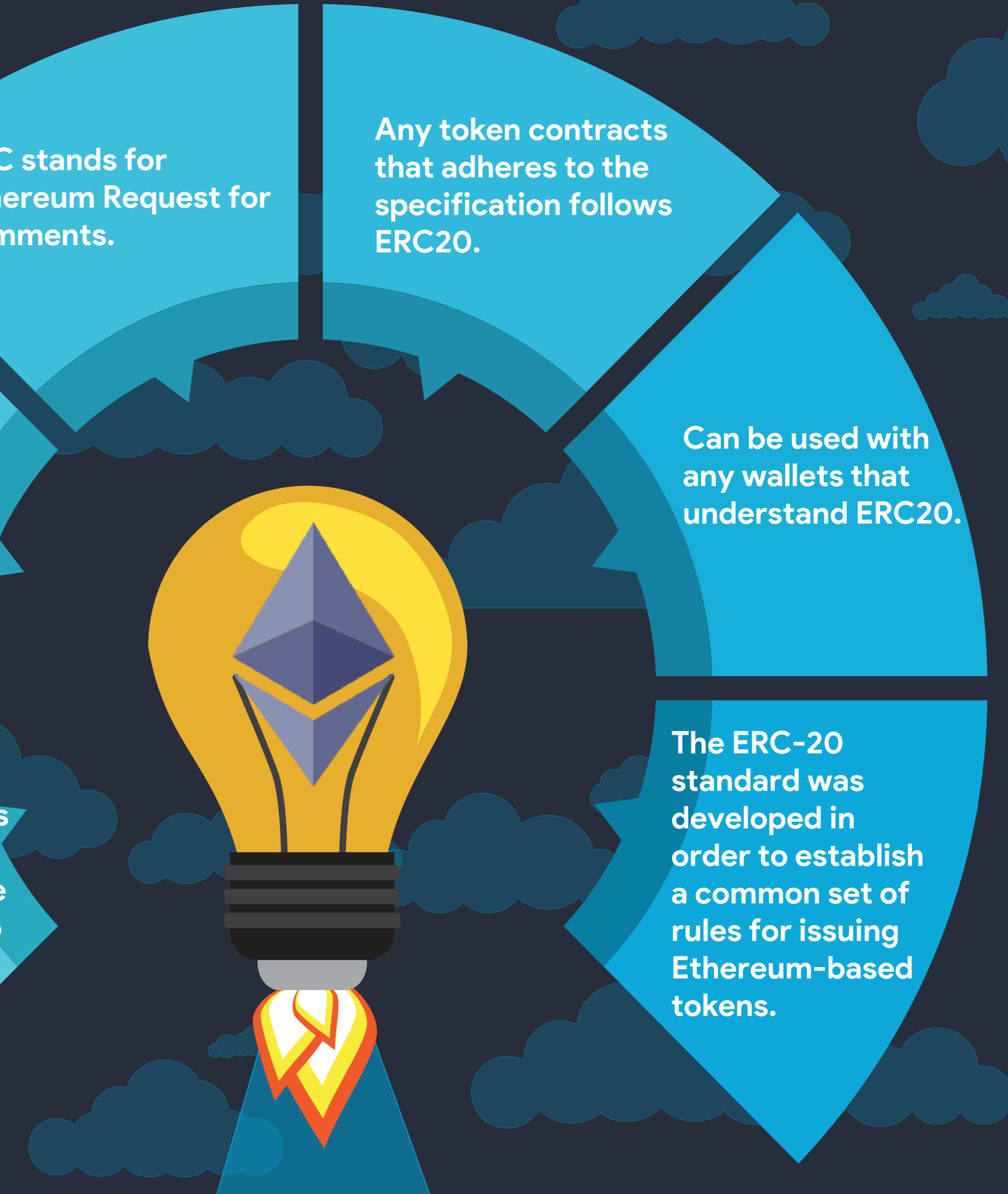
@public
@constant
def videos_path(_user: address, _index: uint256) -> bytes[50]:
    return self.all_videos[_user][_index].path
```



Functions to  
fetch video's  
Information.

```
@public
@constant
def videos_title(_user: address, _index: uint256) -> bytes[20]:
    return self.all_videos[_user][_index].title
```

# ERC-20 TOKENS



ERC 20 is a token standard for creating Ethereum token contracts.

In the Ethereum world you can represent the shares in the form of “tokens” that can be bought, sold back to the company, transferred.

ERC stands for Ethereum Request for comments.

Any token contracts that adheres to the specification follows ERC20.

