U°OS

Blockchain Protocol with Reputation System

Built to be the standard for evaluation of trustworthiness on the web.

Table of Contents

Introduction 3

Problem Statement 3

Solution 4

- Value Proposition

Technology 5

- Social Transactions
- Delegated Proof of Importance
- Botnet Activity Prevention

Tokenomics 7

- UOS Token Model and Resource Usage
- Dynamic Emission

Use Cases 9

- U°Community
  - Making Offers
  - Interacting Within Communities
  - Creating Content
  - Network Governance
- Integration Into Applications And Services
  - E-Commerce
  - Social Media
  - Corporate Reputation
  - Community Governance

UOS Token Distribution 12

Roadmap 14

Links 15

References 15

Introduction

In the emerging decentralized and pseudonymous environment, there is a need for coordinates to assess the trustworthiness of those to deal with. U°OS is a universal reputation system constituting an open-source blockchain protocol. U°OS was created to be the standard for evaluation of reputation on the emerging decentralized web.

Problem Statement

Reputation is the Missing Piece to the Trustworthy Web

Existing cryptocurrencies are used by the decentralized environment for maintaining economic relationships. However, our reputation on the web also has an economic capacity. Until now, this capacity could not be fully revealed as there were no coordinates to quickly, effortlessly and comprehensively assess the trustworthiness of those to deal with across multiple online platforms.

The absence of a universal and distributed reputation system makes the decision-making process slow and costly.

According to the study by Lene Pettersen, peer-to-peer platforms' users consider rating score as the most important factor of making decisions on whether they would deal with strangers. However, the study also found that platforms control and change rating categories with subsequent consequences. Thus, existing evaluation systems are not fully reliable and not transparent.

Solution

The U°OS reputation system scores digital entities based on the network's feedback.

Following 1.5 years of research and development, the U°OS team introduces a new technology — an open-source blockchain protocol that translates social and economic actions into reputation. U°OS brings the reputation system to the peer-to-peer environment without violating its decentralized and privacy-friendly nature.

Value Proposition

Velocity and Cost Efficiency for Economic Interactions Online

U°OS reputation system can be effortlessly integrated with any service or application such as payment systems, value exchange services, social platforms, etc. U°OS integration augments user experience with competitive gameplay elements by revealing the reputation of digital entities.

The key characteristics of the U°OS reputation system are:

- **Portability** — the system is integrable into any other existing application via robust API and OAuth.
- **Multi-Contextuality** — it is sufficiently flexible to be adjusted to a specific context.
- **Transparency** — the blockchain-recorded data allows tracing causal links, which creates a holistic picture and increases trust to a digital entity;
- **Distributed nature** — algorithmic operation on the public ledger without belonging to any centralized authority.
- **User ownership** — reputation is inseparable from a user account. Control over both belongs solely to a user by means of a private key.
- **Privacy-friendliness** — users are not required to reveal their identity to use the system.
- **Resiliency** — the protocol is immutable and censorship-resistant.

Technology

U°OS network protocol is based on EOSIO open source code. U°OS inherits its key features:

- Zero-fee transactions
- Account system
- WebAssembly support
- Smart contracts execution
- Currencies and tokens support

and takes it a step further with:

- Social Transactions
- DPoI Consensus Algorithm
- Dynamic Emission Algorithm

Social Transactions

U°OS introduces a new type of blockchain transactions — social. The social transaction is a reaction of network participants on each other's activity recorded in a public distributed ledger. In addition to account balance and its financial transactions, U°OS also operates with social interaction, which creates a more holistic portrait of our digital identity owned to us on the sovereign rights.

The U°Community dApp uses this type of transactions to upvote, downvote, publish content and follow or trust users — this is just one of the countless potential use cases for social transactions.

Social transactions along with economic ones are used to determine Importance° of each account by calculator nodes - the community-owned nodes that perform importance° score calculation and distribute the resulting scores back to the network.

