DAO Engine for B2C/C2C platforms

Introduction of the technology
&
Introduction of the decentralized freelance platform

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Abstract

With the influx of blockchain technology, new possibilities are opening up today, which hitherto seemed unsolvable. Key features such as transparency and decentralization make it possible to solve the world's problems, in almost all sectors. Busy is a technology project dedicated to bringing disruptive blockchain technology to global e-commerce. At first, it will be used to create a fully decentralized platform in the freelance sector. Millions of people work as freelancers around the world, the number has also increased due to the COVID-19 pandemic, but the key problems are mainly centralization, low-quality offers, fraudulent offers (spam), and fees. Busy brings a decentralized platform for freelancers based on blockchain, where there will be no fees or central management, but users will be part of an ecosystem – and will benefit from it.

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1. Introduction

Busy is a decentralized and distributed blockchain engine for e-commerce platforms. We are developing a decentralized platform for freelancers, but the blockchain engine will be available to everyone who will see an advantage in it through smart contracts.

We have been developing this engine since Q1 2020 when the idea was born. The technology includes solutions that utilize blockchain utility staking, antispam, smart contract, etc.

As blockchain is a much-discussed topic globally, large international companies are starting to implement it in their business processes, whether private, hybrid, or public.

The e-commerce market is one of the largest industries that still suffers from imperfections that can hurt the users who use them the most. Especially the freelance sector does not offer any decentralized platform. Millions of people work worldwide as freelancers, centralized and managed platforms are often overcrowded with low-quality offers – there is spam, and the user really cannot tell at first what is a good offer and what is not. Furthermore, if the offer is attained, which is subsequently completed, but not according to the expectation, the users will still pay a fee to the platform. Moreover, the user still loses valuable time if even the service is not accepted.

There are two types of platforms on the market:

- First is where users have to pay for a membership that allows them to offer or obtain services from other freelance users.
- Second is where, although the membership fee is not charged, a fee is paid for each completed transaction.

An important factor in freelance is the fact of the ongoing global pandemic COVID-19. Most companies worldwide, which did not declare bankruptcy in the first two waves, barely survive during these difficult times. Some of them had to lay off their capable and talented employees where some of them moved to the freelance sector, and they have to compete to offer their services. Many companies on these platforms are looking for freelancers who can do a particular job or service for the company without obligations associated with a full-time or part-time employee. All the above led to the increase in problems on the freelance platforms – many offers among which is hard to find quality service.

Busy is coming to the e-commerce market with a revolutionary solution, which brings decentralized technology based on blockchain that will be connected to the decentralized freelance platform. There will be no central point of control that would

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take any fees on the platform, as the platform will work as a fully decentralized ecosystem. As the user will be a vital part of the ecosystem and influence the growth of the platform, making it an important element of the operation itself, he will have opportunities that he cannot found anywhere else.

Busy uses several interconnected solutions and thus forms a complex model, in which the use of blockchain, proof of stake consensus, and coin tethered automated platform is the basis.

The project aims to create a global decentralized and exclusive platform that will compete with the current centralized giants with exclusivity, quality of services offered, and benefits associated with decentralization. Another advantage will be the easy application of this model to any other e-commerce area using smart contracts.

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2. Problems in freelance

Although Busy technology can be used in a variety of e-commerce platforms, Busy is focusing on the freelance sector at first as there are many problems that it can eliminate and potentially make life easier for millions of people.

The most demanding problem on the current platforms is either local or global approach, but both are centralized. In the first case, users have to pay for an expensive membership; in the second case is a free registration, but the expensive fee is paid for every transaction made.

Mainly simple registration characterizes these platforms, which is usually free, and where the fee for using the platform is charged as a commission from individual transactions. That is why the platform may not care if it has 90% of inactive or low-quality users, because there is still some potential income. It is as if one successful user pays for placement on the platform and unsuccessful users are there just to be the artificial competitors. Also, it is known that the high number of users has a very positive effect on equity investors, who cannot effectively focus on user quality, so they focus on quantitative numbers.

From the above, it is clear that no one is forcing these platforms to change their strategy and approach the users differently. Indeed, this would mean admitting that their business model is not perfect, which logically is not a simple position for centralized companies valued by stock investors by billions of dollars. It is also predictable that any hesitation could cause an irreversible decline in the value of the company, which, of course, no one will risk.

2.1. Prices

Prices on the platforms are often completely random, regardless of the quality of the service provided. There are certainly some quality services on these platforms, but such a service will probably keep its price very low to be competitive with unqualified advertisers in its field. Unfortunately, unqualified advertisers very often reduce the price because the quality of their services is very low, which leads to significant degradation of the market environment. And it only brings additional problems.

On the other hand, there can be seen several low quality, and even more so, often fraudulent offers, which set the price high to create the impression of a quality offer. They often do this by presenting a plagiarized portfolio.

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2.2. Competition

One of the main problems on the freelance platforms is that high and quality adequately evaluated offer has a disproportionate amount of cheap and very often fraudulent competition on the platforms. Unfortunately, to such an extent that the end customer does not even have a chance to register. And once he registers, it is very difficult to distinguish a quality offer from low-quality and even overpriced offers. In addition, the whole problem is compounded by the fact that it is not possible to use external links on the freelance platform (which makes it impossible to find any external references) because they are very often locked. This leads to the fact that the user himself is locked together with them on the freelance platform.

2.3. User rating

Under this term is hidden one of the last rescue points for the end customer, and it should help to recognize the quality of the offer. However, the star-based rating system, which is supported on the current freelance platforms, often fails in its purpose.

Our research shows the basic points of why this is the case:

a) **The star-based rating system is not fair**
This means that a good and quality offer, which is only on the freelance platform for a short time, is at a great disadvantage compared to a lower quality offer because, for example, this lower quality offer can be on the freelance platform for a longer time.

b) **Every customer has different expectations**
Logically, it happens that a customer with lower expectations positively evaluates services that would be difficult for demanding clients to obtain. And this, of course, can be reflected in the number of evaluations, which can be misleading for someone and thus can create a false impression of "proven quality" in demanding clients.

c) **Customers may also rate inaccurately and unreliably against their complexity**
But it also happens that the customer evaluates only purely out of solidarity when the customer is simply sorry to give a bad rating to the person who tried but unfortunately did not deliver the product according to the customer's expectations and ideas. This situation again creates the impression of a better offer than is in reality. Which, of course, again confuses other customers.

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2.4. Spam

Since access to the platform is free, spam on the platform is almost a cost-free affair, and users, often with fake accounts, overwhelm the freelance platform. It often happens that one user owns multiple accounts that they overflow even more and create confusion between offers. Then there is spam, which floods individual users with misleading and fake offers, making it nearly impossible to use the platform correctly and effectively.