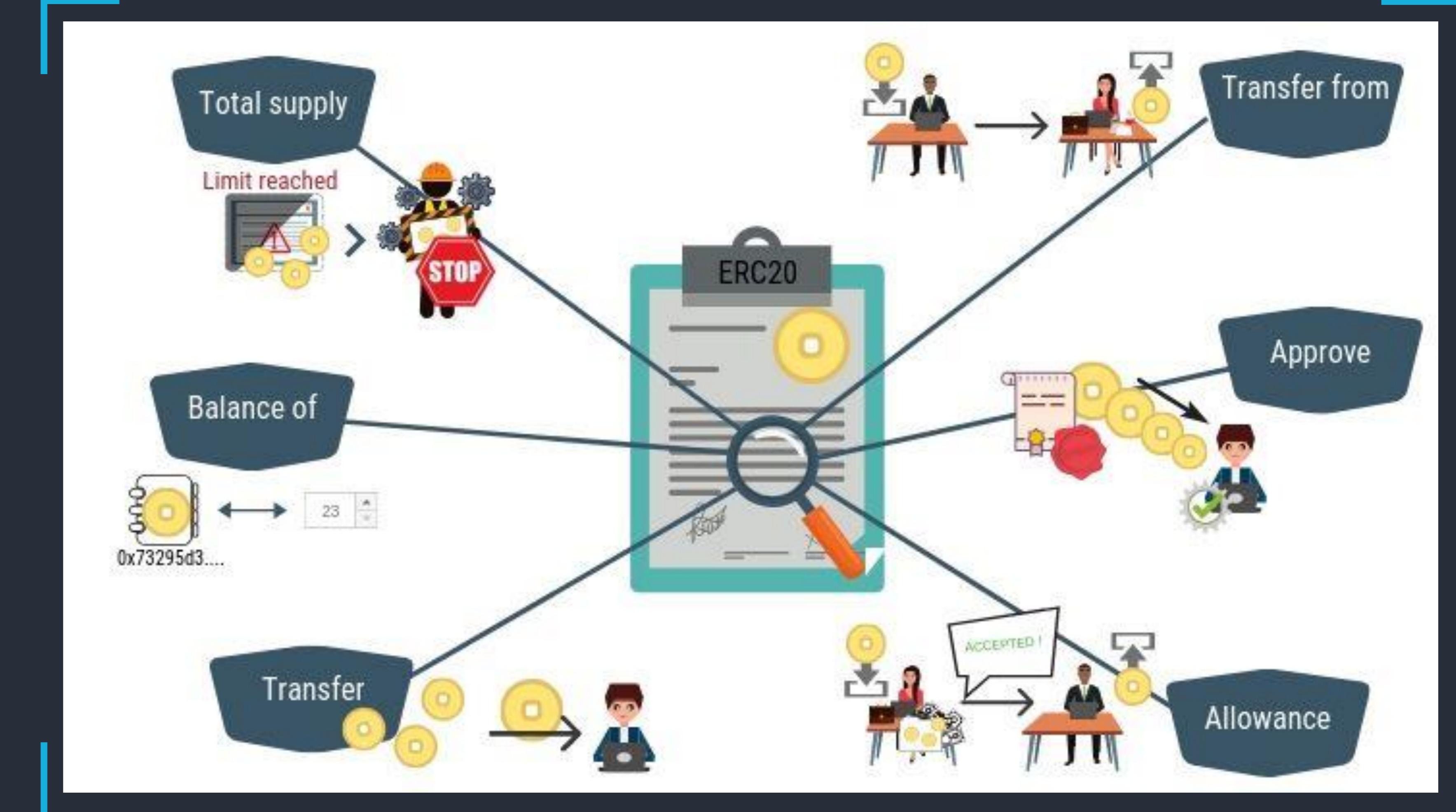
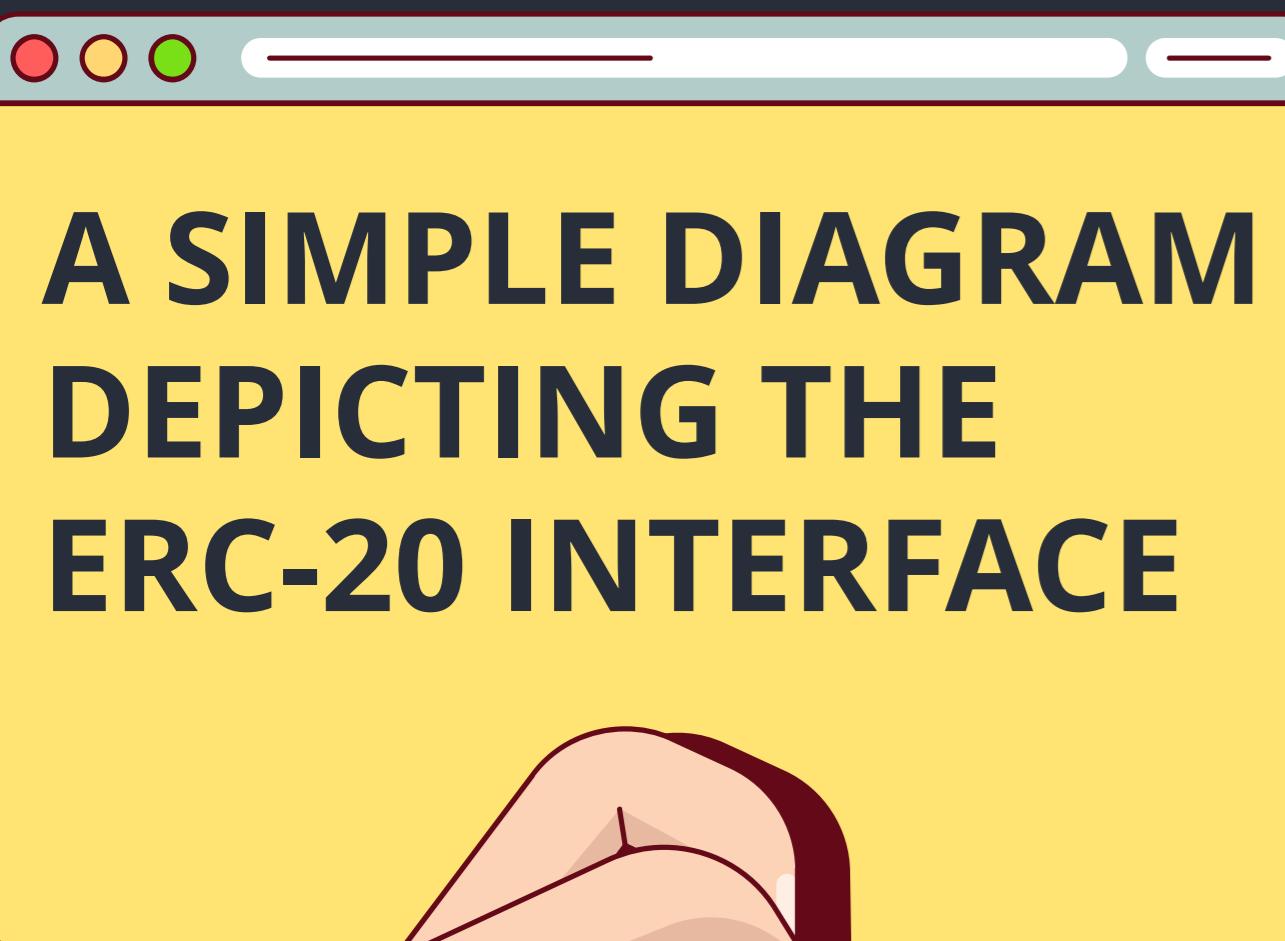
Can be used with any wallets that understand ERC20.

The ERC-20 standard was developed in order to establish a common set of rules for issuing Ethereum-based tokens.

# ERC-20 INTERFACE



```
1 contract ERC20 {  
2  
3     function totalSupply() public view returns (uint256)  
4  
5     function balanceOf(address _owner) public view returns (uint256 balance)  
6  
7     function transfer(address _to, uint256 _value) public returns (bool  
8 success)  
9  
10    function transferFrom(address _from, address _to, uint256 _value) public  
11    returns (bool success)  
12  
13    function approve(address _spender, uint256 _value) public returns (bool  
14 success)  
15  
16    function allowance(address _owner, address _spender) public view returns  
17    (uint256 remaining)  
18  
19    event Transfer(address indexed _from, address indexed _to, uint256 _value)  
20  
21    event Approval(address indexed _owner, address indexed _spender, uint256  
