Musing Protocol

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Abstract

This paper provides a high-level overview of the first release of the Musing protocol. It covers the philosophical motivations as well as the design and technical aspects that allow it to function and prosper.

Musing is a decentralized question and answer protocol that enables users to own the knowledge they share and to earn maximal rewards for it. Centralized Q&A platforms are problematic because they own all user content. The users of these platforms lack control and are unable to reap the full rewards of the knowledge they share. This problem manifests itself not just in theory but also in practice, which one can observe by the fact that Q&A platforms today hardly reward any of their content creators, even with those users bringing in hundreds of millions of views. A decentralized Q&A protocol would enable the user to effectively own his or her content due to the fact that content and data are hosted by a network of nodes and not just by one centralized agency.

1. Introduction

Musing provides an infrastructure that supports a shared Q&A platform where users can post questions and answers and earn tokens as a form of mining. Where Bitcoin decentralizes currency, Musing decentralizes knowledge. By using a blockchain to store user-generated content, a user's content effectively belongs to him- or herself. The blockchain can then determine how much users should be rewarded. In addition to question and answer content, Musing also allows for links to be shared. While our primary mission is to decentralize knowledge, we will also create a thriving community for the crypto and blockchain world where people can learn and stay up to date on what's going on.

In the last few decades, we have seen the growth of large centralized internet companies such as Facebook, Reddit, and Quora, amongst others. These platforms have provided a way for users to seamlessly and easily create content and to share it with the rest of the world. With the advent of these platforms, people no longer had to code and design their own websites or register domain names just to share something. Moreover, these platforms provided a way for users to connect and to communicate with each other. As mentioned, a majority of the revenue these companies generate comes from the content that users post, and yet those same users, by very large majority, receive nothing in return. We believe that there will be a new wave of social applications on the web. Unlike today's existing social applications, which automate the process of sharing some content with the world, these new decentralized applications will automate the process and steps of owning the content that users create.

With the development of blockchain technology, people have begun to recognize that the potential to own your own content and data exists. The main benefit of owning said data (or content) is that a person will have full control over it. Ultimately, what that means is that he or she can extract the maximum amount of value from it. On the web, knowledge is one of the most fundamental assets that exists. It even stands to reason that the internet exists fundamentally as a way for individuals to share information and knowledge. A need exists for a decentralized question and answer platform where users who share their knowledge can be seen as miners and will earn newly minted tokens when they create value. Users also enjoy other benefits due to decentralization, which include greater permanence and reliability of their content (not having to worry about ever losing it), censorship resistance, as well as greater security (being hacker-proof).

1.1 Blockchain Usage

Musing will be run on an established and secure chain. Potential options include Ethereum (Polygon), Binance Smart Chain, Solana, and more. In the past, other user-generated content dApps, the most notable being Steem, have required their own delegated proof-of-stake blockchains to store content. This is because they store not only user content but also upvotes and downvotes (to distribute tokens to content creators), and therefore have massive TPS requirements. Musing is unique because it works in a way where it can exist on established chains. It does this by rewarding content creators based on other users staking their tokens on them rather than by indi-

vidual upvotes. Thus, Musing requires far less transactions due to not having to store upvotes. The mechanism for rewarding users will be discussed in greater detail below.

1.2 Earning Tokens

In Bitcoin, miners are of course the individuals who provide servers for processing transactions. But in Musing, the content creators are the miners, and by creating good content, these users will earn tokens. In doing this, we create a type of decentralized system that powers itself with the incentives given to individuals who share knowledge. What makes Musing unique from social dApps in the past, such as the Steem blockchain, is how it rewards content creators. Prior applications like Steem reward users by rewarding their individual posts whenever those posts receive upvotes. But in user-generated content apps in general, the highest number of requests come from upvotes. For example, in Reddit, the ratio of upvotes to comments is about 10 to 1. What this means is that there are drastically high TPS requirements for social dApps due to needing to store upvotes on the blockchain. What we propose in Musing is, essentially, a staking mechanism to reward users. Users with any amount of stake have the ability to select a user or group of users who they wish to be rewarded by the system with newly minted coins. Every day, there is a given reward pool of new tokens. The more of these staked votes a content creator has on his account, the larger his or her share of the reward pool is. Additionally, the users who stake their coins will also earn a portion of rewards from the reward pool.