2.5. Fees

Platforms are often represented as free platforms. However, the opposite is true. These platforms claim high percentages of each order placed on the platform. Therefore, a successful advertiser often pays large amounts of these "percentages of sales", which reduces the utility of these platforms. For the above reason, the quality freelancer is not interested in staying on these platforms anymore. And as the service price would be increased by this, the platform fee would be significantly above the market value, making it less competitive. Again, that makes space for low-quality offers and advertisers who are willing to offer low-quality services but at the lowest costs.

2.6. User-experience

The end-user usually spends a lot of time on the freelance platforms to find the exact offer for their needs and requirements, in terms of both the quality and the price.

As the offers are not very structured and not well arranged, the searching user is often forced to try several of them before finding a product or service that meets the needs. Due to the complexity of the complaint and the skepticism to fine-tune the final service with the seller, it also happens that the client pays for the service several times to several sellers. This, of course, leads to the overcharge of goods or services, several times then if he ordered it from an advertiser with a quality product and service.

It is hard to effectively match customers' demands with the best offers as the existing freelance platforms have not been conceptually designed for this yet. The decentralized Busy solution gives the space to the best offers and eliminates bad, inactive, and possible spam offers. It can potentially save the user time and money.

It is hence an opportunity for people who have little or no trust in each other to create records in a completely secure way through blockchain – without any intermediary. The fully decentralized Busy platform will have no central administrator, so there will be no central authority – its users will be in a position of the service. This means that each user can verify transactions or, for example, monitor those who verify a transaction in a

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given blockchain. Besides, each such user contributes to the overall decentralization of the system.

Thanks to blockchain technology, it is finally possible to create truly transparent and decentralized platforms.

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3. Busy solution

The Busy technology brings a comprehensive decentralized solution based on blockchain, to which the Busy decentralized freelance platform will be connected. The technological solution consists of several layers, where the most important are:

- utility staking – which is the basic building block of the whole platform and which will enable the cost-free operation of the ecosystem;
- online wallet – which will work in the Busy platform environment;
- offline wallet – which will work as a computer program.

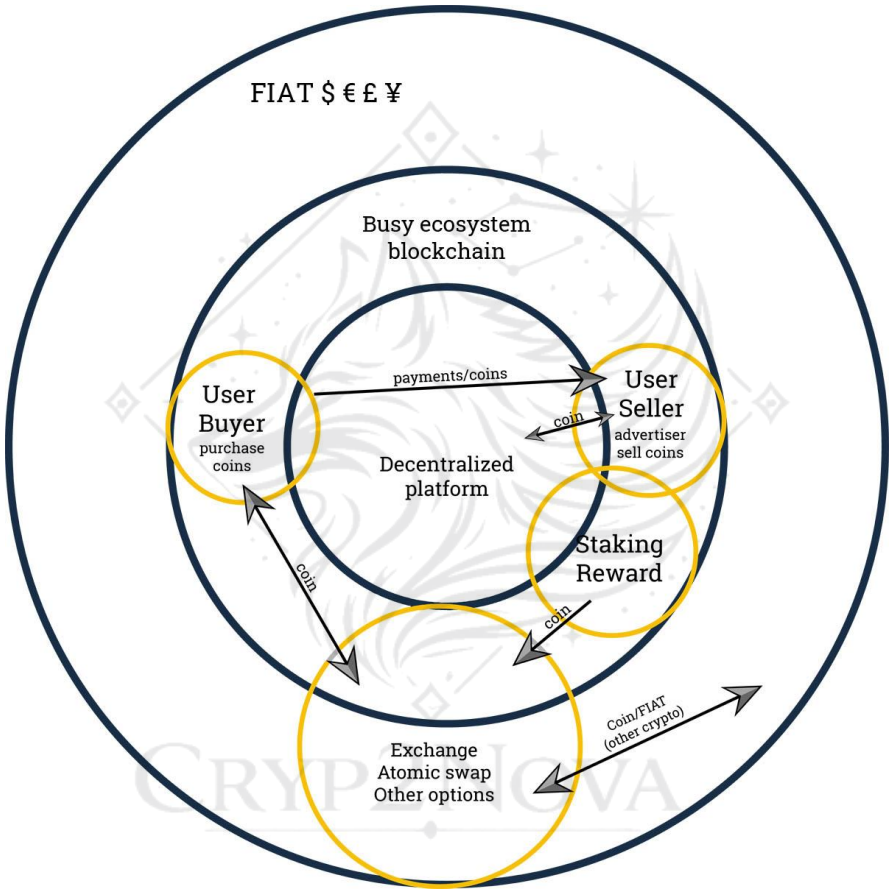


Figure 1: Busy ecosystem

3.1. Blockchain

A blockchain will be an open and distributed database of records. The database will be replicated across many nodes and the whole blockchain network will be entirely decentralized. This means that no person or entity will have control over the blockchain.

The database will be comprised of blocks of data, with each block being connected to the previous block, forming a chain. As well as the data itself, each block also contains a record of when the block was created or edited, which makes it very useful for maintaining a detailed system of records that cannot be corrupted or lost.

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Blockchain technology accounts for the issues of security and trust in several ways. First, new blocks are always stored linearly and chronologically. This means that they are always added to the “end” of the blockchain. Once the block is chained, it is very difficult to go back and alter the contents of the block. That is because each block contains its own hash, along with the hash and time stamp of the previous block. Hash codes are created by a math function that turns digital information into a string of numbers and letters. If that information is edited in any way, the hash code changes as well.