22 _value)  
23  
24 }
```



## Token Tracker

ERC-20

💡 Feature Tip: Track historical data points of any address with the [analytics module](#)!

### ERC-20 Tokens

A total of 238,480 Token Contracts found  
(Sorted by token price in descending order)

First

<

Page 1 of 20

>

Last

#	Token	▼ Price	Change (%)	Volume (24H)	Market Cap ⓘ	Holders
1	 <a href="#">Wrapped BTC (WBTC)</a> Wrapped Bitcoin (WBTC) is an ERC20 token backed 1:1 with Bitcoin. Completely transparent. 100% verifiable. Community led.	\$8,815.9631 1.0081176730 Btc 51.791582 Eth	▲ 3.54%	\$29,530	\$5,497,806	1,537
2	 <a href="#">Paxos Gold (PAXG)</a> PAX Gold (PAXG) tokens each represent one fine troy ounce of an LBMA-certified, London Good Delivery physical gold bar, secured in Brink's vaults.	\$1,593.2478 0.1821901093 Btc 9.359933 Eth	▼ -0.06%	\$431,833	\$14,664,736	675
3	 <a href="#">Maker (MKR)</a> Maker is a Decentralized Autonomous Organization that creates and insures the dai stablecoin on the Ethereum blockchain	\$485.7827 0.0555499322 Btc 2.853852 Eth	▲ 2.83%	\$3,554,305	\$480,265,334	17,384
