thank-u

a free micropayment platform

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Abstract

thank-u is a free (as in freedom) open-source decentralized payment platform optimized for commission-free micropayments. Internally, it employs a cryptocurrency with the primary function of money, medium of exchange, strengthened while fitness for derivative uses is traded off. Its seed application is targeted at solving Internet content distribution issues, replacing commercial and political manipulations through ads and fake news, user privacy breaches, paywall web segmentation with direct creators support. In the long term, developers suggest the platform can evolve towards gift economy, easing income inequality in the times of rapidly growing automation.

Top features:

- zero-fee (micro)payment transactions
- open platform governed by its users
- secure fiat based onboarding, accounts nominated in U.S. dollars

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Introduction

The current fiat-based payment systems suffer from many problems, including centralized currency debasement mainly imposed on the poor which leads to increasing inequality, centralized government control of finance accounts, privacy and other issues. Payment channels are over-regulated and censored. The bulky expensive system is not suited for efficient micropayments: fees can chew up to 40% for a $1 transfer on some channels.

Cryptocurrencies of the first generations have shown ability to solve some of the problems but still suffer from childhood deceases that prevent a broader adoption. Technology for trust-less operation has proven its maturity, while system play rules and interfaces to the trust-full world need improvement.

To build a lossless payment channel thank-u implements a technical cryptocurrency that has no value or purpose other than to transfer. It is accomplished by limiting groups of interest within the system to transfer senders and recipients and excluding all intermediaries: miners, exchanges, investors and developers.

Blockchain maintenance and governance is performed by transfer recipients who are most interested in platform stability. They host blockchain nodes, sign blocks and vote on system parameters in a meritocratic manner. Senders audit their efforts by distributing their trust in exchange operations.

Trust-full operation of adding funds to current user account (exchange) is decentralized – senders choose whom they currently trust from their favorite transfer recipients, e. g. content publishers, bloggers or charities. Distributing trust further protects users privacy and the money on their current accounts – the value is immediately received by the trusted recipients rather than going to banks, investors or markets for speculation.

Consensus algorithm

In contrast to most popular consensus algorithms of the first cryptocurrencies, where developers and/or investors have control, thank-u is governed by those who currently use it. Transfer recipients who get bigger money flow get better chance to influence platform parameters. Those recipients who maintain blockchain nodes enjoy the best conditions in reward.

thank-u can be viewed at as a joint-stock company of transfer recipients where shares are continuously reevaluated. Those who use it have the best knowledge on how the system should evolve, they can vote on parameters or upgrades and change it accordingly.

Trust decentralization

When users trust a payment platform, they transfer funds to their current accounts and then use them for day-to-day payments. Money on their current accounts is not safe and don't work for the client on most systems.

With regular fiat banks, clients rely on the bank to wisely use their money while making profit for the bank. Centralized fiat debasement by the government steals value from user accounts. Having centralized control of finance accounts governments can freeze them at their whim.

Cryptocurrencies improve funds security by decentralizing control of finance accounts. Most of them, however, make a product out of the value stored on users' current accounts and put it on the market, where speculators can play against users. Exchange centralization opens possibilities to hacks and frauds, largely sacrifices user privacy.

To discourage derivative uses, thank-u implements a decentralized exchange, where users choose who will protect safety of their current accounts while keeping full account control by the users.

For example, Alice adds funds to her account by transferring fiat money to her favorite newspaper, blogger or charity. They transfer the amount in cryptocurrency to her current thank-u account in exchange. Exchange rate is anchored to a practical fiat currency - USD. Users add funds to their accounts via transfer recipients they trust, arbitrating their behavior via trust distribution. The value stored on the current account is secured in that it gets immediately used by her trusted recipient. Alice's current account balance work for her favorites instead of losing value at bank or being traded on the market. Both parties of the transaction get interested in exchange stability. The internal cryptocurrency is anchored to a practical fiat currency - USD - for convenience. It has no name and is hidden from users as a technical detail for simplicity – thank-u accounts are nominated in USD.

Trust decentralization further encourages easier user enrollment on the initial deployment domain – internet content distribution. User money simply can not be lost to any third party. Even if the platform flops, in this worst scenario, user money stays with their favorite content providers, as if they have paid a subscription fee upfront. Initial emission is distributed among charities for this reason.

Fixing crypto leaks and costs

Apart from transfer fees there are other expenses imposed on users by indirect costs. Exchange rate volatility, blockchain maintenance and exchange fees need to be taken care of.

Processing

Protection against spam and attacks is implemented by temporarily locking a commission on recipient accounts for a period of time depending on the platform load. Blockchain maintenance is rewarded by faster commission unlocking, prioritizing maintainer's transactions and taking part in emission lottery. Network nodes are lightweight and system requirements are very low making processing virtually free where nodes are collocated with web servers.

Speculation

There are only two groups of interest in thank-u – transfer senders and recipients, both united by a common interest in a lossless transaction, be it a payment or donation. Their primary incentive is supported by the following rules:

- Internal use of cryptocurrency is hidden from transfer senders. They add funds to their thank-u accounts nominated in USD to use them for commission-free (micro-)payments.

- Transfer recipients who are most interested in increasing money flow velocity control monetary mass by voting on internal crypto emission/absorption rates when signing blocks. Token supply is constantly aligned with the demand. Consensus outliers are penalized.

