PANVALA TOKEN GRANTS

KWASM Semantics

A proposal to make Ethereum safer by enabling formal verification of Web Assembly smart contracts.

Contact Information

Name

Patrick MacKay

Job Title

Chief Operating Officer

Organization

Runtime Verification

Project Summary

Runtime Verification has been working closely with Rikard Hjort of Chalmers University on the KWasm semantics, which will allow Web Assembly contracts to be formally verified using the K framework. The core computational opcodes are finished, what remains are memories, tables, and modules. Memories are almost done, awaiting final review and approval, and tables will follow shortly. Integration of the semantics with KLab is also well on it's way, with some final changes to KWasm and KLab in the works. We will give a brief presentation at EDCON introducing people to K and KWasm, and going over potential uses of the semantics.

Nimbus Ethereum 2.0 Phase 0

A proposal to make Ethereum safer by implementing the initial phase of the Ethereum 2.0 specification.

Contact Information

Name

Jacek Sieka

Job Title

Head of Research Development

Organization

Status

Project Summary

Nimbus aims to put an Ethereum client in the hands of every person and machine on earth by targeting mobile phones and other resource-restricted devices. We're building a fully customizable implementation of both current Ethereum and Serenity, focusing on low-powered usage and adaptation to the platform it's running on, including older hardware.

We're committed to following the roadmap for Ethereum 2 in general and have recently launched our first public beacon chain testnet.

We will deliver a full Phase 0 client, working with the community towards a cross-client testnet and a mainnet launch.

For more information, visit https://nimbus.status.im.

PANVALA TOKEN GRANTS

Predicate Contract Framework for Plasma

A proposal to make Ethereum scale by providing a framework for pluggable Plasma applications.

Contact Information

Name

Jinglan Wang

Organization

Plasma Group

Project Summary

Plasma is a family of protocols which allow individuals to easily deploy high-throughput, secure blockchains. A smart contract on Ethereum's main chain can ensure that users' funds are secure, even if the "plasma chain" acts fully maliciously. This eliminates the need for a trusted pegging mechanism like that of sidechains. Plasma chains are non-custodial, allowing the prioritization of scalability without sacrificing security.

We've devised a new architecture for building Plasma apps on one generalized plasma chain. It establishes a clean separation between the plasma layer and the application layer. We will publish a generalized Plasma predicate contract framework, which allows for upgradeability and composability of plasma contracts. Since plasma research moves so quickly, we realized we needed to develop an architecture that allowed for maximal modularity, to prevent vast chunks of code from being thrown away with each new research discovery.

With that framework, we will refactor our existing codebase for secure payments using predicates. We want to use the generalized Plasma research we did and put it to the test in our codebase refactor following the launch of our testnet on January 31. Dogfooding is a critical part of the work we do, as there's no point to open sourcing the codebase if it's not readable or easy to use.

Project Team

Jinglan Wang - Executive Director, fundraising, product management, etc

Ben Jones - Research

Kelvin Fichter - Implementation

Karl Floersch - Research & Implementation

Desired roles: 2 implementers (haven’t filled these roles yet).

PANVALA TOKEN GRANTS

Hosted Execution Tracing

A proposal to sustain Ethereum by automating the infrastructure developers need to inspect contract execution.

Contact Information

Name

Vukašin Vukoje

Job Title

CEO

Organization

Tenderly

Project Summary

Tenderly is the first Ethereum Smart Contracts monitoring platform that empowers you with real-time EVM level insights for every transaction on the network. Our hosted service allows live contracts to be monitored on mainnet and testnets. Our open source CLI tool provides our hosted functionality locally for use during contract development. In both environments, developers can see the full stack trace for errors that occur during their transactions.

At the ETHParis hackathon in March, the Tenderly team built TXFlow, a tool that goes beyond just showing the stack trace for errors by showing the entire execution trace for a transaction, even across contract boundaries. This makes it easier to understand properly functioning contracts written by other teams, as well as contracts with bugs that don't revert the transaction.