4	 <a href="#">Mixin (XIN)</a> A TEE powered BFT-DAG network that connects all existing blockchains	\$241.0934 0.0275693692 Btc 1.416364 Eth	▲ 1.48%	\$58,411,282	\$113,978,645	21,902


**Token's Name**

Ropsten Testnet Network

 TokenName
DecenTube Coin ⓘ

Sponsored:  Want to reach our audience? Learn more about placing ethical ads on this site. [Contact Us!](#) ⓘ

**Overview [ERC-20]**
**Total Supply:** 500 DTC ⓘ

**Holders:** 4 addresses

**Transfers:** 23

**Total Supply & No. of holders.**

# Our ERC-20 Token's Information on Etherscan

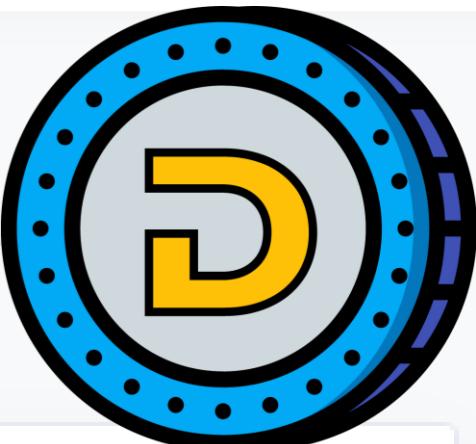
Home

Blockchain ⓘ

Tokens ⓘ

Misc ⓘ

Ropsten

**Token's Smart Contract Address**

**Profile Summary**
**Contract:** 0x6b5f1d286b4e0d2927659b10deb6fce4c25aed79

**Decimals:** 3

**Token's Logo**
[Transfers](#) [Holders](#) [Read Contract](#) [Write Contract](#)
**Recent Transfer Transactions**

A total of 23 transactions found

