



# Prometheus

**THE COMPUTING ENGINE  
OF THE FUTURE**

WHITEPAPER





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# Introduction

**In the era of technology we live, almost all processes, whether they belong to business, science, manufacturing or any other area of expertise, tend to become more complex, sophisticated, well- thought-out, and more effective as a result. The growing complexity of tasks causes the need for higher computing powers.**

Most modern discoveries that directly affect our lives would not have taken place without complex calculations on high-power machines, which would have seemed fantastic to most people a few decades back. Today these calculations are indispensable for large business, scientific and industrial centers, large-scale manufacturing.

However, high-powered computers are available to big players only, while their medium- and small-size counterparts are far behind due to the inability of spending money on buying or renting expensive machines.

The mission of Prometheus59 is to provide everyone with access to cheap and affordable computing power. Like the legendary titan Prometheus brought fire to humanity, we are going to bring the global computing power source to every home so that anyone can use it to solve tasks of any complexity.

# 1. The Need for a Global Decentralized Supercomputer

The need for a global decentralized supercomputer is a logical consequence of the development of science and decentralization in particular. The need for computing power is always growing, but surprisingly, modern processors lack computing power to solve complex tasks or process big data.

Predicting the climate requires enormous computing power and is the first priority to ensure the survival of the species. Paradoxically, works on climate prediction are mostly underfunded and lack resources, even though they are often conducted by official organizations. At the same time, those who try to work independently are often deprived of access to resources because either their work is not beneficial to people who distribute resources, or there is no possibility to tailor the results to what the owners of these resources want.

SETI is trying to solve the funding/resource problem through the involvement of unused computing resources of volunteers. But no additional incentives except for pure enthusiasm take place. Moreover, sharing the computing power loads the processor, which leads to an increased wear and is not compensated.

High-power supercomputers solve fundamental scientific problems with a wide range of applications, such as pharmaceutical development, genetics, automotive industry, oil and gas industry, image and speech recognition, sociology, data architecture, and so on.

The idea of Prometheus59 is not only financially justified, but also affects the life of an average man, who will be able to:

- a) take advantage of the benefits acquired by the work of the supercomputer;
- b) rent computing power to solve tasks of any complexity;
- c) provide computing power in exchange for profits.

## WHY DOES A SUPERCOMPUTER OPERATE SO QUICKLY?

The productive capacity of computers has increased by millions of times for the last 50 years while operating speed increased by much less. That may seem strange, but what gave computing technologies a boost was parallel processing – simultaneous execution of several actions.

To illustrate this we may take, for example, a device that completes 1 operation per cycle. To complete 100 operations, it needs 100 cycles. But with 5 devices working in parallel, the number of cycles is reduced to 20 only!

Prometheus59 takes the idea of parallel processing to a new level. In fact, the number of computers connected to the network is unlimited and can reach millions of units, providing unprecedented power to all those in need.

# 2. Prometheus59: Round-the-Clock Availability and Efficient Use of Computing Resources

Prometheus59 will provide:

1. Availability and the level of computing power that can be compared to modern supercomputers.
2. Respect for the financial interests of each provider of computing power.

## 2.1 Operation Principle and New POC Algorithm

Prometheus59 will use a blockchain based on Proof of Computing (POC) – an algorithm that uses fragments of arbitrary computations, which are parts of the common task distributed between masternodes.

The arbitrariness of calculations (depending on the tasks solved on Prometheus59) makes it impossible to use ASIC, as they will never be adapted for complex arbitrary calculations, the algorithms of which can vary from task to task.

## 2.2 System Stability and Profit Distribution

The amount of remuneration will depend on the amount of computing power provided. At the same time, the establishment of a monopoly by a certain super-powerful computer is almost impossible for economic reasons.

Theoretically, a single supercomputer could be connected to the network, but it would perform useful work. Secondly, a supercomputer worth millions would be unprofitable due to the possibility of minimum task price change (see par. 6). Thirdly, the net cost of the computing power of regular computers would be lower than the cost of the computing power of a supercomputer.