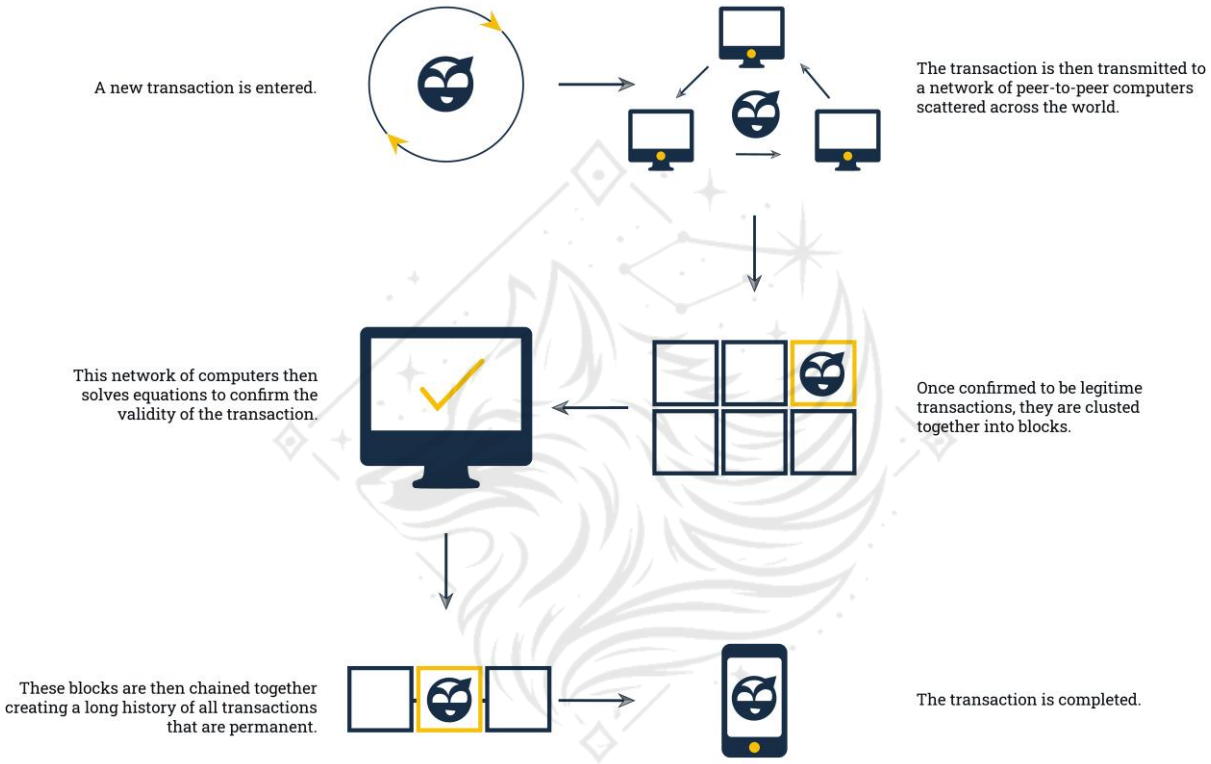


Figure 2: How Busy transaction works

As the blockchain database will be duplicated across many nodes, any user can view the entire blockchain. Transactions and data are processed not by one central administrator, but by a network of Busy users who work to verify the data and achieve a consensus. In our Busy solution, we have modified the original proof of stake consensus, making it unique in its function by some specific features.

3.1.1. Technical details

The Busy technology uses a modified PBFT (Practical Byzantine Fault Tolerance) consensus. Each user enters an algorithm with a specific and the same number of coins. This ensures that each user has the same network power and no one is favored. Another feature is the selection of the block validator using the hidden key of the VRF function, which ensures that each user has the same chance to become a block validator. A new

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group of validators enters each verification process. This ensures high security and network throughput.

VRF (Verifiable Random Function) is a pseudo-random function that provides publicly verifiable proofs of its output validity. There are two outputs: a so-called "unique-signature" *y* and a proof *p*. In addition to being a public key cryptosystem, they have the following properties:

- Collision resistance, i.e., it is hard to find two inputs that map to the same output.
- Pseudorandomness, i.e., the output is indistinguishable from random by anyone not knowing the secret key.
- Trusted uniqueness, that requires that, given a public key, a VRF input *x* corresponds to a unique output *y*.

The last statement is quite important. It means that *y* will be always unique for a given input message and a public key, while the proof might be randomized. Thus, peers cannot generate multiple signatures until they reach a sufficiently low value because they will always receive the same value for the same input. This means that they run the lottery only once for each input message.

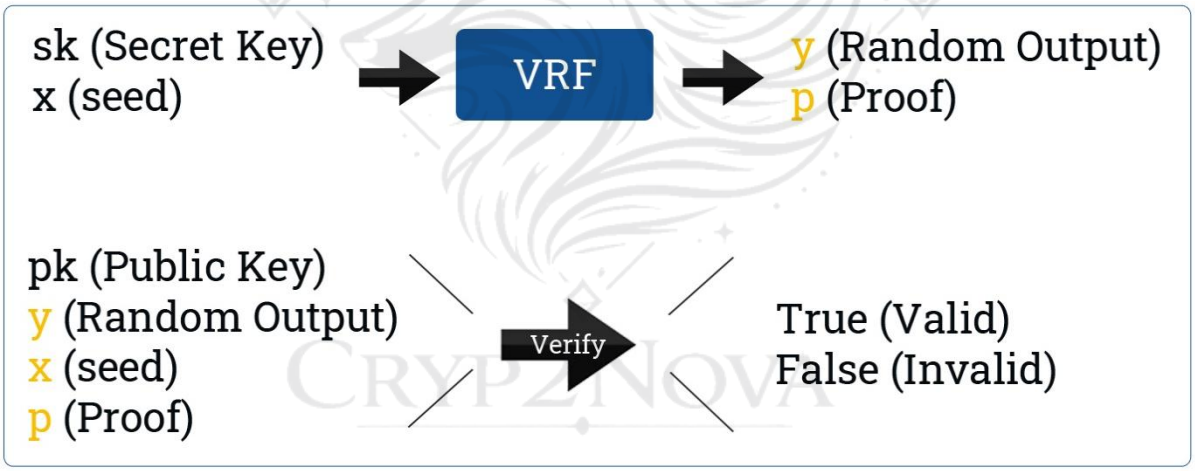


Figure 3: VRF function

There are already some applications using the VRF in the blockchain space. From the already functional blockchains, it is Algorand, Cardano, Polkadot, Chainlink, and Filecoin. Each of these projects has its own implementation of this feature and its own mainnet.

The blockchain network consists of a series of nodes arranged from 0 to *n - 1*, where *n* is a number of nodes in the network. There is a so-called maximum number of "bad" nodes that the network can tolerate. If this number of "bad" nodes, called the constant *f*, is not exceeded, the network will function properly. The constant *f* is equal to one-third

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of the nodes in the network. At least 2/3 of the nodes must be functional and honest for the algorithm to work.

$$n = \text{Total \# of nodes in network}$$
$$f = \frac{n - 1}{3} \text{ (Max \# of faulty nodes)}$$

Figure 4: Equation for f constant calculation

As the network progresses, nodes go through a series of "views". The view is a time period when the given node is the primary (leading). Simply put, each node alternates as a primary in an infinite cycle, starting with the first node. For a network with four nodes, node 0 is primary in view 0, node 1 is primary in view 1, and so on. When the network reaches view 4, it "wraps back", so node 0 is primary again.

From a technical point of view, the primary (*p*) for each view is determined based on the number of views (*v*) and the arrangement of the nodes. The formula for determining the primary node for any view on a given network is:

$$p = v \% n$$

For example, in a network with four nodes in view 7, the formula:

$$p = 7 \% 4 = 3$$

means that node 3 will be primary.

In addition to moving in a series of views, the network moves in a series of "serial numbers". In the context of blockchain, the sequence number is equivalent to the block number, i.e., saying that the node is a sequence number 10 is the same as saying that the node matches on block 10 in the string.

Each node maintains several pivotal pieces of information as part of its state:

- list of nodes that belong to the network,
- its current number of impressions,
- its current serial number (block on which it works),
- the phase of the algorithm in which it is currently located,
- the protocol of the blocks he received, and
- a log of all valid messages received from other nodes.