[First](#) [<](#) [Page 1 of 1](#) [>](#) [Last](#)

Txn Hash	Age	From	To	Quantity
0x70e50f82e289e3d...	41 days 19 hrs ago	0xcb2698186dd2fac...	→ 0xcb2698186dd2fac...	0.001
0x70e50f82e289e3d...	41 days 19 hrs ago	0xcb2698186dd2fac...	→ 0xcb2698186dd2fac...	0.004
0xecb1c2a930c85a...	41 days 19 hrs ago	0x1d54e476bdbce8...	→ 0xcb2698186dd2fac...	0.001
0xecb1c2a930c85a...	41 days 19 hrs ago	0x1d54e476bdbce8...	→ 0xcb2698186dd2fac...	0.004

# WHAT IS AN ICO?

ICO STANDS FOR INITIAL COIN OFFERING.



A stake of the company is sold via a crowdfunding campaign that is open to the public. You can invest in the ICO to receive tokens in return.

## WHAT ARE THE TOKENS USED FOR?



### UTILITY

Tokens can be used as transaction fees or other utility uses



### STORE OF VALUE

Tokens can be used as a store of monetary value



### DIVIDENDS

Tokens can be used as shares to distribute profits



IPFS

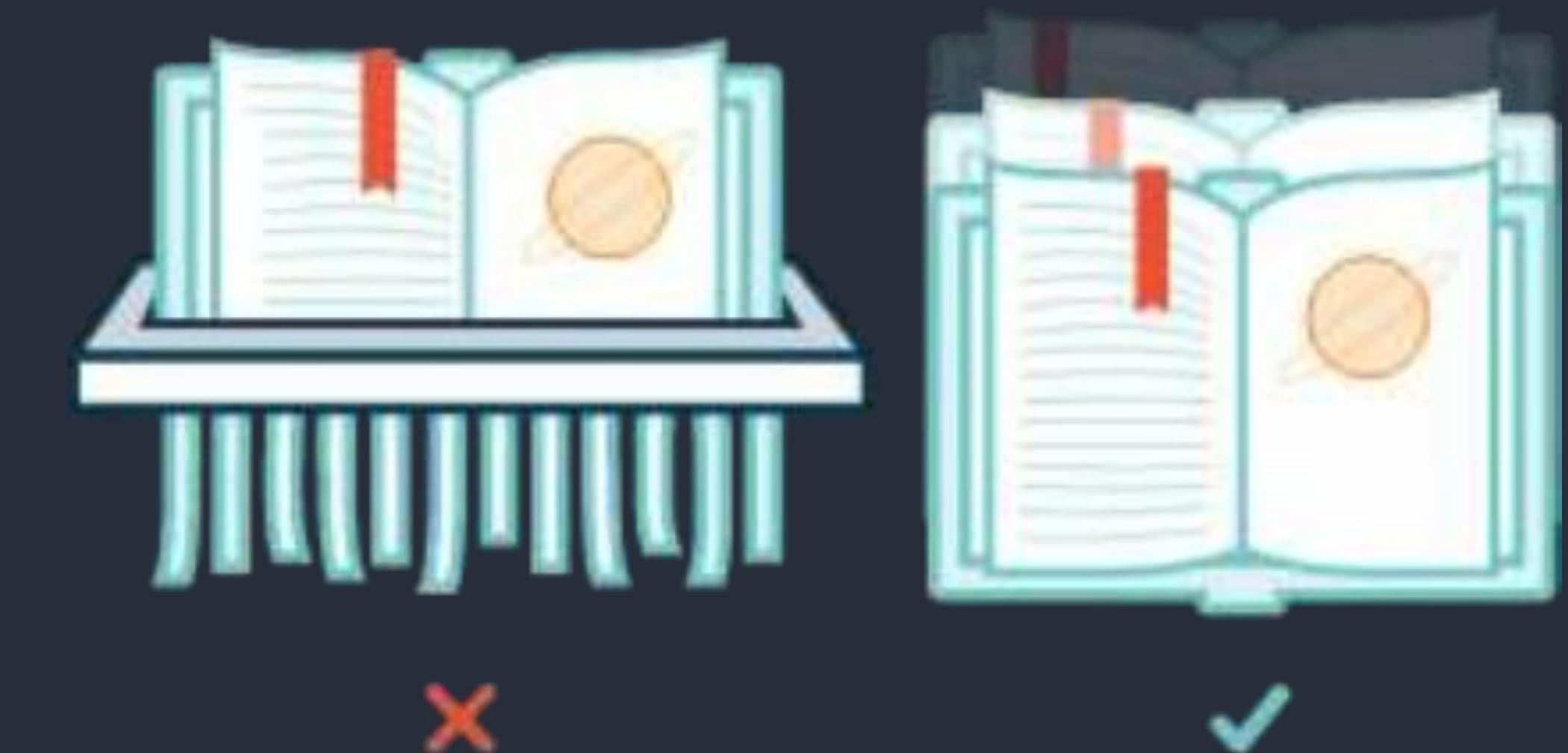
HTTP is inefficient and expensive



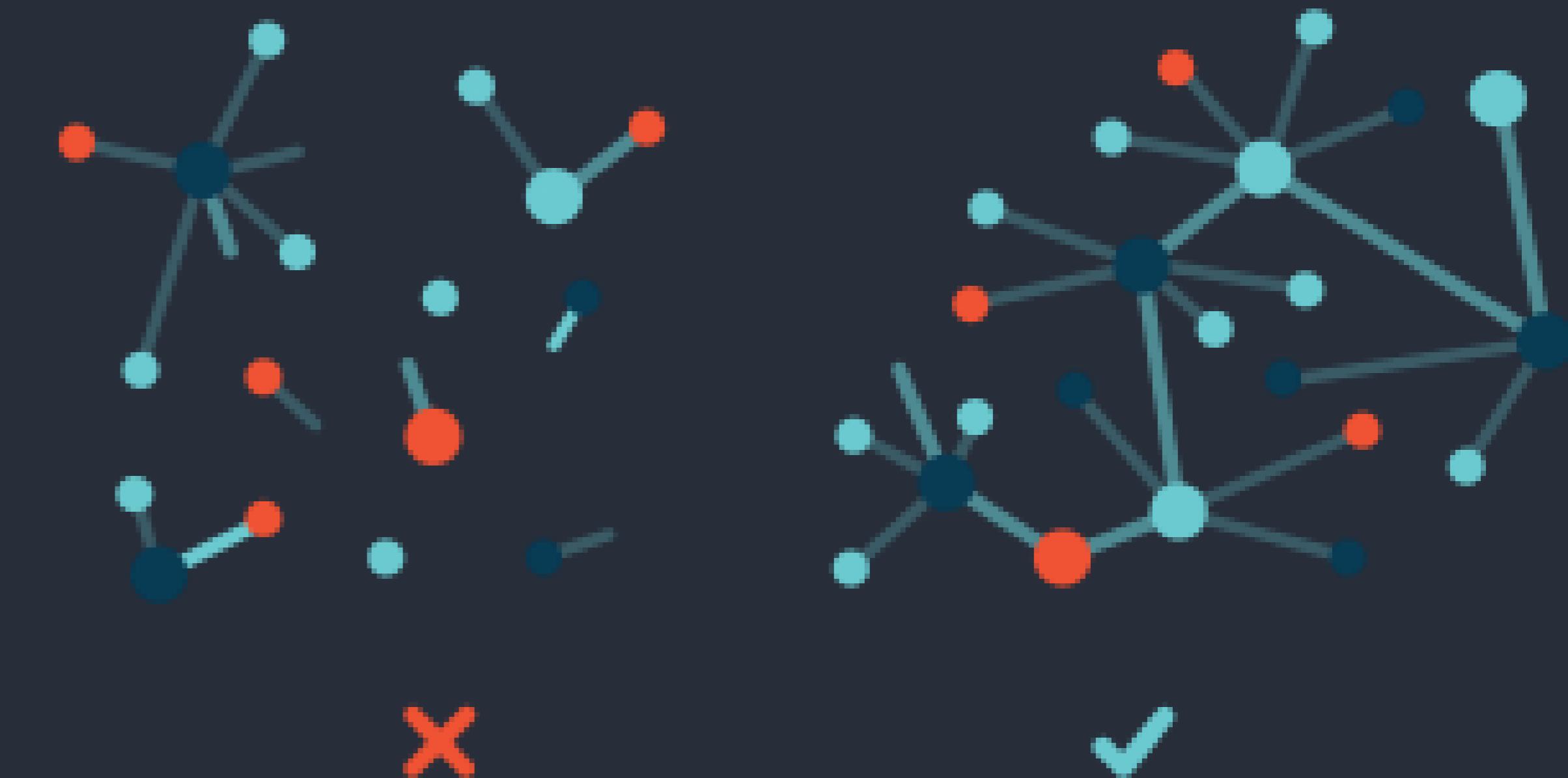
The web's centralization limits opportunity