Delegated Proof of Importance

You Enrich the Network, the Network Enriches You

DPoI consensus algorithm integrates the concepts of EOSIO DPoS with the idea that social interactions naturally generate economic activity between individuals or organizations. The consensus is achieved with the help of delegates. Delegates are elected by the network participants based on the Importance° of each voter.

Importance° (and thus, influence) of a digital entity for a network is achieved by the value they produce for others along with the amount of their stake.

Importance° is calculated using the following formula:

$$ri = (1-\omega a - \omega s)vi + \omega a \pi i + \omega s \sigma i$$

where vi is the stake volume index, πi is the financial activity index, σi is the social network activity index, and ωa and ωs are the weight coefficients, that determine the relative significance of each component of the user activity.

Thus, unlike PoW, PoS and DPoS approaches, DPoI ensures a bigger influence over the network to those who have earned approval by the community.

A more detailed explanation of the Importance° calculation can be found in section 2.1 of U°OS Yellow Paper.

Botnet Activity Prevention

The network uses the NCDAwareRank algorithm that takes into consideration the level of integration of the account in the general network, helping to protect the system from the botnet attacks. System of trusts, distributed by the users of the network, also augments the algorithm to prevent activity imitation.

A more detailed explanation of the U°OS vulnerability resistance can be found in section 2.3 of U°OS Yellow Paper.

Tokenomics

UOS Token Model and Resource Usage

PLEASE NOTE: CRYPTOGRAPHIC TOKENS REFERRED TO IN THIS WHITE PAPER REFER TO CRYPTOGRAPHIC TOKENS ON A LAUNCHED BLOCKCHAIN THAT ADOPTS THE U°OS SOFTWARE. THEY DO NOT REFER TO THE ERC-20 COMPATIBLE TOKENS BEING DISTRIBUTED ON THE ETHEREUM BLOCKCHAIN IN CONNECTION WITH THE UOS TOKEN DISTRIBUTION.

UOS tokens constitute the core of U°OS crypto economy. They are used in the system in several ways:

- To allocate CPU and bandwidth resources, using staked token amounts. Only core UOS tokens can be used for CPU and bandwidth resource allocation.
- To purchase other resources, such as RAM and storage space, and perform other forms of financial transfers via smart contracts using unstaked tokens.
- To vote for Block Producers and calculator nodes. The amount of staked tokens, owned by the account, contributes to the user's Importance° during the voting process.
- To increase the importance° score and receive the dynamic emission. Amount of tokens staked by the account directly influences the Importance° received by the user and the amount of dynamic emission.

Thus, staked core tokens are used for the resource allocation and play an important part in emission and importance° calculation, while unstaked tokens can be used in direct transfers.

Dynamic Emission

The Algorithm Supports the Network Growth

Dynamic emission is introduced to provide additional liquidity during network growth. Emission amount at launch constitutes one billion of protocol tokens, distributed to the original network accounts to start the protocol.

The U°OS project implements adaptive emission. The emission volume is calculated regularly, in a certain time interval, $t_o; t_1; \ldots t_i$, where $t_{i+1} = t_i + T$. The volume of emission depends on the network activity growth in the preceding time period T. The indicator called Network Importance (NI) describes the total volume of social and economic transactions among network participants and is used as a trigger for additional emission. The emission takes place every time NI reaches its all-time maximum. Newly issued tokens are distributed among network participants according to their Importance° rate.