Blockchain phases

The Busy blockchain uses so-called “phases”. In each phase, the number of coins for input is reduced by *n / 2*. The phase transition depends on the number of nodes. I.e., the

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more nodes in the network, the lower the complexity, the healthier and the more decentralized the network is.

The blockchain contains 3 phases, during which a new block is created:

1) pre-prepare,
2) prepare and
3) commit.

Figure 5 shows these phases for a simple four-node network. In this example, node 0 is primary and node 3 is the "bad" node (so it does not send any messages). Because there are four nodes in the network (*n = 4*), the value of *f* for the network is 1 (*4 - 3 = 1*). This means that the sample network can tolerate only one faulty node.

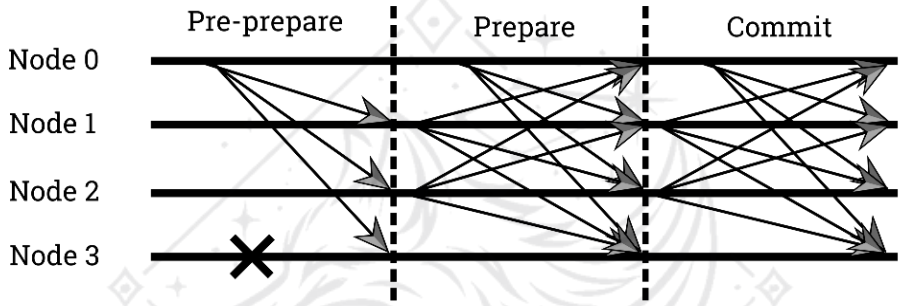


Figure 5: Blockchain phases for a simple four-node network

Pre-prepare phase

To start the process of creating a new block, the primary node for the current view creates the block and publishes it on the network. Each of the nodes receives this block and performs a pre-validation to make sure that the block is valid.

After the primary node publishes the block on the network, it sends a preparation message to all nodes. Pre-prepared messages contain four key pieces of information:

- the ID of the block that was just published by the primary node,
- block number,
- display number of the primary node, and
- primary node ID.

When a node receives a pre-prepared message from the primary node, it validates the message and adds the message to its internal log. Message verification involves verifying the digital signature of the message. This is to check that the number of views of the message matches the current number of views of the node and to ensure that the message comes from the primary node for the current view.

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The pre-prepared message serves as a way for the primary node to publicly approve the block and for the network to agree on which block to match for that sequence number. To ensure that only one block is authenticated at a time, nodes do not allow more than one pre-prepared message in a given view and sequence number.

Prepare phase

Once the node receives the block, the pre-prepared message for the block and both the block and the message have been added to the node log, the node enters the prepare phase. In the prepare phase, the node will send a prepare message to the rest of the network (including itself). Prepare messages, like pre-prepare messages, contain the ID and block number for which they are intended, as well as the node view number and ID.

To proceed to the next phase, the node must wait until it receives $2f + 1$ of the corresponding instructions, and then prepare instructions that have the same block ID, block number, view number and are from different nodes. This ensures that all properly functioning nodes (those that are not faulty and not harmful) comply with this stage. Once the node receives the required $2f + 1$ pairings of the prepare messages and adds them to its log, it is ready to go into the commit phase.

Commit phase

When a node enters the commit phase, it sends a commit message to the entire network (including itself). Like other message types, the commit messages contain the ID and block number for which they are, along with the node view number and ID. As in the prepare phase, the node cannot complete the commit phase until it receives $2f + 1$ of the corresponding instructions from different nodes. This again ensures that all non-functional nodes in the network have agreed to create this block, which means that the node can safely create and commit the block.

Once the primary node completes the commit phase and commits the block, it begins the process again by creating a block, publishing it, and sending a prepare message for it.

To scale the consensus, a mechanism based on VRF is used, which allows users to privately check whether they are selected to participate in the consensus to agree on the next set of transactions.

When the node determines that the primary view is defective (perhaps because the primary node sent an invalid message or did not create a valid block in time), it will send a view change message to the network for the view $v + 1$. If the primary view is really

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defective, all valid nodes will send view change messages. When the primary node for the new view (*v + 1*) receives view change messages *2f + 1* from different nodes, it will send a new view message for view *v + 1* to all nodes. When the other nodes receive a new view message, they switch to the new view, and the new primary node begins publishing blocks and sending messages before preparation.

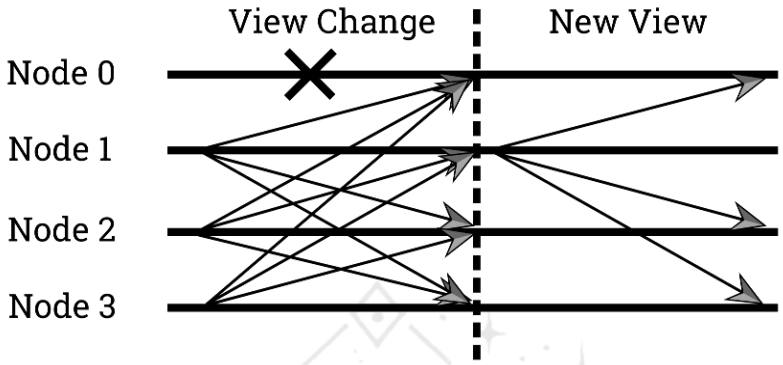


Figure 6: Blockchain – Commit "View" phase

This feature allows the network to continue to progress and not be stopped by the wrong primary node.

Busy blockchain supports Seth projects which can run the Ethereum smart contracts written in Solidity. The goal of Seth is to make it easy to port existing EVM smart contracts and DApps that depend on them to the blockchain. This has been largely accomplished by replicating the Ethereum JSON RPC API. Compatibility with Ethereum smart contracts enables the usage of Ethereum standards like ERC-20 and allows for interoperability between the Busy and the Ethereum ecosystem.

3.1.2. Token/Coin

The ERC-20 token is in Busy considered as one of the temporary supporting parts of the whole ecosystem. During the token offering and the development period, the ERC-20 token will be used due to its reliable properties and already established adoption. However, as the more advanced blockchain will be required, a mainnet swap will be performed and all ERC-20 tokens will be swapped in a ratio of 1:1 to the Busy mainnet coins.

The specific use of the coin is that it will occupy the slot and the ratio of the coin to the slot is given by the development phase of the system (for more see section 3.2.5.). For example, with 1,000 coins, a slot of size "1" will be occupied. This ensures that the coin will have 100% usability throughout the system. Thus, it will offer real benefits for each holder.

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Of course, the coin will also function as the main payment currency on the platform. Users will be able to purchase quality services for coins and as freelancers, they will also receive a reward for their services in coins. Thanks to the use of the coin (respectively demand), its value will also increase. Thus, the number of coins that users have in staking will increase the value of the staking reward. Users will be therefore positively motivated and interested in the development of a freelance platform. Given that they will have a share in coins, they will be motivated to use the coins as a form of payment.