TXFlow requires a modified Geth node, which prevents many developers from benefiting from its functionality. For this project, we will integrate TXFlow and its modified Geth node into our hosted infrastructure so developers can use it remotely through a browser instead of managing a separate Geth node on their own. This work will be open source, so anyone willing to host their own modified Geth node will be able to run TXFlow as a hosted service, too.

Project Timeline

Project Team

PANVALA TOKEN GRANTS

Upala Digital Identity

A proposal to sustain Ethereum by simplifying blockchain interaction and onboarding with human-centric identities.

Contact Information

Name

Peter Porobov (Facebook, Medium, Twitter, porobov.p@gmail.com, +7.909.713.3514)

Job Title

Project Lead

Organization

Upala (Medium, Twitter)

Project Summary

Upala is a digital identity system, an alternative to a state-issued ID. It will simplify blockchain interaction and onboarding. It will also help to distinguish people from bots (no multiple accounts, one person - one ID). Upala uses a game-theory-based Sybil-protection mechanism, account recovery by friends, and managed private data permissions. (For more info, see What is Upala: All you need to know (Updated Regularly))

Milestone 1: Account recovery MVP specification.

This is the first product in Upala ecosystem. In the future, it will be used as an ID recovery mechanism, but for now, we are planning to market it as a separate product - a password manager and a cryptocurrency wallet.

The main feature is the decentralized recovery (using friends, biometrics and/or state ID). We believe decentralized recovery is of major importance for Ethereum as it will help adoption a lot.
Stages:
- Literature review
- Research and design
- Deliver the spec

Time required: 3 months

Milestone 2: Research and Publication

We have been publishing our thinking process in a series of articles. The articles help us build community, promote, get reviews for our ideas and get help from experts. By funding this milestone, you will help us to keep going. We will keep learning and designing, and we will publish the most interesting ideas and findings. We intend to publish 3-4 articles per month.
Time required: 1 month

Burn-rate

3k/month per full-time team member. Currently, we can keep going with one full-time participant funded.

Project Team

Peter Porobov — Project Lead, Researcher, Smart Contracts.
Entrepreneur. Dreamed of connecting the world in six handshakes since high school. Founded startups in 3d-printing and art, helped to build and sell drones. In May 2016 fell in love with Ethereum. Created a charity project. In January 2019 started research on Upala. Github, Facebook, Medium, VK, Twitter

Andrei Bolkisev — Advisor, Economic models.

Andrei Bolkisev is an information systems engineer and programmer with 13 years of experience and Ph.D. in computational physics. As information systems engineer he was leading projects ranged from state-scaled information systems to micro-controllers programming. In computation physics, he worked on developing novel methods applied to combustion of solids modeling (structure of heterogeneous solids simulation and analysis, chemical kinetics models developing, solving of stiff PDE systems). As for now, he is most interested in investigating social and economic dynamics. VK, Researchgate

PANVALA TOKEN GRANTS

CLR Matching for Gitcoin Grants

A proposal to sustain Ethereum by matching donations made on Gitcoin.

Contact Information

Name

Vivek Singh

Job Title

Organization

Gitcoin

Project Summary

Gitcoin Grants, powered by the EIP 1337 standard , are a fast, easy and secure way to provide recurring token contributions to your favorite OSS maintainers. Gitcoin Grants has facilitated the distribution of $219k to Open Source since it's launch in January 2019.

CLR Matching is a new way to match donations in crowdfunding campaigns. Instead of matching donations in the traditional way where each donation is matched equally, CLR Matching uses a formula where the match depends on *how many* people donated, not just *how much* was donated. Instead of just being encouraged to donate by traditional matching, each donor is encouraged to donate exactly as much as they personally benefit from the amount of the public good that is worthwhile for their whole community to buy together. Alex Tabarrok, a professor of economics at George Mason University, described CLR Matching as "quite amazing and a quantum leap in public-goods mechanism-design."

From the *Liberal Radicalism* paper by Vitalik Buterin, Zoë Hitzig, and Glen Weyl:

> Individuals make public goods contributions to projects of value to them. The amount received by the project is (proportional to) the square of the sum of the square roots of contributions received.