Humanity's history is deleted daily



Today's web is addicted to the backbone



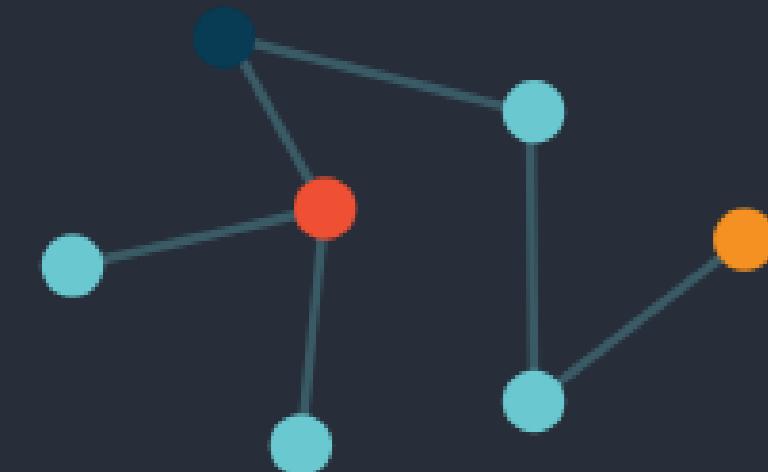
# How IPFS works?



Your file, and all of the blocks within it, is given a unique fingerprint called a cryptographic hash.



IPFS removes duplications across the network.



Each network node stores only content it is interested in, plus some indexing information that helps figure out which node is storing what.



When you look up a file to view or download, you're asking the network to find the nodes that are storing the content behind that file's hash.



You don't need to remember the hash, though — every file can be found by human-readable names using a decentralized naming system called IPNS.



# IPFS Cluster

# IPFS CLUSTER

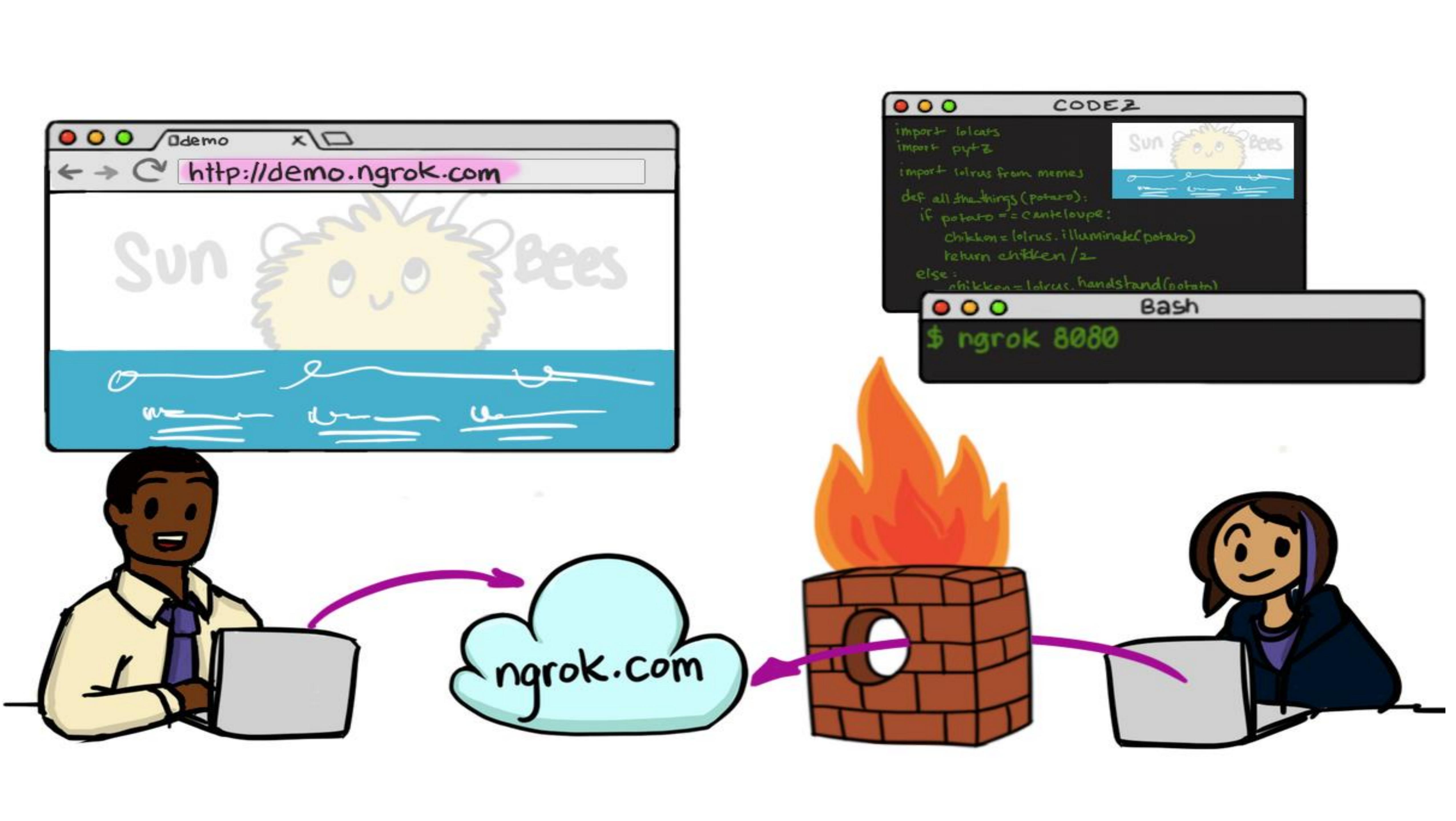


# HOSTING AND JOINING A COLLABORATIVE CLUSTER



# NGROK TUNNELING PROCESS





# FEATURES

## Video Search

This feature provides search results to the user which is sorted wrt views/upload date.