3.1.3. Wallet

In Busy, the cryptocurrency wallet will be a virtual and a software solution that will store public and/or private keys for creating transactions and it will be also used to sign and encrypt information. By signing is meant, for example, the implementation of a smart contract notary between two users or sending a message on the platform. The more active users in the system, the more dynamic the platform will be.

Offline

The offline wallet will be implemented through a computer program that the users will have installed on theirs secured clients. The offline wallet will provide an extra layer of security for the wallet against theft and misuse, but its most important benefit is that each offline wallet will form a node in the blockchain network, thus forming part of a decentralized network. The offline wallet will contain all the essential functions for working with the Busy cryptocurrency, for example, creating a wallet, sending transactions, receiving transactions, creating/removing a staking address, and so on. The user will be also able to have an online wallet in which both addresses can be linked. With this, it will be possible to expand/take up a slot on the platform. This way, the user will hold the coins directly, which will provide another layer of safety.

Online

The online wallet will be implemented through a blockchain that will work with the Busy decentralized platform. All functions of the online wallet, such as creating and sending transactions, staking, etc., will be implemented after sending the request from the platform to the blockchain, which will process the request and return the required data. If the user will want to use both wallets, it will be possible to link the offline wallet to the platform in "read-only" mode, which means that it will be possible to check the offline wallet's balance in the online wallet, while using the staking addresses from the offline wallet to expand/take up the slot on the platform.

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3.1.4. Proof of stake consensus

Busy proof of stake will be similar to the already adopted pure proof of stake with a few specific changes. New block validators will be selected using the VRF function. Only users with a specific number of coins will be included in the selection itself. This method will include the selection of a new block validator with only the same number of coins – each user will have the same strength and the same chance to become a validator of a new block. Thus, different random users are always included in each input. Unlike basic proof of stake, each user involved in the ecosystem will get a staking reward, not just those who will close the block.

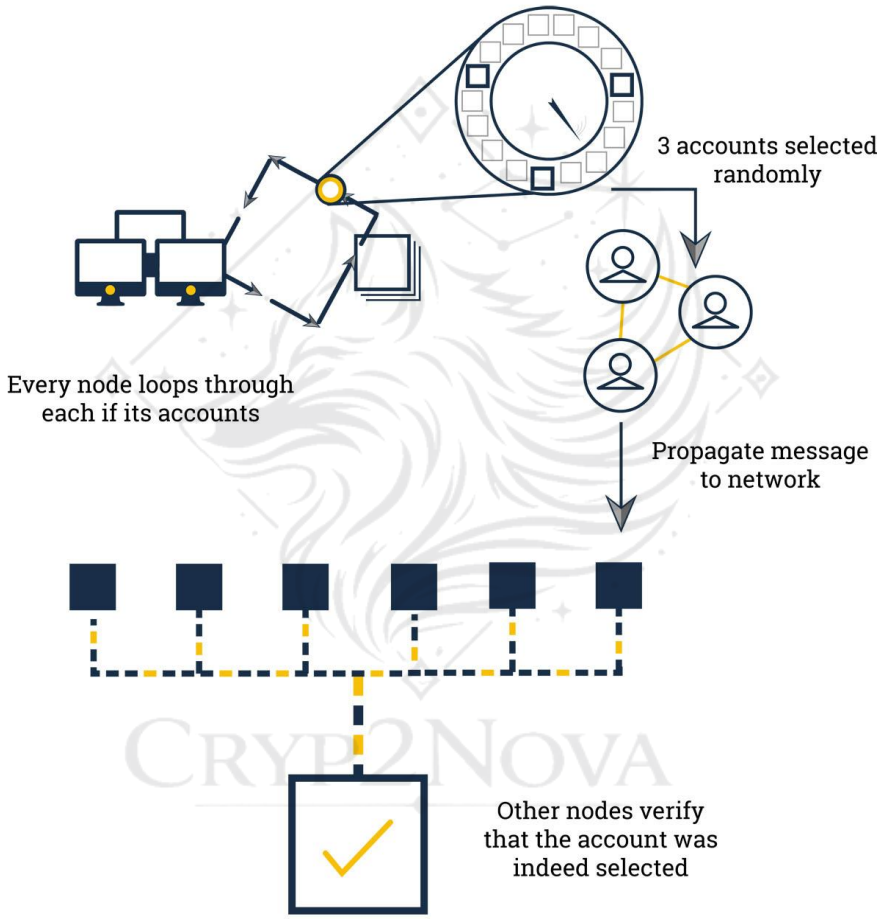


Figure 7: Busy proof of stake

3.1.5. Utility staking

Utility staking is considered to be one of the main engines of the Busy technology and Busy platform, allowing users to occupy slots, and thus the user will actively participate in the development of the entire ecosystem and platform. To ensure that there will be always enough coins throughout the ecosystem, the staking reward in the blockchain

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will be set to 33% p.a.[1] from each staking address so that each user will participate in an increasing number of coins. And that is why inflation will not occur at the expense of the user. On the contrary, the user will be rewarded with newly created coins, which he will be able to either use on the platform or sell on exchange and thus will help to ensure sufficient liquidity in the ecosystem.

In the Busy solution, staking will be used for three critical activities:

- the first activity will be the visibility and size of the slot as such on the platform,
- the second activity will be the calculated staking reward, and
- the third activity will be the verification of transactions themselves (proof of stake).

Staking is a solution using staking wallets and addresses. The staking limit will be set in each life-cycle phase (more in section 3.2.5.). The limit will indicate the minimum number of coins required for staking. Therefore, if the staking limit will be set to 1,000 coins and there will be only 900 coins in the staking address, no staking reward will be obtained in this case, nor will the staking address count to the slot size. The second alternative is that there will be 3,000 coins in the staking (although the staking limit will be 1,000), and in this case, the staking reward and the slot size will be calculated only 1x (i.e., only from 1,000 coins). To receive three times more coins from the staking reward and increase the slot, you will need to have three staking addresses, each with a minimum of 1,000 coins.

The function is shown in Figure 8, where the staking limit is set to 1,000 coins (i.e., a minimum of 1,000 coins in the staking address (SA) is required to obtain a staking reward). In the example, there are two SAs, each with 1,000 coins; as a result, the user receives approximately 660 coins (2 x 33% of 1,000 coins). The total amount of coins that will be earned can be counted with a general equation (330 coins = 33% of 1,000 coins) multiplied by the number of active staking addresses.

[1] Staking reward is set to 32.7–33.2% p.a. Staking reward is affected by the holding time of the coins, i.e., the time for which the user holds the coins. Each year does not have exactly the same time periods, so staking reward can vary within the given deviations. Entitlement to a staking reward begins to count after the first 60 minutes.

