# Decentralized Computing by NuNet for Cardano Stake Pool Operators

Explainer

Nunet is starting the use-case integration 'Decentralized SPO computing' that has been awarded a grant from Catalyst Fund7 (see full proposal). NuNet is looking to partner with SPOs that are interested in working together with the NuNet team for developing, testing and early utilization of the solution.

Problem: 57% of Cardano Stake Pool Operators (SPOs) currently run on centralized cloud based computing solutions or bare metal. There is an increasing risk of over-reliance on big tech cloud solutions which could deny service if so desired; this brings great risk to the growth and reliability of the Cardano network.


Hetzner 8.8%

Amazon 15.4%

Digital Ocean 20.2%

Google 13.0%
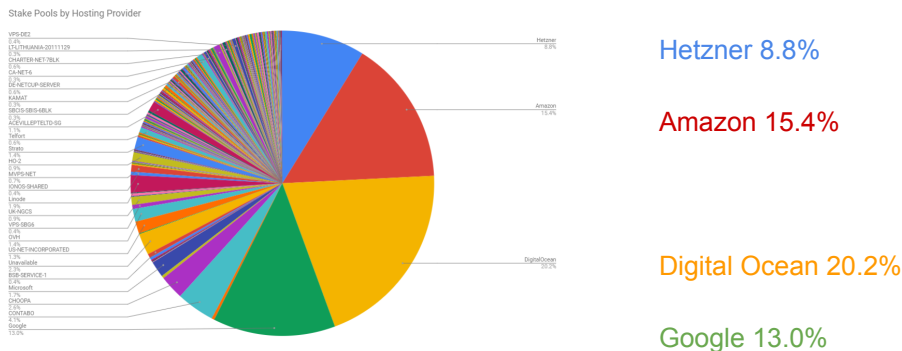
Cardano Stake Pools by Hosting Provider
Source: How Decentralised is Cardano's Network today by Infrastructure Provider?

On the other hand, bare metal requires expensive hardware up-front cost and maintenance which creates entry barriers for small/single stake pool operators.

Solution: Nunet's proposal is to create infrastructure for running Cardano staking pools on NuNet provisioned community hardware. Once complete NuNet will be able to provide an alternative to the cloud based and dedicated host solutions by running
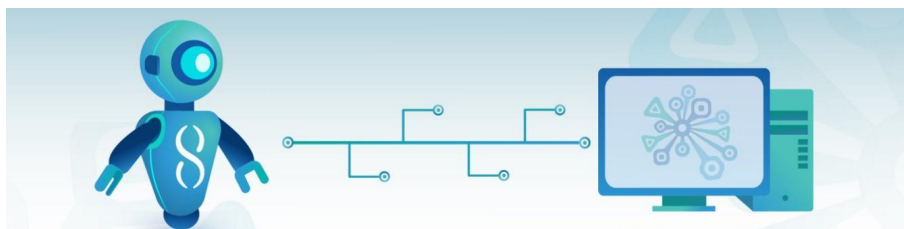
arbitrary computing workflows on community provisioned hardware and providing payment gateways directly from software or application.

NuNet enables a global economy of decentralized computing by allowing anyone to share and monetize their computing resources at scale and provides **globally-distributed, optimized computing power for decentralized networks**.

NuNet is a spinoff project incubated by **SingularityNET**, founded and envisioned by Dr. Ben Goertzel, Dr. Kabir Veitas and Dr. Weaver Weinbaum.

The goal and vision of cooperation lies in the SingularityNET AI ecosystem which will leverage Cardano (main and hydra layers) while **computation** will be done on hardware provided by NuNet -- creating a powerful synergy.

In order to run node processes for stake pools, payment is required for decentralized hardware via the native NTX token on the Cardano network. NuNet will allow Cardano nodes to directly pay for the hardware on which they will be running.

Milestones:

- **Completely secure sandbox:** at this stage NuNet sandboxes on user provided compute devices can fully prevent unauthorized access to the filesystem and processes running within the sandbox. To be completed within 3 months after funding.
- **Secure shell access** between node operators and node instances on community provided machines: at this stage, node operators have the ability to use their instances much like VPS from Cloud providers are utilized. To be completed within 4 months after funding.
- **Machine activity metric and compute device availability:** at this stage, the performance and availability of user provided machines is measured in order to assign the most reliable and robust machines to Cardano Block Producing Node deployment. To be completed within 6 months after funding.
- **Tokenomics and Reward Simulation:** at this stage, reward for compute providers and gains of stake pool operators is simulated and adjusted to avoid pitfalls in economic feasibility. To be completed within 6 months after funding.

If you are interested in running your stake pool via NuNet's decentralized cloud computing infrastructure in the future, please fill out and submit this [form](#).