## Quick Preview

This feature provides the user with a gist of the actual video.

## Decentralized Storage

The user can stream the video content from any IPFS Gateway.

## Video Resumption

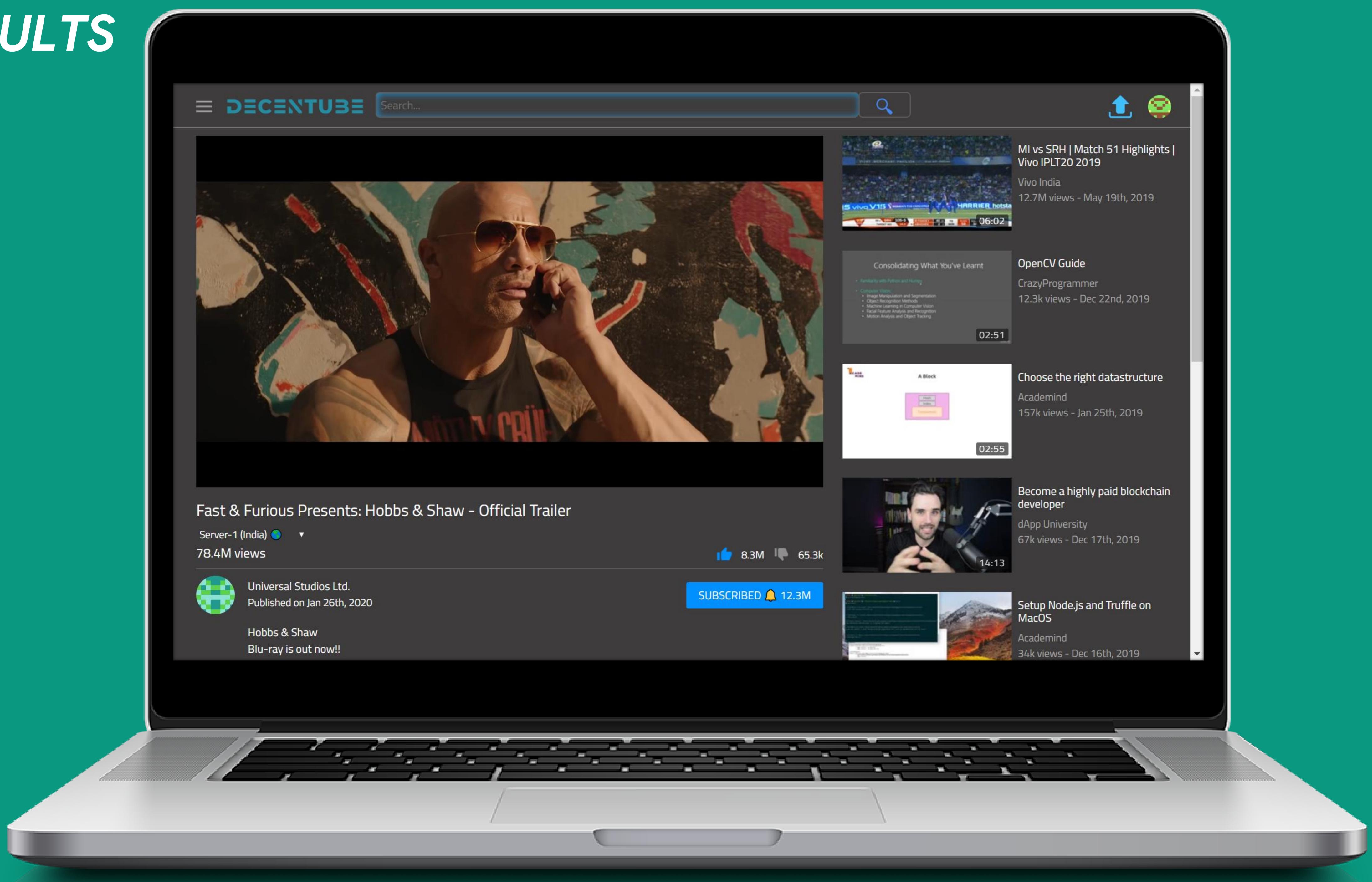
This feature resumes the video from its last playback position

## “Decency & Transparency”

Decent Smart contract which handles payments instantly.