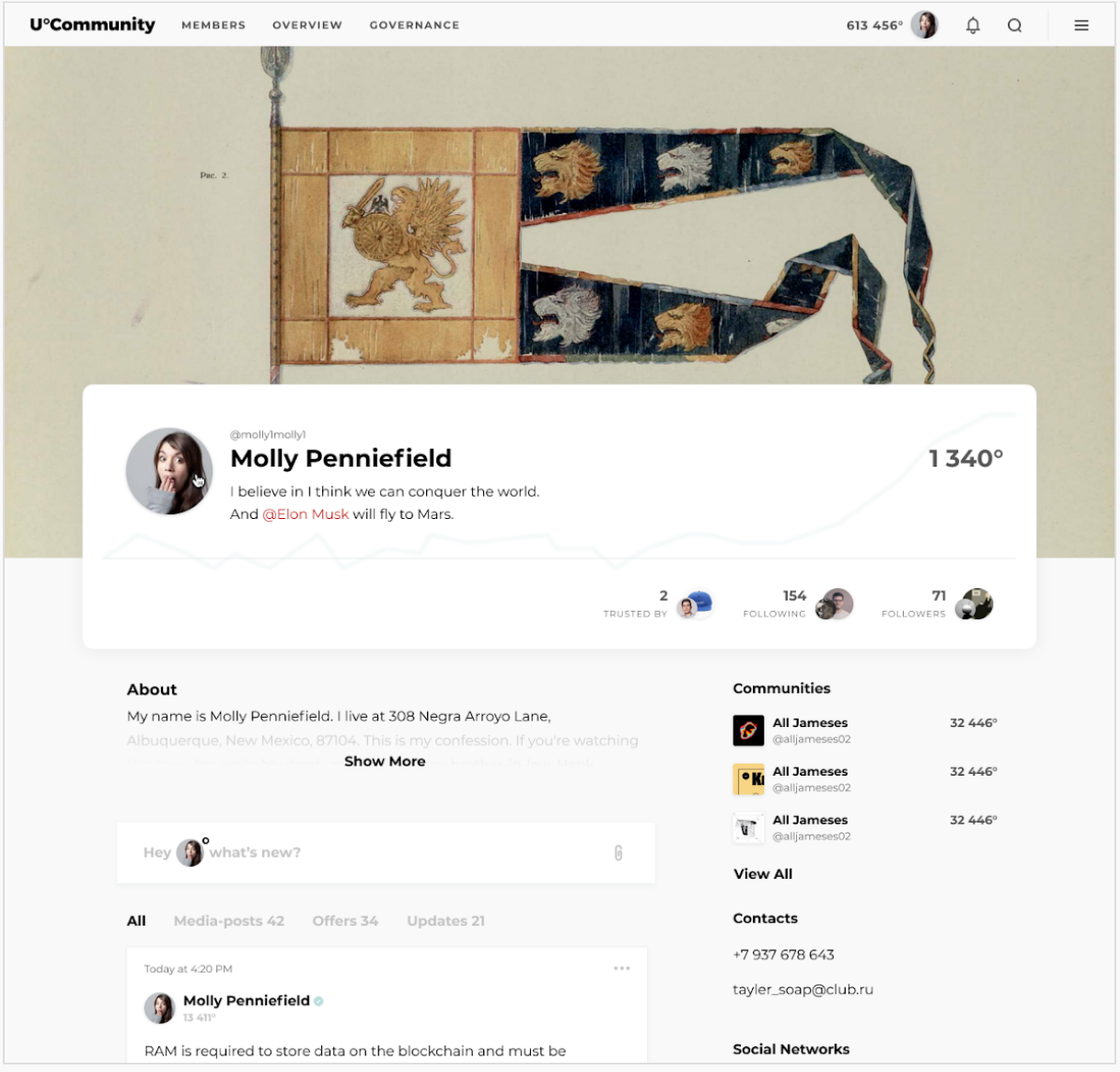
Dynamic emission allocated to users for their social and financial activities motivates the users to participate in the network development, thus, helping to achieve the overall network growth.

A more detailed explanation of the network activity calculation and emission value calculation can be found in U°OS Yellow Paper in sections 3.2 and 3.3 respectively.

Use Cases

U°Community

U°Community is the first dApp and a user-friendly interface for U°OS blockchain launched in Oct. 2018. It allows users to interact with each other, make offers, publish content, create and govern communities/organizations, powered by the U°OS reputation system.



