Project Name: GPUX (https://gpux.ai/)

Project Type: Infrastructure, Marketplace

Author Name: vans163 (@van163

TG)

I understand that I will be required to provide additional KYC information to the Optimism Foundation to receive this grant: Yes

L2 Recipient Address: vans163.eth

Which Voting Cycle are you applying for?: Cycle 7

Grant category:

Is this proposal applicable to a specific committee? No

Project Description (please explain how your project works):

We create a decentralised protocol (think IPFS) to connect GPU providers (ex-miners, onprem labs, etc) with GPU consumers (Midjourney inference/training, other AI Art, AI training, AI inference, blender animation rendering, etc).

In a post-merge world this creates a cost savings of 66-95% for GPUs compared to centralised clouds.

Project links:

- Website: https://gpux.ai/
- Twitter: https://twitter.com/gpux_ai
- Discord/Discourse/Community: gpuedge
- Please include all other relevant links below:

Please link to any previous projects the team has meaningfully contributed to: NEAR Protocol

github.com/near/near-sdk-as

add RNG xorshift128p

near:master

← checkgpu:xorshift128p

opened 04:02PM - 19 Jan 22 UTC

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](https://github.com/vans163)

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](https://github.com/near/near-sdk-as/pull/688/files)

Add a lite RNG implementation that does not write to contract storage each time.

github.com/near/near-sdk-as

Potentially look at using NativeMath seedRandom

opened 04:06PM - 20 Jan 22 UTC

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enhancement

T-dev-tools

[https://github.com/AssemblyScript/assemblyscript/pull/2053/files](https://githu…

b.com/AssemblyScript/assemblyscript/pull/2053/files)

Potentially look at implementing NativeMath seedRandom and seeding it with the randomSeed we get off the vrf.

github.com/near/near-sdk-as

f64 does not compile

opened 06:31PM - 18 May 21 UTC

closed 08:41PM - 18 May 21 UTC

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bug

A few cases where f64 does not compile

``` near-sdk-as@^3.0.0: version "3…

.1.0" resolved "https://registry.yarnpkg.com/near-sdk-as/-/near-sdk-as-3.1.0.tgz#b1273ff6283bfe119ac51f9953d8d774d691d0ec" integrity sha512-31ZwYwTyPaiG7FFXGWU2u8i5l1ak0BwZCiMLdj0JlpiW4suI+hYN4PXCIf92prAAFD8HTJ5oMdsKKi3bLRwQDQ== dependencies: near-mock-vm "^3.1.0" near-sdk-bindgen "^3.1.0" near-sdk-core "^3.1.0" near-sdk-simulator "^3.1.0" ```

``` let total_minted2 = storage.get("zod_minted", 0.0)!

ERROR AS204: Type 'f64' cannot be nullable.

static get(key: string, defaultValue: T | null = null): T | null { ~ in ~lib/near-sdk-core/storage.ts(178,44) let total_minted2 = storage.get("zod_minted")

ERROR AS204: Type 'f64' cannot be nullable.

static get(key: string, defaultValue: T | null = null): T | null { ~ in ~lib/near-sdk-core/storage.ts(178,44) total_minted: u128 = "10000000.." (total_minted as f64) * 0.01

ERROR TS2757: Type '~lib/as-bignum/integer/safe/u128/u128' has no call signatures.

let total_minted = storage.get("zod_minted", u128.Zero)!(total_minted as f64) * 0.01;
~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~ in assembly/index.ts(96,22) ```

github.com/near/nearcore

### state changes AKA Events for clients

opened 03:33PM - 06 Jul 21 UTC

closed 02:15PM - 23 Nov 21 UTC

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C-enhancement

A-transaction-runtime

T-public-interfaces

So https://github.com/near/nearcore/issues/1546 was closed but it misses the mai…

n point, clients need a way to subscribe to events on a smart contract.

Its a very common use case to constantly check for changes when >1 parties are involved where polling constantly on sides
~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~

is not an option. Neither is it an option for these clients to run full nodes locally, someone might be on their iPhone browser.

We currently are using a off chain provider to handle our events, we could move a lot more to onchain if we were able to have clients react in real time to changes via event subscriptions.