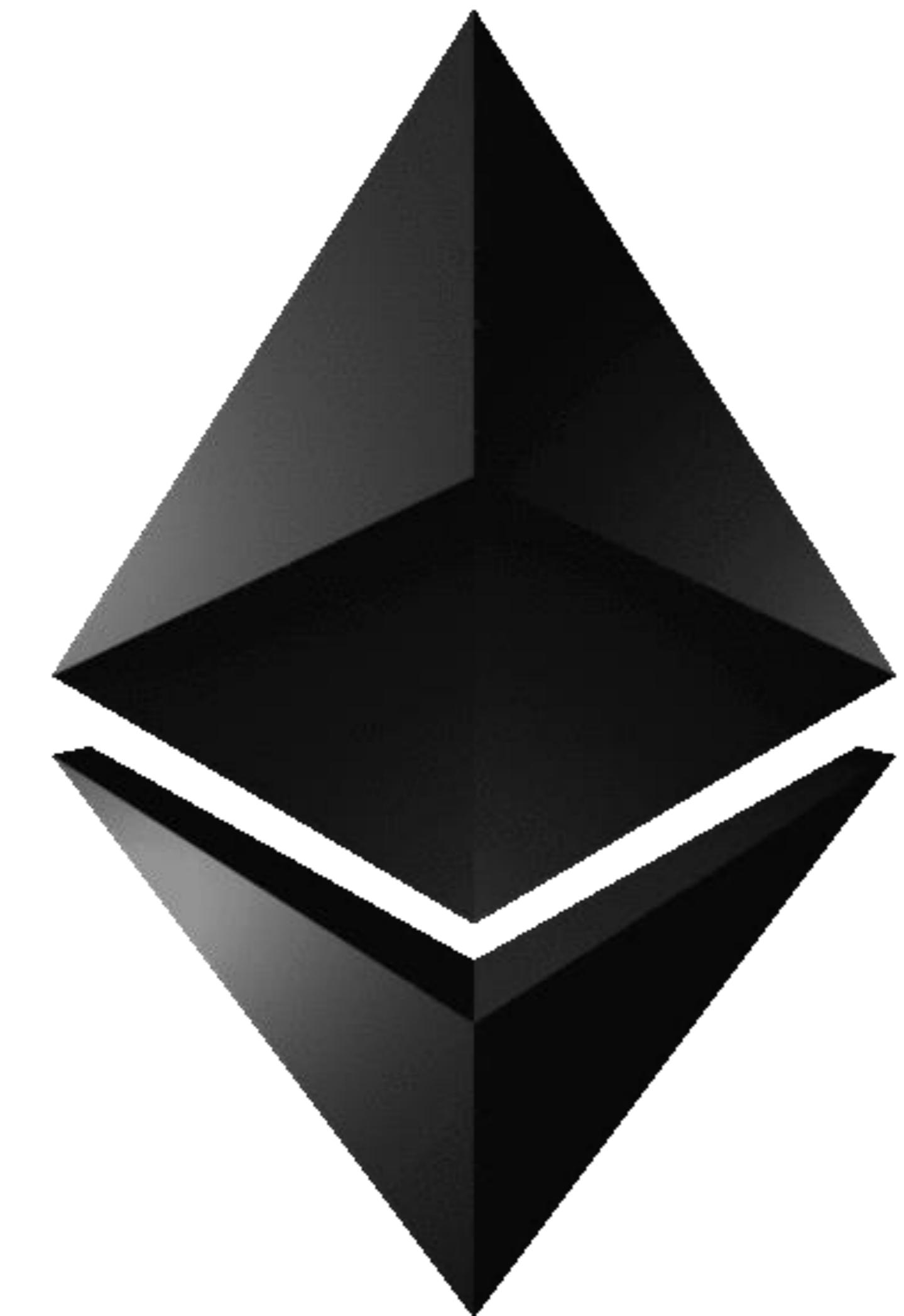
# RESULTS



# FUTURE SCOPE



- ⌚ Real-time live streaming.
- 🔍 Semantic search.
- 🧠 Recommendation system.
- 🌐 Torus API Integration.
- 🔒 Implementation of a DRM system.
- ⌚ Optimization of the video encoding process & loading speed.
- </> Upgrade the web technology stack to MEAN or MERN.
- ▶ Implementation of an in-browser video editor.
- 🔍 Provision to query Ethereum by writing SQL-like queries.



**THANK YOU!**