Supporting Document – Nodexo

1. The Trust Layer for Decentralized GPU Compute

Nodexo exists to solve the hardest problem in decentralized compute: **trust**.

Anyone can claim they have GPUs. Anyone can claim they ran a workload. Very few systems can prove, cryptographically and continuously, that **a specific physical GPU was alive, correctly executing real work, at a specific time**.

Nodexo is built as the trust layer that makes decentralized GPU compute credible at infrastructure scale. In simple terms, it acts as **a lie detector for compute**.

This is not an AI platform. It is the missing verification rail beneath decentralized AI.

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2. Pure Compute, Nothing Else

Nodexo is deliberately narrow by design.

It does not host models.
It does not provide prompt APIs.
It does not dictate frameworks, agents, or stacks.

Instead, it connects bare-metal GPUs and GPU VMs from home rigs, colocated racks, enterprise clusters, and cloud providers into a single marketplace, and focuses on doing one thing exceptionally well:

Proving that the compute actually happened - on real hardware, not just on paper.

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3. Cryptographic Proof, Not Claims

At the core of Nodexo is Proof-of-GPU v3 (PoGv3).

PoGv3 introduces a rolling, non-interactive validation system that continuously verifies GPU capability using deterministic workloads. These workloads generate cryptographic proofs tied to:

- The specific GPU timeline

- The code executed

- The exact time window in which it ran

Validation happens near real time, typically within minutes, without challenge-response games or manual coordination.

This turns compute from a **claim backed by logs** into a **fact backed by cryptography**.

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4. Detecting Fake Capacity and Oversubscription

A key property of PoGv3 is that it does not just prove *some* work happened. It proves **how much work a GPU can realistically perform over time**.

By analysing timing fingerprints and anchor schedules, the protocol can detect:

- GPUs being oversubscribed across multiple claimed identities

- Virtualized or underpowered hardware pretending to be high-end GPUs

- Attempts to "stretch" one physical GPU across many logical miners

If a provider tries to sell the same GPU twice, the evidence breaks. Missing anchors, impossible overlaps, or inconsistent timing profiles appear on-chain.

This makes Nodexo fundamentally different from traditional GPU marketplaces, where fake clusters and inflated capacity are difficult to detect. On Nodexo, **capacity lies leave traces**.

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5. Off-Chain Providers, Zero Friction

GPU providers never touch the blockchain.

They install the Nodexo agent, register their hardware off-chain, and begin accepting jobs. Training runs, inference batches, and custom workloads execute normally while PoGv3 anchors verify the GPU in the background.

From the provider's perspective:

- Connect hardware

- Run jobs

- Get paid

- No crypto complexity

All cryptography, validation logic, and proof publication is handled invisibly by Nodexo.

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6. SN27 as a Neutral Trust Oracle

Nodexo fundamentally changes the role of validators.

In the original Bittensor model, validators were both:

- Judges of quality

- Controllers of incentives

Nodexo separates these roles on purpose.

Incentives to miners are no longer distributed - they are burned. SN27 validators no longer act as a reward faucet. They act as a **neutral trust oracle**.

Practically:

- GPU providers are paid directly by users

- Validators label which providers are trustworthy over time

- Reputation comes from passing verification, not gaming emissions

This removes yield farming dynamics and forces the network toward real pricing, real reliability, and real competition.

7. Ethereum-Anchored Public Proof

Proof without public auditability is not trustless.

Nodexo batches PoGv3 evidence and publishes it via a lightweight Layer-2 that posts data to Ethereum data availability. Once anchored, compute history becomes part of Ethereum's immutable record.

This means:

- Proof does not live behind private APIs or databases

- Anyone can independently reconstruct compute histories

- Disputes are resolved by pointing to shared on-chain data

Rewriting compute history would require attacking Ethereum itself.

8. Any Alpha Token Becomes Compute

On the demand side, Nodexo plugs directly into the Bittensor economy.

Users can pay for GPU time using any alpha token or USDC. Nodexo converts payments into internal compute credits while maintaining a public proof trail linking value exchanged to verified GPU work delivered.

Alpha tokens stop being purely speculative. They become **real purchasing power for verified infrastructure**.

9. Why This Matters Now

Decentralized compute has existed in theory for years, but it has struggled in practice because trust was weak. Logs could be forged. Hardware claims could be exaggerated. Capacity could be faked.

Nodexo changes this by making compute:

- Deterministically provable

- Time-bound

- Identity-bound

- Publicly auditable

It is not another marketplace promising decentralization. It is the missing layer that makes decentralized compute **measurable and enforceable**.

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10. The Foundation Before Everything Else

Nodexo is not trying to be everything.

It is building the foundation first: **pure compute, proven publicly, priced by real markets**. With Proof-of-GPU v3 and Ethereum-backed data availability, Nodexo turns decentralized compute into something the broader ecosystem can actually rely on.

Additional resources

X Article - Nodexo 2.0 : https://x.com/nodex0_/status/2000564006566666601?s=20

X Article - PoGv3 Validation Protocol : https://x.com/nodex0_/status/2008915137810371057

Website : https://nodexo.ai/

X Account : https://x.com/nodex0_