

# A Novel Tokenomics Architecture for Web3 Community Governance

Talk.Online

November 1, 2023

## Abstract

The present white paper delineates a novel tokenomics architecture aimed at rectifying the prevailing incentive misalignments in Web2 platforms, which predominantly prioritize ad revenue generation at the expense of user ownership and platform governance. By leveraging blockchain technology, this architecture emboldens free speech and user autonomy through smart contracts, ensuring only content owners can modify their contributions. The tri-contract structure proposed herein fosters a community-driven ecosystem akin to a decentralized autonomous organization (DAO), potentially offering a grassroots alternative to traditional corporate and governmental structures.

## 1 Introduction

The burgeoning realm of Web3 proposes a new paradigm where users are at the helm of digital platforms they inhabit. The proposed tokenomics architecture is a stride towards realizing this vision by addressing the Web2 incentive dilemma.

## 2 Tri-Contract Structure

The architecture comprises three intertwined smart contracts: an ERC-20 token contract, an ERC-721 (NFT) contract, and a Forum contract. Inside of the forum, owners of the ERC-20 token can upvote and downvote posts, with their vote power equating to the number of tokens owned. The net score of upvotes and downvotes is kept track of to provide a quantitative measure for the perceived value of a post. Additionally, users of the forum can apply tags to posts, providing a qualitative way for users to classify posts on the forum.

### 2.1 ERC-20 Token Contract

**24 hr time lock:** The ERC-20 contract introduces a token with a 24-hour time-lock feature, enabling token holders to voluntarily lock their own tokens. This enables a security measure for the forum. When owners of the token vote

on a post, their tokens are frozen for the next 24 hours in order to prevent token holders from inflating the number of votes on a post through transferring tokens to multiple addresses to vote on a post repeatedly. Additionally, the 24-hour time lock inhibits activity detrimental to the forum, such as wrongfully upvoting or downvoting posts, to be followed immediately by sale of the tokens by the account responsible. While tokens are locked, users can continue to interact with the forum, however each interaction resets the 24 hour clock.

**Token Supply:** The token supply is determined at the time of minting. Therefore, users of this architecture ought to be wary of how the distribution of tokens is managed. Use of the term DAO to describe an implementation of this architecture could be a misnomer as token allocation may not be decentralized.

## 2.2 ERC-721 (NFT) Contract

**Minting:** Token holders have the prerogative to mint NFTs for use in the forum. The NFT is designed to allow the NFT owner to create permissioned system within the permissionless forum. Each NFT has a unique ID or name that is determined by the minter at the time of minting. As such, no two NFT's can have the exact same name. This name is meant to serve as the point of reference for what the purpose of a given tag is. The utility of NFT's within the forum is meant to parallel hashtags on Twitter or subreddits on Reddit. A post can be classified by users on the forum through tagging the post. Tags have requirements for their use in the forum that are set by the owner of the NFT, which can include a token requirement and/or a fee for use.

**Token Requirement:** An owner of a tag NFT can set a token requirement for use of the tag within the forum. This requirement can be adjusted by the owner of the tag at any time. The purpose of the token requirement is to limit the capabilities of spammers, and to place a premium on ownership of the ERC-20 token. In order to spam a tag with a token requirement, the spammer would need to purchase tokens in addition to the gas fees already being paid. Exclusivity driven by high token requirements for tag use could reward long term holders of the token and drive demand for new users to buy the token.

**Fee and Exemption List:** A tag owner can set a fee in the base currency for use of the tag in the forum. The fee is transferred to the owner of the tag's NFT. However, the tag owner can also designate addresses that are exempted from paying the fee (token owners are automatically exempted from paying fees for their own tags). This further deters nefarious actors from spamming the tag with low quality posts. Additionally, the tag can serve as a way for creators to generate revenue in the base currency on the platform. For example, a tag can be used to manage a paid messaging service for a popular creator or a crowdfunding mechanism for a social cause. Furthermore, any revenue generated could be programmatically distributed according to an additional smart contract as desired by the tag owner. Regardless, how the tag owner uses the funds will be able to be determined based on block explorer data, discouraging negative uses for funds garnered.

**Modifiable Field:** Each tag has a modifiable field that only the owner of

the tag can edit. This field could serve a variety of purposes, including but not limited to HTML code, hyperlinks, and statements of purpose or mission.

## 2.3 Forum Contract

**What is a Post:** A post is the fundamental structure of the forum. Its components are: an author, content, an account of the tags on the post, an account of the replies to the post, an account of which post the given post is replying to, and an account of the upvotes and downvotes on the post.

The Forum contract facilitates community discussions, where the weight of upvotes and downvotes is proportionate to the token holdings of the users, thereby echoing a shareholding structure in the governance of the platform. The net score for upvotes and downvotes can allow the frontend interface and algorithm to determine which content to recommend to users. The voting structure also enables a vote of the community to occur for any purpose. For instance, the community creates a contract whereby the top reply for a given post, as measured by the net scores of all the replies on the post, receives some reward whether it be in the base currency of the network, the ERC-20 token, or some NFT. Further functionality within the forum contract enables posting, tagging, and retrieval of information about posts on the forum.