Making Offers

U°Community allows its users to make offers to one another — a public piece of content with a call to action. Offers' visual design is freely customizable, it may contain text, pictures, links, countdown or anything else depending on a purpose. The purpose of an offer could be asking for a donate, advertising, event invitation, direct selling, etc. Reputation system enables quick verification of trustworthiness of the offer's creator, which accelerates the process of decision-making for offer receivers.
An example of the existing offer

Interacting Within Communities

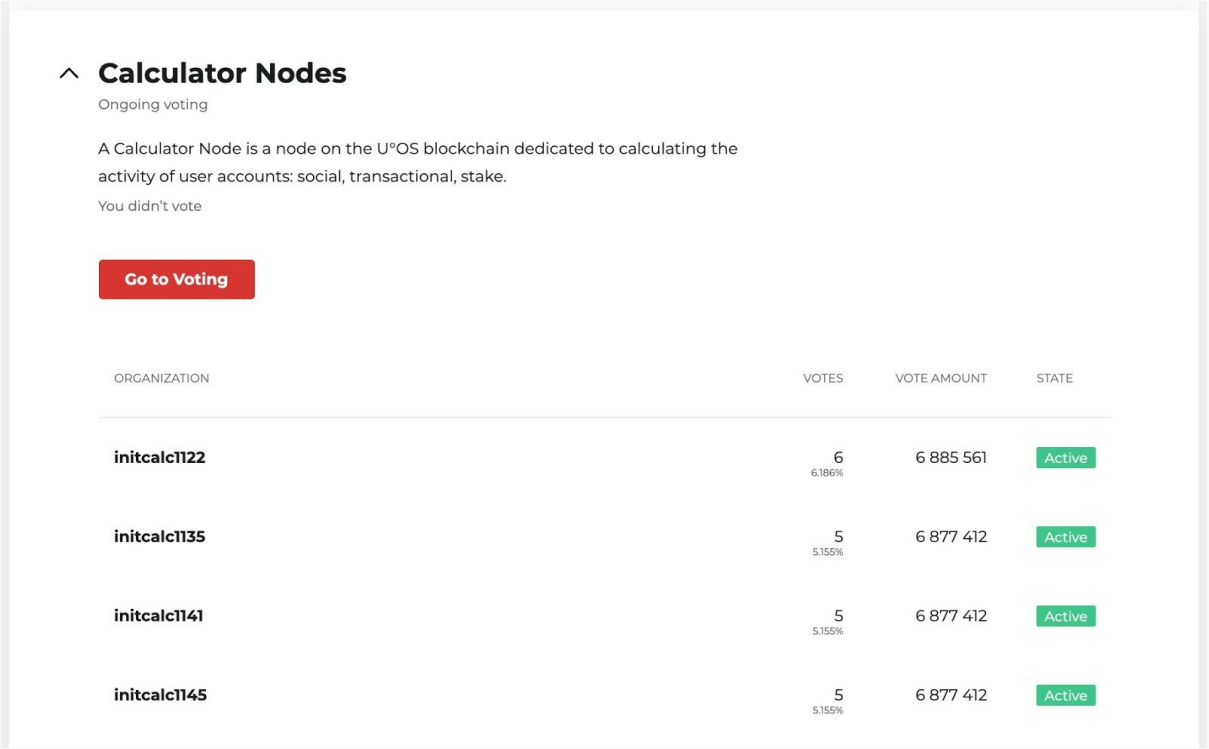
U°Community enables people to get into autonomous communities, initiate discussions or share ideas on the subject the community is devoted to. Users are free to organize the community's hierarchical structure and govern it by themselves. Besides the general reputation rate, community members are ranked at their reputation within the community that displays their competence on the subject.
An example of the existing community

Creating Content

Any content created by U°Community users is public and can be evaluated by other users. It may be a short post on a user profile, a comment to someone's content or a big publication. The reputation rate of content consumers who react to it directly influences the rate of content and reputation of its creators. This supports the level of content quality on the platform and creates an opportunity to get a reward for valuable content by means of receiving dynamic emission or asking for a donation.
An example of the existing publication

Network Governance

U°Community has the functionality to govern the U°OS protocol by voting for Block Producers and Calculator Nodes with user's importance°.