In order to do this, users need a way to know which content creators are actually contributing to the community and adding value. In general, since users will of course see other users' posts when they use the dApp, they will have an idea of who is producing good content. But we will also encourage frontend applications to show stats, like the number of views a user has generated. This will give stakers an idea of which users are bringing actual views in to the platform. On https://musing.io, there will be a leaderboard that ranks users based on the amount of views they've brought to the website. This will make it easier for users with stake to decide who they want to be rewarded.

One problem that exists is ensuring that users with stake are rewarding actual content creators and not just their friends. To combat this, we propose a simple system whereby users can keep each other in check by allowing them to place a flag on a user if they feel he is using his stake unfairly. Each time a user is flagged, his "voting power" (the amount of tokens that get minted through his stake) decreases. Thus, if a

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user is flagged by enough users for using his stake unfairly, his stake will no longer have an effect on the distribution of tokens.

1.3 Revenue Model

Musing will monetize through advertising. In the advertising model, brands/ companies purchase ad placements with Musing tokens. Because they are required to pay for ads with Musing tokens, demand for the token goes up, which increases the price for all existing stakeholders.

The implementation for decentralized advertising is fairly simple. The main idea is that any brand that wants to advertise on Musing will need to purchase Musing tokens in order to receive ad placements. They will then make a transaction on-chain that locks up a certain amount of tokens they want to spend for their advertising campaign. Since there may be many different frontends to the Musing protocol, brands can specify which frontends, or rather domain names, they would like to allow to advertise for their ad campaign. At a periodic interval (1-5 times a day), the frontends will send requests to the blockchain to record that they have shown ads for various brands at certain amounts. When this occurs, the smart contracts will take some tokens from the brands' locked up tokens and put them back into the system's total supply, ready to be redistributed to content creators. Additionally, the frontends that ran these ads will earn a portion of these tokens.

In essence, what happens is that because brands are purchasing Musing tokens to run ads, the price of the token goes up. And when they run their ads, those tokens get sent back to the blockchain's total supply to be distributed to content creators again later. Stakeholders benefit because of the increase in price of the token. Additionally, as the price of Musing increases, so too will the amount of content that gets created, due to content rewards being higher. And as more content gets created, more advertisers will be interested, which restarts the loop all over again.

Frontends to the Musing Protocol have an incentive to report truthful view counts because there will always be other options for frontends that users and brands can use. Therefore, the best frontends will always be selected for advertising and for general usage.

2. Architecture

The main goals of the Musing Protocol are the following:

1. Store Q&A and shared links content on a decentralized system.
2. Allow users to stake their tokens to good content creators.
3. Distribute tokens to the content creators.
4. Allow brands to advertise.

These goals will be achieved with the following basic technical components:

1. A decentralized file storage system
2. A set of smart contracts (the Musing Protocol)
3. Frontend Q&A apps that communicate with the protocol

2.1 Storage Layer

The main goal for Musing is to create a decentralized system where knowledge can be shared. In order to store the actual content, we will require a decentralized file storage system. We propose to use a system such as IPFS (InterPlanetary File System) to handle storage. Users can interact with a frontend, such as https://musing.io, and any questions or answers they post will be sent directly to IPFS for storage. A hash will be returned from IPFS, and that hash will then be stored on the blockchain.

2.2 Blockhain Layer

The blockchain layer will be responsible for several activities. As mentioned, content from the storage layer is stored as a hash on the blockchain. The purpose of storing the hashed content on-chain is that it associates a piece of content/knowledge with a particular user, since users will sign their content with their private keys. Staking activity for rewarding users is also stored on-chain. When a user decides to stake for a content creator, the recorded amount of staked tokens is recorded on-chain as well as the target user's public key. At a chosen interval (likely once a day), a job will run that looks at all the staked votes and calculates how much each content creator earns from the reward pool. The formula for this is simple - it simply creates a fraction for each user by looking at the tokens staked toward him or her divided by the total number of staked tokens.

Lastly, the smart contracts will also store advertising campaigns for brands/companies that want to advertise on Musing. This information will generally consist of the amount of total Musing tokens they want to spend on advertising, the amount of tokens spent to date on advertising for the campaign, the product or advertisement

they want to advertise, and the frontends/applications that the brand wants to allow to advertise for them.