So far, Gitcoin has facilitated two rounds of CLR Matching for Gitcoin Grants. In Round 1, the $25,000 matching fund attracted $13,242 in donations to teams including Prysmatic Labs and Uniswap. In Round 2, the $50,000 matching fund attracted $56,535 in donations to the ProgPoW technical audit and Validity Labs.

For this project, we will use Panvala's PAN tokens to match donations to Gitcoin Grants. Instead of matching with a flat USD amount as in previous rounds, we will match using the market value of the granted tokens at the end of round according to Uniswap. We expect that this method will result in higher donations to Gitcoin Grants through two methods: Panvala will tend to provide larger matching funds than we've received so far in order to attract more attention and grow the community, and the donations made to individual Gitcoin Grants will increase both because of the larger matching fund and the willingness of the Panvala community to support efforts that complement Panvala.

Of the total granted tokens, 80% will be used as the matching fund, and the remaining 20% will be retained by the Gitcoin team for our work.

Project Timeline

Project Team

PANVALA TOKEN GRANTS

BrightID Identity Network

A proposal to sustain Ethereum by building a decentralized identity network for dapp developers to integrate.

Contact Information

Name

Alireza Paslar

Job Title

Communications

Organization

BrightID

Project Summary

brightID

BrightID is a decentralized network for verifying unique human beings. It uses social graph analysis to keep fake users out of applications. It runs on a decentralized network of nodes[1] and requires no personal data from users other than an anonymous graph of connections.

It's a useful addition to blockchain ecosystems, allowing DApps to enforce one account or one vote per person.

Through a $95k nest grant from Aragon, we created the beta available at BrightID.org

[1] BrightID currently runs on one node while the Peer-to-Peer protocol is being finished

To prepare BrightID to integrate with DApps and grow beyond beta, we're seeking additional funding in the form of a grant to complete ten milestones in five months at a $20k / month burn rate ($100k).

What BrightID does now

The BrightID mobile app allows users to make connections and join groups. We created several anti-sybil algorithms and chose the most effective one to analyze the resulting social graph and assign scores to users. We operate a seed group initiative and manually set seeds for use with the algorithm. Dapps can look up users' scores through the BrightID smart contract.

What BrightID will do after the grant

Web apps and Dapps will assign and retrieve custom verifications for users. Thresholds for verifications will be set in relation to mock sybil attacks modeled on the real graph. The graph of connections will be shared between multiple nodes through a peer-to-peer protocol. Seeds used by anti-sybil algorithms will be set by communities or organizations through DAO voting or another open process. Communities can choose to share seeds with each other. Users will be able to quickly restore data and swap keys in the event of a lost or stolen device. The mobile UI will be improved to make connecting and managing groups easier.

Resources:

- Roadmap
- Whitepaper
- Github
- Team

PANVALA TOKEN GRANTS

Ecological State Protocols and Carbon Offsets on the EVM

A proposal to make Ethereum safer and more sustainable by making ecological state protocols and agreements available on the EVM.

Contact Information

Name
Christian Shearer

Job Title
Chief Executive Officer

Organization
Regen Network

Project Summary

Regen Network is seeking funding to build the "Ecological State Protocols" related to carbon sequestration in ecosystem restoration projects, so that we can use these protocols to offset the impact (carbon emissions) associated with the operations of the Ethereum community. We applied in the previous round and have incorporated the feedback for a smaller token grant and a singular focus on the Ethereum context.

Regen Network will leverage our technology and appraoch to translate ecologcal state protocols which currently live on a Tendermint sidechain, to be used as smart contracts on the EVM.

We specifically are looking for funding to create the Smart Contracts that would allow a mining operation, PoS node, Dapp, or DAO to engage and make verifiable claims of ecosystem regeneration that implies a net positive impact on the planet.

The steward gets an economic incentive, and the validator gets blockchain verified proof of impact to offset the negative impacts of running a validator node.