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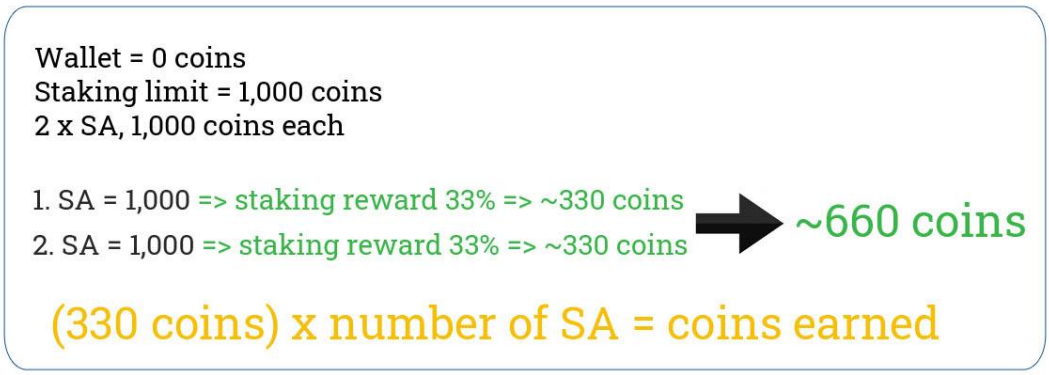


Figure 8: Example – staking reward

3.2. Platform

The freelance platform will be built on the Busy unique blockchain-based technology and charge-free solution which will make every user a vital part of the platform's decentralized ecosystem. Each user of the platform will be able to occupy space on the platform through utility staking and profit from staking with a fixed reward of 33% p.a.

This unique solution will provide fair conditions in the decentralized ecosystem and an innovative economic model to reduce poor quality and spam offers and deliver the best experience for everybody. Every e-commerce platform will be able to use this model thanks to the Busy smart contract distribution.

The Busy platform will be based on the concept: one user account will be just one online wallet. Each user can have only one slot with different sizes, which will increase or decrease according to the number of active staking addresses. To display the slot, the user will need to have at least one staking address meeting the staking limit. If the user will have a lot of coins in his wallet but no in staking, the slot will not be displayed, and the staking reward will not be counted.

Each user will choose in which category and region to place the slot. If a suitable category will not be available, it will be possible to create it. Slots will be sorted by their sizes, i.e., from the largest to the smallest. On the home page, all slots will be displayed across all categories also by the size of the slots.

After logging in, the user will be able to modify his slot and the corresponding page with the offer according to his requirements. The user page will have an in-built page-builder, which will give the user ability to modify the appearance, colors, elements, text, and other properties of the page in a user-friendly form.

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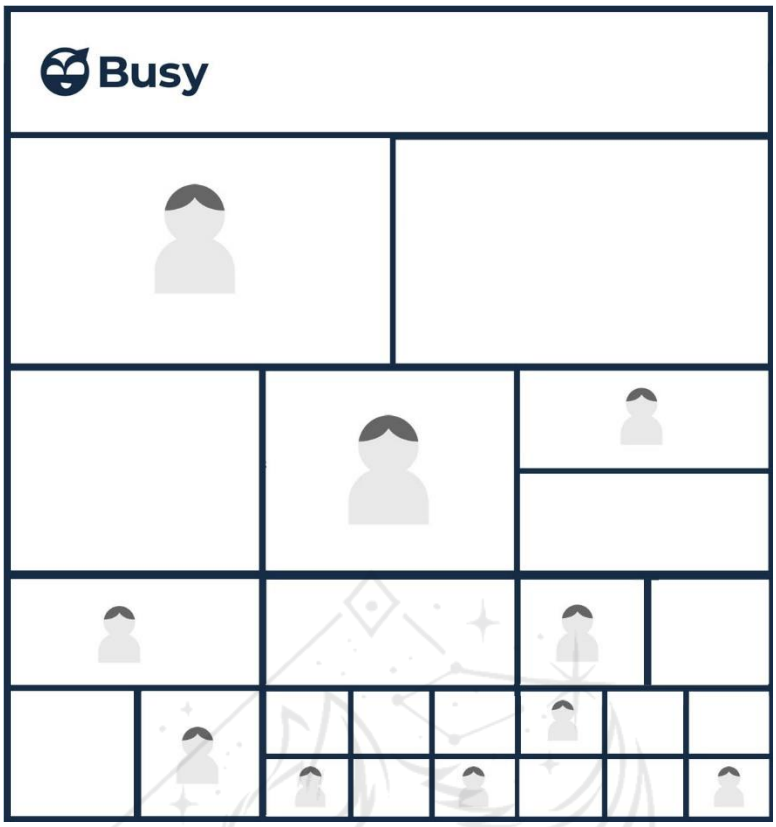


Figure 9: Preview of platform's slots

As it will be a fully decentralized platform, there will be no central authority to approve or control the content of individual slots, but this does not mean that the platform will be unintelligent, e.g., will not limit it. The platform will be connected to its own AI (Artificial Intelligence), which will automatically verify the content according to the entered texts and images, and will evaluate whether it will not match any forbidden words and patterns. Typically, it will be pornography, illegal activities (drugs, weapons, black market, etc.), and globally established and prohibited services.

3.2.1. Technical details

The Busy platform will be fully decentralized, there will be no central authority to manage data, interfere with user accounts, or gather any fees on the platform. Nobody will have a central interest to manipulate any part of the platform; the platform will be completely in hands of its users.

Its network settings will work on the same principle, when, like blockchain, the platform will be placed on a large number of nodes, where the loss or attack of one of them will not cause the platform to malfunction. Depending on the access, the user will be connected to the node with the lowest response time. The same will work with the connection between that node and the Busy blockchain, all in a secured connection.

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As there will be at least thousands of nodes worldwide, it is necessary to keep all the nodes synchronized. That is why there will be configured a two minutes "freeze" window. It means that once the user creates any transaction, it will not be possible to create another within the next 2 minutes (it is a period during which all nodes worldwide will be synchronized). Therefore, it will not be possible to perform a double transaction or any kind of forgery during the period when the data on the connected node will not be up-to-date.

3.2.2. Anti-spam tool

The anti-spam tool will be implemented on the platform by Busy coin – the coin will behave as a message carrier. If a user will send a message to another user, one coin will be transferred to the recipient (together with the message), so for the sender, this will mean executing a transaction of one coin. If the recipient will reply to the message, one coin will be transferred back to the original sender's wallet.