But even if the supercomputer would be connected,

a) its power would significantly increase the total power of the network, which would be beneficial to all users;

b) the network monopolization would be impossible due to the participation of all the nodes (except for the lightweight nodes) in the adoption of consensus, which will largely depend on the calibration calculations, take up to 1% of the total network power and carried out by all computational nodes.

The system is stable and valid for all participants, and one PC is enough to become a part of it. More powerful and expensive PCs will get a greater reward as they provide more computing power.

## 2.3 The Use of Computing Power and the Role of Masternodes in the Global Network

Some part of the total network computing power – no more than 1% according to preliminary calculations – will be used to maintain the network integrity, as well as for calibration operations that will be the basis to determine the percentage of the computing power provided by each user.

Calibration calculations are introduced for two reasons:

1. The need for an objective mechanism to control the size of the computing power provided, arising from the possibility of significant differences in tasks.
2. Preserving the integrity of the blockchain if a supercomputer connects to the network.

There are 2 types of masternodes: regular masternodes (valid until the transition to gate masternodes is finished) and gate masternodes (valid after the mainnet launch). Masternodes will

1. Provide better network connectivity and availability of computing power of nodes that

do not have direct access (real open external IP addresses);

2. Coordinate and distribute computing tasks and gates through which users will be able to upload their tasks and use the computing power of the network.

To prevent blockchain bloating that may occur when performing computations requiring loading large amounts of data and subsequent unloading large arrays of results that are impractical to transfer through the blockchain, gate masternodes will also be gates and distribute data between computing nodes. Gate masternode owners will receive additional remuneration over the usual reward for the provided computing resources.

Since not all users may have computers or servers that are able to provide computing power (for example, Raspberry PI or a VDS with prohibited intensive calculations), there will be a possibility to run a special wallet that does not support calculations but makes profits on coordinating functions of masternodes.

## 2.4 Charity Mission

Prometheus59 will have about 10% of the total capacity of the system allocated to support social projects that are not able to pay for the computing power of Prometheus59. The representatives of any social project will be able to apply for obtaining the computing power through a special portal where masternode owners will choose a specific project by voting. Selected projects will have access to the allocated computing power and make our world a better place.

All other orders will be submitted directly through any nearest masternode that provides data transfer from the user who needs to perform computing tasks to the general computing environment of the system.

To make the system effective when there are too many applications (during the initial period), all orders will be prioritized according to the highest suggested payment for the computing power.

# 3. The Role of the Blockchain and the System of Rewards

The blockchain is designed to

a) motivate all users to become a part of the network;

b) ensure a fair income depending on the provided computing power.

After the mainnet launch, each block reward will include a usual reward for regular masternode owners/stakers and an additional reward proportionally distributed to all wallets and gate masternodes according to their functions and computing power.

## 3.1 By-Sector Payments

To avoid too many transactions in the block when the number of wallets-computing cores increases, payments will be issued “sector-wise:” all the computing cores (wallets) will be divided into groups, while each block will contain a reward for only one group.

The remuneration amount for each computational node will not change and will remain proportional to its contribution to the computing network.

## 3.2 Distribution of Computing Tasks, Data, and Results across the Network

The blockchain also distributes already translated into the system’s internal language tasks across the network, as well as data and results for tasks with a small amount of data and non-intensive calculations.

If the task requires large amounts of data, computing nodes receive it directly from the customer through gate masternodes, which also play the role of gates. The return of results occurs the same way: blockchain stores only hashes to monitor data integrity and correctness of results, as well as information through which masternodes need to receive the data for this particular task (masternodes are gates for exchanging data on a specific order). As the system develops, it will be able to effectively perform dozens and hundreds of complex tasks from different customers at the same time.

## 4. Types of Wallets

Depending on the computing power and personal preferences, you will be able to choose the wallet that best suits your needs.

### Wallet 1.0

Wallet 1.0 is a basic wallet for working without the possibility of providing computing power. Wallet 1.0 will be the main wallet until the mainnet.

### Wallet 2.0

Wallet 2.0 will be released after the transition to mainnet. As the network develops, block generation will be carried out exclusively by wallets 2.0.

### Light Wallet

Light Wallet is a mobile wallet without the ability to provide/rent computing power or perform gate functions.