The vision here is that we can move the blockchain community away from the large negative impact it currently exerts on the world and into an ecologically net positive technology.

More about Regen Network

Regen Network is building a platform for ecological agreements, with scientifically robust ecological practices or outcomes at the center of the agreements. We're building on the Cosmos SDK and Tendermint in large part due to the fact that we need to be on a PoS chain. We are building tools that will serve a broad swath of sectors, including consumer packaged goods, Insurance, Banking, and governments, but of course also the blockchain space itself.
For more information, please visit: www.regen.network.

Project Timeline

This year we are going to be conducting user interviews to understand the unique needs of the blockchain community in relation to ecological offsetting. Armed with that information, we aim to have an MVP done and pilots running by early 2020.
We aim to have a user-friendly, dynamic version of the product ready and in use by the end of 2020.

Project Team

Christian Shearer - 15 years of ecological agriculture experience, 5 years working with natural products brands on regenerative supply. Co-founder of Terra Genesis International.
Gregory Landua - co-author of Regenerative Enterprise and co-founder of Terra Genesis International is a leading voice in the Regenerative Agriculture space.
Sara DeMoitie - 10 years of product development experience. Sara taught a design thinking master's course at Aalto and Stanford University. She also worked as a UX designer for 358 and Futurice. She brings a strong focus on user-centred design and marketing. Sara is from Belgium but lives in Argentina.

Aaron Craelius - Aaron has worked in a wide range of areas including desktop programming in C++ and C#, back-end and front-end web development, and embedded and FPGA work. An honors student at Dartmouth and a concert cello player.

Gisel Booman Ph.D. - With a PHD in ecology and a specialty in GIS and remote sensing, Dr. Booman leads the integration process between the Ecological Protocol development and the current state of remote sensing. Gisel lives with her family in Argentina.

Whiteblock Testing of LibP2P for Ethereum 2.0

A proposal to verify and test the performance, security, functionality and usability of LibP2P in Ethereum 2.0.

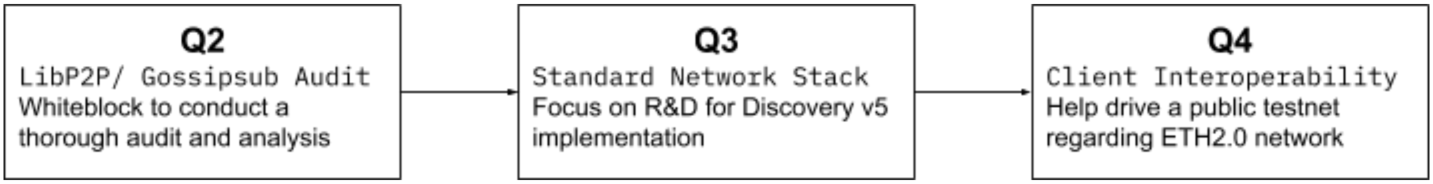
Contact Information

Name: Eric Lim
Title: Product Manager
Organization: Whiteblock

Project Summary

Whiteblock has spent the last year contributing to various community development efforts by working with various ETH 2.0 implementor groups to contribute to the release of a well-developed and resilient ETH 2.0 Networking stack.

Recently, much of our development team's effort has gone to benchmarking LibP2P's implementation of gossipsub. Many emerging blockchain projects are relying heavily on the assumption that LibP2P will perform and function as projected, yet no serious performance tests have been conducted to confirm that LibP2P's libraries will be performant under adversarial network conditions.



Q2
LibP2P/ Gossipsub Audit
Whiteblock to conduct a thorough audit and analysis

Q3
Standard Network Stack
Focus on R&D for Discovery v5 implementation

Q4
Client Interoperability
Help drive a public testnet regarding ETH2.0 network

Whiteblock has already conducted an initial benchmark of LibP2P's Gossipsub and have shared these results with the Ethereum community and Protocol Labs in particular. We will continue to do testing in a collaborative manner and ultimately work in conjunction with ETH 2.0's release goals.

For more information read here: https://github.com/Whiteblock/p2p-tests