GitHub

## GitHub - vans163/NCD-05--offchain-auth

Contribute to vans163/NCD-05--offchain-auth development by creating an account on GitHub.

Relevant Usage Metrics: Transactions for compute, Deposits by consumers, Payouts to providers, total compute power in network, total unique accounts

Optimism native: No

Date of deployment/expected deployment on Optimism: After start of OP GPU-provider/ecosystem-app incentive program

Ecosystem Value Proposition:

- What is the problem statement this proposal hopes to solve for the Optimism ecosystem?
- New category of DApps can be built, imagine AI Art (diffusion) NFT minting, the diffusion inference can happen on GPUX instead of the AWS/GCP Cloud.
- How does your proposal offer a value proposition solving the above problem?
- By providing the infrastructure or “layer0” to run said functionality required by next gen DApps on top of.
- Why will this solution be a source of growth for the Optimism ecosystem?
- Marketplaces in-general produce very high growth once functional. Demand for GPUs is growing fast with breakthroughs in AI (diffusion, NLP, reinforcement learning, robotics). ETH just left equivalent of 5m 3090ti without work.

Has your project previously applied for an OP grant? No

Number of OP tokens requested: 300,000

Did the project apply for or receive OP tokens through the Foundation Partner Fund?: No

Proposal for token distribution:

How will the OP tokens be distributed?

- a. 17% Engineering

This is for our core team engineers and trusted compute (SGX) team (which is on contract)

- b. 33% Early adopter App Builder incentive

This is for builders incentive building apps on GPUX, apps can be similar to StableDiffusions, Reface, GigapixelAI, GPT3, etc.

- c. 17% Marketting/Community

So people learn about and know what GPUX is. That it exists.

- d. 33% Early adopter Node Incentive (fold protein to cure alzheimer’s / train AI to help good causes)

To bootstrap farming nodes (computers with GPUs) we want to create our own jobs for the greater good, like protein folding. This means we dont need a 2 sided market (with users and farmers, we can bootstrap the user side via this incentive pool. NEARCrowd uses similar model providing the reward to earners from their staked NEAR)

Over what period of time will the tokens be distributed?

- a. 18 mon.
- b. As users build on the platform (6-18 mon) (we want to host a few hackathons + partner with education company to teach how to build)
- c. 18 mon. Everyone in crypto should know atleast that GPUX exists by 18 months.

- d. Linked to b., the quicker b adopts the quicker we will distribute d. But in-order for b. to adopt we need to incentivise via d.

Please list the milestones/KPIs you expect to achieve for each initiative:

- a. Elixir SDK, JS SDK, Node Explorer /w Simple HTTP API (no need to integrate SDK yourself similar to using INFURA nodes)
- b. Individual milestones which each builder, have their apps hit 10 | 100 | 10_000 | 1m txs per day.
- c. Twitter scores and other marketting reach KPIs
- d. Node Stability, Node is honest about its capacity

How will this distribution incentivize usage and liquidity on Optimism?

- Early node incentives will make it profitable to connect hardware to

GPUX even if the consumer side is not fully saturated.

- Every transaction for shortterm compute will go through optimism, including the followup

refund.

Example: A user requests 3 nodes and take 32cpucores, 128gb ram and 4 gpus from each. For a total of 96 cores, 384G ram, 12 gpus. They realize they need more time and topup their deposit for an extra 3 hours. After they finish training their neural network they request a deposit refund from the node providers. Total OP transactions 9. 1 tx to each node provider with deposit (3 total), 1tx to each node provider for topup (3+3 total). Each node provider back to the user with their refund (3+3+3 total).

Why will the incentivized users and liquidity remain after incentives dry up?

- The marketplace just needs to get rolling with both sides. Users will see how good

the experience on GPUX is and they will not leave. Find us a platform you would use over

GPUX for your spot gpu tasks and we will innovate to make said task impossible.

Stable Diffusion Example (One of the many apps that may be built on top of GPUX):

(In the future the Node Explorer will have a much nicer UX. Because each node is decentralized+independent this is the UI when you directly visit a node)

https://video0.gpux.ai/api/file/download/r2mptm56fo1g1v53p39h161qd6q13djch9oq03psltiv7vjsorl0.mp4