- For abusers, functions of internal cryptocurrency that differ from being medium of transfer are suppressed.

Exchange fees

When users add funds to their accounts, they can choose transfer methods that take minimal or no cuts, e.g. SEPA or transfers within one bank, where commission-free transfers are included in the user banking flat rate. Centralized crypto exchanges also charge a fee for transaction arbitrating. This one is saved in thank-u when users control whom they transfer fiat and choose their favorite trusted publishers interested in user loyalty.

Hacks and fraud

Billions of dollars have been reported[1] to be lost on centralized crypto exchanges. Decentralizing exchange make win of a hack smaller.

Abuse protection

As it is difficult to foresee all possible attacks - thank-u prepares by limiting internal roles to the two: sender and recipient, both united by a common interest in a lossless transaction, be it a payment or donation, giving recipients all controls to change system parameters and algorithms in case of an unforeseen attack, while senders decide whether to accept it and how to distribute their trust when adding funds to their current accounts.

Although commission free operation is targeted, the platform cannot be left open to attacks that cost nothing. To protect the platform against spam a commission is temporarily locked on recipient accounts. It is automatically unlocked after a time period depending on the system load and health. Transfer recipients can unlock their collected commission faster by running a network node and signing blocks.

Initial emission

Initial liquidity is distributed among early adopters from the most likely seed users - charity donors. Within crowdfunding campaign thank-u doubles user donations to charities and non-profit organizations made via thank-u (up to $2M). Donations are directly transferred via PayPal with no cuts from thank-u. As soon as PayPal transaction is confirmed, refund money is transferred to user thank-u account, the same amount is emitted to thank-u development and is to be returned to the user via network contract in one year.
An ICO that is:

- *efficient* - tokens are distributed among target users, not investors or speculators,

- *secure* – the fiat money goes directly to user favorite charities,

- *simple* – cryptocurrency is not exposed but used for internal transfer implementation only - thank-u accounts are nominated in USD.

Business model

The platform is free (as in freedom). It is controlled and governed by its users and will be developed by open-source community. Funds for the first year of development are raised within initial emission, where thank-u developers receive one emitted token to every donated dollar (up to $2M). The money borrowed for development is to be returned to the seed donators via network contract in one year.

Performance and scalability

Micropayments are not stored on the blockchain. They are collected by the nodes and accumulated on recipient accounts. Accumulated amounts are paid out upon reaching an amount or time threshold, e.g. when reaching 100 USD and it's been less than 24 hours since last payout, or when it's been too long since the amount reached 10 USD. Once payout is safely confirmed micropayments are pruned from the node database for the blockchain to remain lightweight.

The beta version starts with a maximum of 1000 transactions per second and will scale up after the beta.

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1   https://www.bloomberg.com/view/articles/2018-06-11/-2-3-billion-in-losses-highlights-crypto-s-moral-hazard

smartlike app

smartlike.org is a content recommendation application for the micropayment platform. It aims at solving problems with internet content distribution: commercial and political manipulation with ads and fake news, user privacy, web segmentation with paywalls. It employs the same approaches as thank-u — remove intermediaries between content provider and user, i.e. exclude advertisers, ad agencies and internet companies that spy on users to sell private data.

Smartlike is built on one of the basic needs of human beings — to forward emotions, to thank whenever feeling lucky, enjoying the very process of giving back gratitude. It suggests alternatives to ad-sponsored and subscription based content distribution models. The former is gradually degrading amid ad-blocking and privacy problems, the latter puts paywalls all over the Internet which is not convenient for subscribers and not fair to occasional surfers. Smartlike lets users assign a monthly amount of money they would agree to be proportionally distributed among the sites they visit, or use "like" button for one-click micropayments (even as small as 1 cent) to thank for a touching movie, a song or an article.

Apart from turning emotions into support for favorite authors, users get a manipulation-free content recommendation service. Most popular content recommendation systems are not transparent and are prone to commercial, political and other manipulations. smartlike.org operates both on open data and open algorithms, providing 100% auditable recommendation results.

Abuse protection

A few lines of defense are implemented to mitigate the "fake likes" problem.

"Superstar" tax

A tax is collected on transfers and is distributed among all creators. Abusers who try to manipulate ratings by transferring likes to themselves pay compensation to creators they play against. Superstar tax can also help "the winner takes all" problem of compensation distribution where most of the likes are gathered by the top few percent. In addition to giving a price for the attack, the mechanism distributes a share of success to the majority of less lucky creators to maintain a happier and healthier environment like it is done with taxes in modern societies.

Personalization filter

The exploding volume of information the Internet delivers can be decreased by personalization filter, from 0 to 100%. Users decide what information to hide and have full control on their profiles without disclosing their privacy.

Crowd-source content curation

Community is incentivized to curate content, write comments and reviews to help users choose content.

Source filter

Abusing or unwanted publishers and creators can be easily muted. Users can even white-list their sources and read their hand-picked feeds muting the rest of the world.

Privacy

Smartlike user account can be used for secure one-click logins everywhere on the Internet to lift paywalls or activate personalization profiles. Although, websites are able to identify their users, they don't get access to private information as it is the case when logging in with social network account, email or phone number. Smartlike accounts are anonymous, there is no registration.

Business model

smartlike.org uses the same donation based model it implements: if the service gets popular it will get its share of support from the users.