## 3 Implementation

The architecture described has been implemented utilizing the Solidity programming language on the Ethereum mainnet. However, the gas fees for use of the architecture remain prohibitively high for most users, equating to over \$5 per contract interaction. With the advent of L2's, the economic case for use of these forums has been significantly advanced. An implementation of the architecture on the Arbitrum One network has enabled gas fees as low as \$0.30. Thus, the remaining barriers to success for this architecture are on the frontend side. L2's are generally less popular and well known than Ethereum, and so there remain barriers to entry for the "average Joe".

Additionally, there needs to be an intuitive interface through which users interact with the smart contracts. As the architecture is open-ended, the interface can be whatever the community chooses it to be. As opposed to web2, where companies attempt to keep their data in a walled garden to be used only on a particular website, data in web3 is open and thus there could be multiple websites or decentralized applications (dApps) sourcing data from the same set of contracts. While the blockchain is not meant to store large data types such as videos, the forum enables users to post links to content. The frontend can take links and embed them into an interface, enabling a vast array of capabilities. These include content types not available on most web2 platforms such as 4k images, embedded websites, and video games.

One potential interface for this architecture is reminiscent of interfaces used across multiple web2 platforms: the infinite scroll. People are looking for some-

thing to scroll through indefinitely while they are waiting for a train, in the car, or simply looking for things to do. Ideally this interface is a website interface as websites are widely accessible on most every device. An image of an implementation of this concept is below.

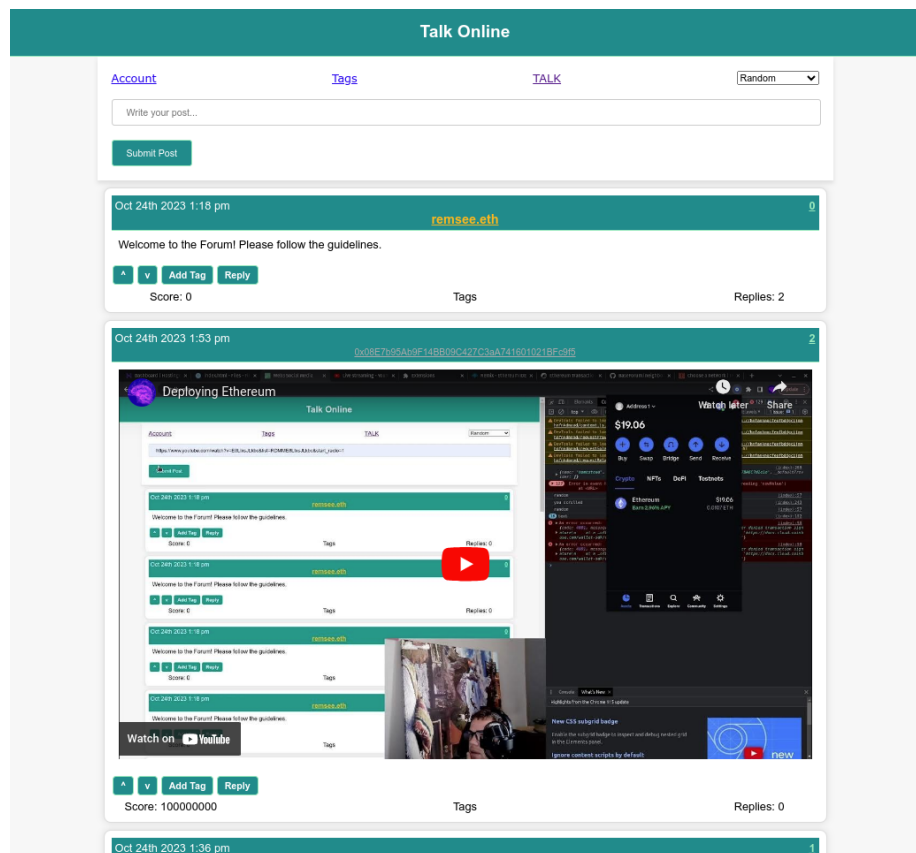


Figure 1: A webpage with a header, links, a way to choose the algorithm with which to load the content, a way to submit posts, and a feed of posts, one being a text post and the other an embedded Youtube video, both including interaction through which to upvote, downvote, tag, or reply

Alternatives to this interface could include a calendar system so that users would post events for the community, or Wikipedia style information pages.

## 4 Conclusion and Personal Motivation

I began my web development career hoping I could create a website that would enable a higher quality education for people around the world. Specifically to make students better at math I created a browser based voice enabled math

problem solving system where the speed to solve each problem was measured. In addition to fast drilling for students learning math, the data garnered could be used to determine what a student's strengths and weaknesses are, which could then be used to guide the student's curriculum. The first problem I ran into is that education curriculum is determined from on high rather than by the individual teachers and students. School systems are not known for their adaptability to new technologies. Additionally, I found myself running into the fundamental problems with web2. I wanted the project to be open source so that others could develop their own educational applications. Additionally, if I was to market to parents as a tutoring service, my interests would be opposed to the parties the software was intended to help. I would be charging for education services, when my original mission was to create a quality, free education system. I realised there needed to be an alternative. The web3 space offered the alternative but it wasn't crystallized. I would be told to join a DAO and then it was just a Discord full of bots. I realized the importance of web3 native communities and the value ownership can provide in encouraging users of the forum to participate in positive ways. I believe that this architecture is a step toward a better education system, in addition to overall better online social interaction. In the future forums and DAO's will take note of your credentials, including those related to how mathematically proficient you may or may not be.

- REMSee.eth