# 5. Provision and Leasing the Computing Power

**The provision of computing power will be made directly through a special field in the 2.0 wallet, where you will be able to specify the percentage of power that you want to provide. The ability to adjust the percentage of power will allow you to avoid the processor overload and ensure the normal operation of your machine.**

The leasing of computing power will be made through the 2.0 wallet as well. You will be able to upload your task and source data or provide source data according to the API if the amount of data is too large (in this case, masternodes will act as gates for loading/unloading the data according to the protocol). The task code will have to be provided in the form of a file that will be uploaded through the wallet, which will analyze the code for correctness and the absence of obvious errors and then upload it for execution with pre-compilation into intermediate executable code that improve the performance of the computational task and eliminate errors in the source code.

# 6. Coin Economics: Price Stability and Growth

**When placing a task, each customer (except for socially significant projects that will have a separate registration procedure followed by voting of masternode owners) will offer a reward for completing the task (but not lower than the minimum reward set in the system).**

The minimum task price will be calculated dynamically depending on the workload of computing nodes, the total capacity of the system, the total number of coins in circulation, and additional parameters (urgency level, big data, etc.);

Upon the availability of sufficient amount of computing power, the task is accepted for execution, and:

a) Rewards to gate masternodes are issued (the specific mechanism for determining the reward amount will be determined upon the mainnet launch).

b) Rewards to 2.0 wallets owners are issued according to the computing power provided.

c) Certain percentage\* of the amount paid by the customer is burned.

d) Certain percentage\* goes to the development fund to ensure the maintenance and further expansion of the supercomputer.

In the case of unavailability or lack of computing power, masternodes automatically prioritize the tasks with the highest payment, while the rest are queued according to the payment size.

This mechanism will ensure a constant shortage of coins and the availability of payments for masternodes and computing nodes (POC wallets). At the same time, it will eliminate the increase in the volume of coins in circulation, which will guarantee the stability and steady increase in the coin price

*\*The burn percentage and the formula for calculating the minimum task price can change dynamically to stabilize the exchange rate and maintain the balance between the coin price and the availability of computing resources.*

# 7. Development Stages and Financing

**The developers are now focused on the development of the system core, which should ensure good paralleling of structurally different computational tasks in a heterogeneous computing environment with computational nodes of different power.**

The other part is developing and debugging consensus and POC mechanisms, which must function reliably with the tasks of different computational intensity.

The financing is partly made at the expense of the team, partly – by enthusiasts who are interested in the possibility of creating such a system. To speed up the work and get extra funding, we split the work into 3 phases.

1. The launch of the Prometheus59 blockchain without additional elements that are currently in development. This will allow us to increase the number of major developers and speed up the

work. As soon as the individual parts are ready, additional volunteers will be involved to check and adjust them. To coordinate them, the closed part of GitHub will be used; payments will be made with the coins.

2. Once the preliminary debugging is completed, the working code will be released on the public GitHub account for subsequent testing within the testnet.

3. After thorough testing, the chain will be forked into the mainnet version that supports distributed computing. Despite the significant difference in testnet and mainnet, the testnet chain and the coins issued in it will remain valid and will not differ from the newly issued ones.

Any drop in the price of the coin will not be essential because it will lead to greater availability of computing power after the network launch and will be quickly compensated by

a) dynamic re-calculation of the minimum task price.

b) floating percentage of burned coins.

These measures will quickly return the value of the coin to a reasonable level and guarantee a decent reward to users.

## 8. Future Outlook

**The stability and growth of the coin price will allow it to become a means of payment for third-party services and goods. The coin will have a real use-case in the form of in-demand computing resources, which will make its reliability comparable to fiat currency.**

However, an unreasonably high coin price will lead to an unreasonably high increase in the cost of computing power, which contradicts the basic idea of ensuring the availability of powerful computational resources to those who really need them. That's why the dynamic re-calculation of the minimum task price and charity mission take place.

The logo features the number '59' in a bold, black, sans-serif font. The '5' and '9' are enclosed within a square frame composed of small orange squares, resembling a circuit board or a data grid. The frame has small orange lines extending from the corners, suggesting connectivity or data flow.

# Prometheus