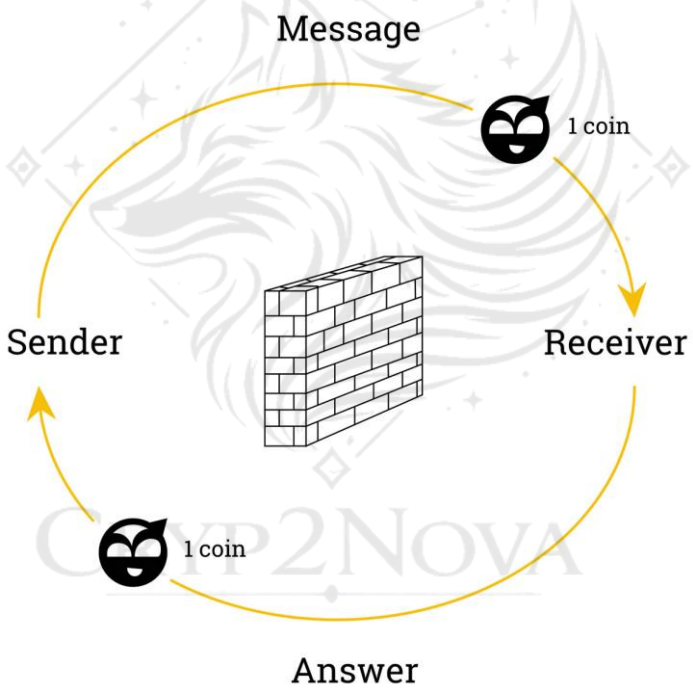


Figure 10: Platform – sending message principle

Therefore, if there will be a conversation between two users, there will be no messaging expense for those users. It is like throwing a ball with a message over a wall. In this case, the ball will be the carrier of the message – Busy coin.

On the other hand, if there will be a spammer on the platform who will multicast the same message to multiple users, it will be really expensive as he will be only sending his coins to the users as a result. The question is how will the end-user find out or recognize that it is spam?

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The platform will have indicators to help the user. The first will be the so-called "trust indicator". Before the user will send the message to the other user, the indicator will be displayed, which will show the trust of the other user based on the algorithm – it will be a combination of a number of sent messages, a number of answered messages, and a number of received messages. Another indicator will be the evaluation of the offer itself after the completed implementation and confirmation by the end-user.

3.2.3. Slots

A slot will be a place on the platform where the user will present his offer. The slot will be directly connected to a specific wallet address, which means that due to staking, a specific slot will be occupied. The slot will not be purchased, its size (and therefore the location among other offers) will be defined by the number of user's full staking addresses, i.e., the number of staking addresses that will have the number of coins more or equal to the staking limit.

If there will be only one staking address meeting the staking limit for a given wallet, the slot of size "1" will be visible on the platform (unless the user intentionally hides it). If there will be two or more staking addresses in the wallet meeting the staking limit, the slot will be called a multislot.

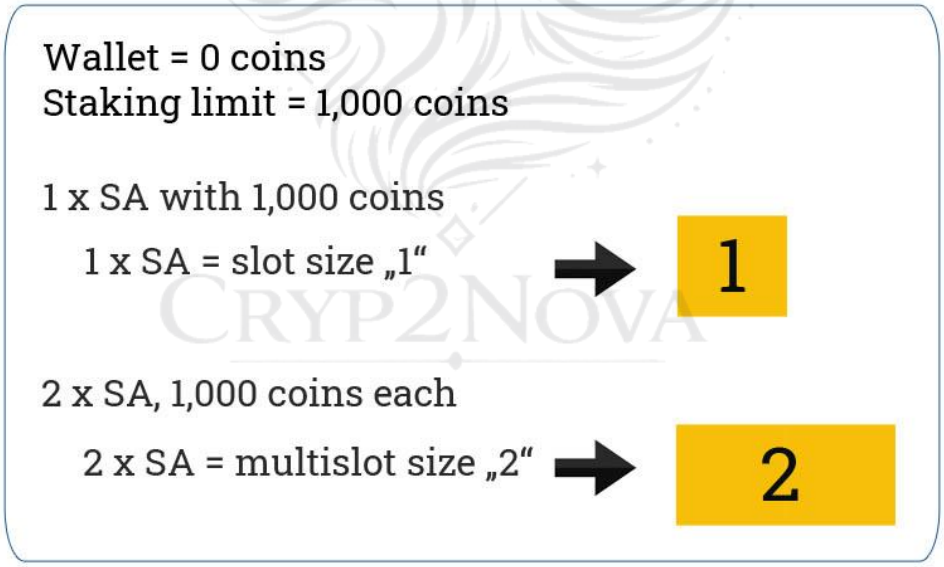


Figure 11: Platform – slot size based on number of staking addresses (SA)

The individual slots will therefore have different sizes – the size will be calculated based on an algorithm that will work with the number of active staking addresses. The algorithm will, especially in the next life-cycle stages (see section 3.2.5.), work with a logarithmic increase in size, in which it will logarithmically take into account the largest and smallest slots, from which it will subsequently create a plot ratio based on

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a predefined maximum shape. As a result, the slots will be sorted on the platform in a "mosaic" shape sorted by the largest slots within the category or region.

3.2.4. Limit of slots

A slot limit is a term that will refer to space on the platform, which will be expressed by the sum of the sizes of all slots. The size of the slots will be limited and can increase or decrease according to the number of staking addresses. With this enlargement and reduction, the platform will not be able to ensure the size of new or existing slots in the longer term. However, the larger the slot, the higher it will be displayed among the other offers, and at the same time, thanks to its size, it will be seen better.

Because there will be only a limited number of slots on the platform, the supply will decrease with the decreasing number of free slots, which can increase the price of the slot tethered coins, assuming the same demand.

These rising prices of slots and tethered coins can economically motivate low-quality advertisers to withdraw from staking, sell their coins and free up space on the platform to more qualified advertisers.

If the space designated for the slots will be 100% saturated, the platform and blockchain will automatically move to the next life-cycle phase.

3.2.5. Lifecycle phases

For Busy technology to achieve decentralized behavior and apply the inflationary/deflationary model, the platform and blockchain must have mechanisms in place that will work in both parts at the same time and must be considered in the initial phase of development.

As the number of slots on the platform will be limited, they will fill up over time, making it impossible for new and existing users to fill new slots or expand existing slots. The whole system will automatically respond to this by moving to the next life-cycle phase, where the number of existing slots on the platform will be doubled (x 2) and at the same time, the staking limit will be reduced by 50% (/ 2).

Each user will have a "new" slot available for free, which they will be able to fill with half the coins than in the previous phase (since the staking limit has been reduced by 50%), and this will tend some quality advertisers to sell their coins from staking addresses. The sale of the coins will free up space for better and stronger quality bidders, who, on the other hand, will expand their place on the platform, bringing the quality offer to the forefront and the low-quality one moves lower and downward in a natural and nonviolent way based on real economic motivation.

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Phases

The whole system will have a certain number of development phases defined when, for example, in phase 9 there will be a total of 7.68 million slots on the platform, the limit for staking will be 3.90625 and the approximate value of the coin will be $25.6*. The first phase will be named “Phase 1”, the second phase “Phase 2”, etc.

