Ethernity CLOUD Token Economy

Whitepaper

Iosif Peterfi, Andreea Munteanu, Andrei Butoi, Mark Pedersen

Abstract

Ethernity CLOUD is a decentralized confidential computing network driven by smart contracts. The confidential computing is ensured by the hardware while using the TEE (Trusted Execution Environment) technology. Ethernity CLOUD incentivizes actors taking part in the network to grow a fair ecosystem driven by developers and next generation decentralized applications that run at cloud-native speed.

Ensuring a long term sustainable ecosystem is the economic mission of the project, therefore several incentivization mechanisms are implemented at the smart contract level to stimulate the usage and the growth of the ecosystem. This paper will describe in detail the token economy that will be implemented on the mainnet at launch.

1. Token Information

ETNY is the Ethernity CLOUD's ERC20 native utility token, with a 1 billion total supply. The distribution is performed on the testnet, before the mainnet launches.

1.1 Token Utility
- Buy and sell computing resources: CPU with TEE, Memory
- Buy and sell bandwidth
- Buy and sell storage: onchain, offchain, internal, external
- Processing fee: Ethernity CLOUD develops and provides a smart contract performing token exchange between data owners (buyers, network users), network operators (sellers, data processors) and dApp developers. The processing fee varies based on service price and network operator rating as well as the developer fee.
- Staking: Network operators are incentivized for their availability to process new tasks from data owners.
- Settlements: Additional fees could apply during execution of the tasks, based on how the tasks are developed, especially if the tasks themselves use 3rd party blockchains or tokens, and/or cross-chain bridges for permissionless chains.

1.2 Value proposal

Ethernity CLOUD smart contracts use the blockchain layer transactions to ensure the integrity and the fairness of the ecosystem. The transactions define short term tasks as well as long term tasks(services).

Blockchain transactions that provide transparency and integrity are processed outside the enclave, without the TEE processing overhead. The computational tasks themselves run inside the confidential computing enclave protecting the task and the user's privacy.

ETNY captures the following values:

- Computing power: CPU with confidential computing functions
- Bandwidth
- Off-Chain storage
- Decentralized DNS services

2. ETNY Roles

2.1 Data owner

The data owner is responsible for selecting the task, the input data and the appropriate hardware resources for the process to finish in timely manner. The data owner submits all this information inside a request, together with the maximum amount of tokens he is willing to pay for the task's results. The maximum amount of tokens is locked until the task is either finished or cancelled. Once a match is found with a network operator, the task will be executed. Once the task result metadata is available on-chain, the smart contract automatically processes the network fee, the operator reward and the developer reward.

2.2 Network Operator ("Miner")

The network operator runs a computing node on TEE compatible hardware. To run an operator, a minimum staking amount is required. The staking amount can be allocated by the network operator or an external stakeholder.

The operator responsibility is to advertise computing resources available to the network, and specify the minimum cost in tokens for using those resources. The minimum cost in tokens is referred as the operator reward. The computing resources will be allocated dynamically and once allocated they are dedicated for the relevant task. A match making occurs between the available resources and the available tasks.

Once the task execution is finished, and a result is generated, the metadata of the result is saved on-chain. Afterwards, the smart contract awards the network operator. The amount awarded is based on how the matchmaking process occurs and the minimum value is the operator reward.

2.3 Stakeholder

The stakeholder can allocate tokens to an operator wallet, splitting the rewards 50/50.

2.4 Developer

Each task is associated with a developer wallet. The developers can chose a percentage of the operator reward and a minimum reward in tokens when any tasks uses their dApp. This is called the developer reward.

2.5 Monitor/Slasher

Based on on-chain analytics, a monitor/slasher can start a performance benchmark process randomly on nodes that appear to perform poorly. The results are public and the monitor/slasher will be awarded with the penalties applied to the misbehaving nodes.

3. ETNY Economics

Ethernity CLOUD aims at developing a sustainable circular economy model, where users are willing to behave both as data owners and network operators. Eventually using the token to exchange the value for the computation power, they will be able to either earn or spend tokens based on the difference of how much computing power they provide and what they use.