Integration Into Applications And Services

U°OS can be integrated into any digital network, application or service.

E-Commerce

According to the BrightLocal study, 91% of 18-34-year-olds trust online customer reviews as much as personal recommendations. Among the factors influencing their buying decisions, 30% pointed out the authenticity of reviews. U°OS provides peer-to-peer market participants with a distributed reputation system that minimizes the risk of cheating through fake reviews' posting as it is sufficiently transparent to trace the reputation of a review's creator and their past activity across multiple platforms.

Social Media

U°OS reputation system introduces the competitive gameplay elements to the user experience on social networking platforms by revealing the reputation of its

members. User's reputation on a platform constantly changes depending on the feedback from others. The reputation determines the weight of their actions on the platform. Competition for influence increases user retention, engagement, and LTV.

Corporate Reputation

According to the research by Ipsos, 87% of consumers around the globe take the reputation of the company into account when purchasing a product or service. According to the research, building a good reputation generates greater marketing efficiency for companies. Currently, U°OS team is working on the reputation system's implementation to the corporate sector.

Community Governance

U°OS provides a toolset for governing communities that can be also applied to smart or private cities' infrastructure. The Voting Power can be set up in a community's smart contract and can be based on reputation rate. The governance is carried out by means of electing delegates and direct voting for any proposals: transactions on behalf of community, initiatives, changes or improvements.

UOS Token Distribution

Total Circulating Supply:

1 000 000 000 UOS

Seed Round — 100M UOS

Private Round — 200M UOS

IEO — 100M UOS

Community Distribution — 200M UOS

Advisory, Block Producers, Ambassadors — 100M UOS,

Community Development — 100M UOS,

Distributed Community Foundation — 100M UOS

Team — 100M UOS

Roadmap

Q3 2017 – Q2 2018

- DPoI Research Phase
- Transaction Activity Index Algorithm Research
- Dynamic Emission/Inflation Algorithm Research
- Social Layer Representation on the Blockchain Research

Q3 2018

- Social Transaction Type Implementation
- Importance° Algorithm Research
- Importance°-Based Dynamic Emission Algorithm v. 2.0
- Social Activity Index Algorithm Research
- Activity Calculator Nodes

Q4 2018

- Public Code Release
- Importance° Algorithm Implementation
- Public Testnet Launch
- Dynamic Emission Algorithm Implementation
- Importance° Voting for Block Producers

Q1 2019

- Improvement Proposal System
- Activity Calculator Node Candidates

Q2 2019

- Distributed Trust/ID System
- EOSIO Storage
- U°OS Wallet
- Block Explorer

Q3 2019

- **Account Profile Storage on Blockchain**
- **Content Storage on Blockchain**
- **Account Detailed Importance API**

Q4 2019

- **Mainnet Launch**
- **Security Audit**

Q1 2020

- **Core Token Economic Model Update**
- **External Widgets**

Q2 2020

- **UAuth dApp Authorization System**
- **DAC/DAO Management Interface**

Q3 2020

- **DEX**

Q4 2020

- **Native Desktop Apps**

Links

U°OS website

U°Community Platform

U°OS Yellow Paper

U°OS GitHub Repository

U°OS Block Explorer

Current Block Producer candidates

References

BrightLocal (2018) Local Consumer Review Survey. https://www.brightlocal.com/research/local-consumer-review-survey/

IPSOS (2017) HOW REPUTATION AND TRUST AFFECT PURCHASE DECISIONS AND MARKETING EFFICIENCY. https://reputation.ipsos-mori.com/how-reputation-and-trust-affect-purchase-decisions-and-marketing-efficiency/

Pettersen, L. (2017) Rating mechanisms among participants in sharing economy platforms. *First Monday*, Volume 22, Number 12 - 4 December 2017