2.3 Frontend App Layer

The final layer of Musing is the frontend layer. These are the web or mobile applications that interface with the smart contracts (Musing Protocol). This layer is fairly straightforward. The important aspect to this layer is that the applications allow users to send requests directly to the smart contracts, and therefore, the servers that are owned by these frontends never see any private keys. A tool like Metamask will be used to handle logins. Note that since Musing is decentralized, the data on the blockchain is public, and therefore, anyone can create their own frontend to interface with Musing.

3. Performance and Scalability

According to statistics online (https://expandedramblings.com/index.php/reddit-stats), Reddit in 2015 was generating approximately 23 comments per second. More interestingly, there was an average of 220 upvotes per second. As mentioned earlier, the amount of requests/transactions for upvotes is nearly 10x that of the comments. This highlights the importance of Musing's staking approach toward content rewards. By not needing to store upvotes on the blockchain, we can achieve one-tenth the request/transaction load. This is what enables Musing to exist on established and secure chains like Ethereum, Binance Smart Chain, and Solana. 23 comments (transactions) per second would be feasible (in terms of total transaction cost) on one of the aforementioned chains. Additionally, as the industry progresses, we can likely expect transaction costs to continue to decrease and for the scalability problem to be solved in increasingly better ways.

The importance of Musing being able to scale on an established chain cannot be understated. Not only will it allow for optimal security, it will also enable the Musing token to be compatible with exchanges (both centralized and decentralized). Furthermore, the integration on one of these platforms will also allow the product to tap into an entire ecosystem of dapps. Lastly, it will allow Musing as a project to benefit from the network effects of being on a thriving platform.

4. Economics

The Musing Protocol has its own native token, which is referred to as Musing, that serves several functions in the system. As mentioned, these tokens are minted as a reward to content creators who ask and answer questions. And as also mentioned, users can stake these tokens upon content creators who will then earn a larger share of the reward pool every day. Users will also be able to use the token for governance and voting on changes to the protocol.

Musing tokens will be purchasable on both centralized and decentralized exchanges. At the current time, Musing is doing an initial listing on Mint Club (https://mint.club). The tokens purchased on Mint Club are wrapped tokens which will be able to be swapped to tokens on the mainnet in the future. Mint Club is a new decentralized exchange where you can purchase tokens, which are referred to as "smart tokens", based on a price-bonding curve. The total supply of wrapped Musing on Mint Club is 500k tokens. The total supply of the mainnet tokens will be 20mm tokens. The swap rate will be 1:1. Thus, if you own 10k wrapped Musing tokens, you will be able to swap that for 10k Musing tokens on the mainnet.

The Musing token will have the following initial distribution:

- 60% Platform
- 20% Exchange Offering
- 10% Team
- 5% Marketing
- 3% Private Sales
- 2% Seed Round

Platform tokens will be used for the reward pools in which new tokens are minted and distributed to content creators. Team tokens will be locked for 2 years. Marketing tokens will be used for a long-term plan of up to 10 years.

5. Project Development

To date, Musing as a project has accumulated over 100,000 questions and answers. It first began as a dApp on the Steem blockchain and now exists as a testnet, which has a delegated proof-of-stake model, the code for which people can find on Github. As mentioned in this paper, Musing will of course be migrating to an established chain like Ethereum or Binance Smart Chain. The accomplishments to date

serve as proof of not just the reception of the idea but also the capability of the team. You can use Musing today on the testnet at https://musing.io. When the smart contracts are built on the new chain, it will be a fairly simple set of changes to integrate the new chain with the current web application.

The future for Musing can currently be broken up into three phases - launch, adoption, and scaling. Each phase a series of steps, which are listed below.

Phase 1) Launch

Step 1) Pre-sales and Development

Step 2) Testnet Launch and Marketing

Step 3) Launchpad ICO and Exchange Listings

Step 4) Mainnet Launch

Phase 2) Adoption

Step 5) Writer Onboarding

Step 6) Partnerships

Step 7) Mobile App

Step 8) SEO (Search Engine Optimization)

Phase 3) Scaling

Step 10) Monetization

Step 11) More Exchange Listings

Step 12) Musing DeFi

Step 13) Other Language Support

6. Summary

Musing is a decentralized question and answer protocol that enables people to easily share their knowledge, have ownership over it, and get rewarded with tokens. The protocol allows companies to run advertising campaigns by paying the system with Musing tokens. This creates demand and drives the price of the token up, facili-

tating further content creation. The resulting product is the decentralization of knowledge on the internet.