3.1 Inflationary Staking

We estimate 40% of the tokens will be staked on Ethernity CLOUD. The minimum staking amount is 10000 ETNY and the maximum is 500000 ETNY. Based on this information, and other market indicators, the staking plan for the first 5 years after the mainnet launch is as follows:

1st Year - 10% APY

2nd Year - 9% APY

3rd Year - 8% APY

4th Year - 7% APY

5th Year - 6% APY

Tokens to cover the staking pools for the first 5 years are injected into the market, generating an estimated %4 inflation yearly. This encourages the spending of tokens to pursue value in the utility of the network and is on par with our plans to expand the network. The inflation will be countered by deflationary mechanisms introduced by the network fees as the network utility expands. This leads to an equilibrium which will be adjusted periodically to provide a sustainable economic model.

3.2 Network Fee

The sum of the operator reward and the developer reward is called the total reward. The network fee is calculated based on the operator rating and the total reward. The total reward is set by the market, and naturally the total reward increases as the operator rating increases. The network fee is expressed in percentage and is decreasing exponentially from 6% to 1% as the operator rating increases to foster early onboarding of operators and overall network performance.

An estimation of the network fee calculated at a token price of $0.01 USD can be seen in the graph below:

ESTIMATED NETWORK FEE
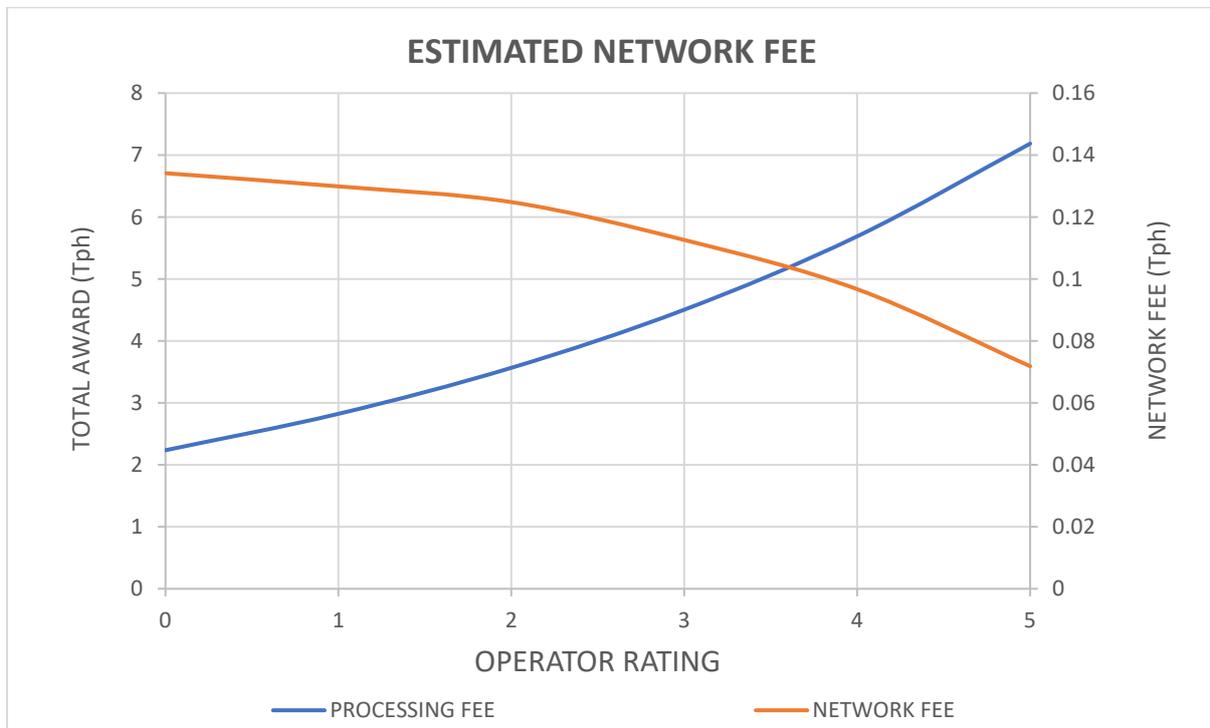
The network fee is distributed for 3 actions: staking, burning and company return. The aim is to stimulate utility in the first 5 years with staking, and afterwards to counter the inflation by steadily increasing the burning rate. A 10 year plan for the distribution in percentage of the network fee can be seen below:

Fee distribution