Table 1: Platform life-cycle phases

Life-cycle phase	Limit for staking [coins]	Number of slots on the platform	Value of the coin*
Phase 1	1,000	30,000	$0.16
Phase 2	500	60,000	$0.32
Phase 3	250	120,000	$0.64
Phase 4	125	240,000	$1.28
Phase 5	62.5	480,000	$2.56
Phase 6	31.25	960,000	$5.12
Phase 7	15.625	1,920,000	$10.24
Phase 8	7.8125	3,840,000	$20.48
Phase 9	3.90625	7,680,000	$40.96
...	...	...	...

* Calculations of the value of the coin are based on a theoretical value and do not include the influence of the market, respectively supply and demand.

The transition of the phases

The transition to the next life-cycle phase will be performed automatically as soon as the total number of slots on the platform will be occupied, where the given number will be predefined both on the platform and in the blockchain. It is with the transition to the next life-cycle phase that there will be two automatic activities and one activity that can be performed by the user:

1) The number of slots on the platform will be doubled (x 2).
2) The staking limit will be reduced by 50% (/ 2).
3) The user gets the opportunity to double their slot size for free using existing coins in staking (compared to the inactive user).

In the case of the first two activities, it is still the same formula and value on the left and right sides of the equation.

*Number of slots * Limit for staking*

=

*(Number of slots * 2) * (Limit for staking / 2)*

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For a specific example, let's substitute 30,000 for the number of slots and 1,000 for the staking limit. After moving to the next development phase, the number of slots will double (i.e., to 60,000) and the staking limit will be reduced by 50% (i.e., to 500).

*30,000 * 1,000 = 30,000,000*

*(30,000 * 2 = 60,000) * (1,000 / 2 = 500) = 30,000,000*

30,000,000 = 30,000,000

For the user to benefit from the transition to the next life-cycle phase, his action will be required. Since the staking limit will be reduced by 50%, the user will only need to have half of the coins in the current staking addresses for the slot to be displayed and to obtain a staking reward. Once the automatic transition will occur, the value of the coins in the staking addresses will not change automatically for the user, but his interaction will be required. The user will have to manually redistribute the coins from the original staking addresses to the new staking addresses to achieve the staking limit, thus gaining an advantage over inactive users who do not act. Respectively:

1) Will receive a larger slot (x 2) compared to the inactive users.
2) Will receive a bigger staking reward (x 2) compared to the inactive users.

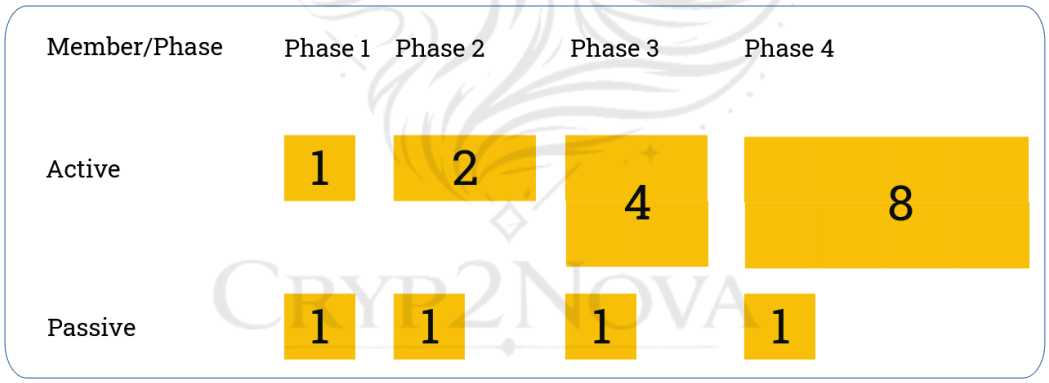


Figure 12: Life-cycle phases – the size of the slots based on the activity

Example of transition to life-cycle phase 2

For this example, consider the following parameters: staking limit 1,000 and 1 staking address with 1,000 coins (referred to as SA).

Phase 1

- Limit for staking = 1,000; 1 x SA with 1,000 coins.
- The user has a slot of size "1" = has just one staking address meeting the limit.
- The user obtains a staking reward of 330 coins = he has just one staking address meeting the limit, therefore 33% of 1,000 coins = 330 coins.

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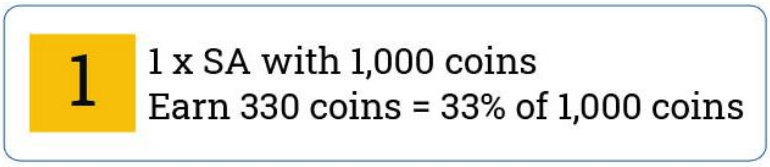


Figure 13: Life-cycle phases – example – phase 1

Phase 2 – no action

- Limit for staking = 500; 1x SA with 1,000 coins.
- The user still has a slot of size "1" = he still has only one staking address meeting the limit of 500.
- The user receives a staking reward of 165 coins = he still has only one staking address meeting the limit, but since the limit has been reduced by 50%, a reward of 33% is calculated only from 500 coins, i.e., 165 coins.
- Result: Unrealized staking reward from 500 coins in SA + reduction of the slot position compared to the users who did the action.



Figure 14: Life-cycle phases – example – phase 2 with no action

Phase 2 – action performed

- Limit for staking = 500; 2 x SA, 500 coins each.
- The user has a multislot of size "2" = now he has two staking addresses, which meet the staking limit 500.
- The user has maintained a staking reward of 330 coins = he has now two staking addresses meeting the limit, but since he transferred the 500 coins from the original to the new staking address, a reward of 2 x 33% of 500 coins is calculated, i.e., 330 coins.
- Result = 2x bigger staking reward and 2x larger slot compared to users who did not act.

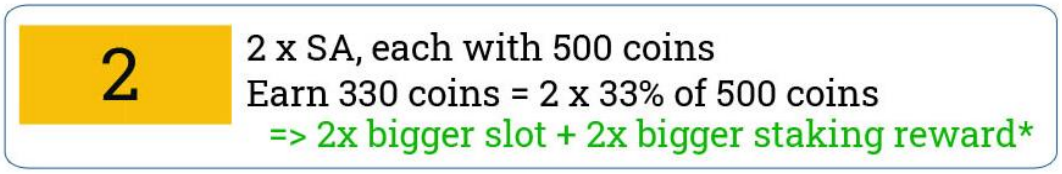


Figure 15: Life-cycle phases – example – phase 2 with action

** Compared to the inactive users*

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Comparison

Table 2: Comparison of actions during the transition of the phases

Phase	Number of staking addresses	Number of coins in SA [coins]	Staking limit [coins]	Size of slot	Staking reward [coins]
1.	1	1,000	1,000	1	330
2. – no action	1	1,000	500	1	165
2. – action	2	500	500	2	330
		500			

Taking into account the preceding paragraphs and the comparison Table 2 above, the principle of "eliminating" inactive users is clear now – if the user will not act, he will still have the same slot size as before (but lose 50% of the size compared to the others who acted) and staking reward will be reduced by 50%. This will move the slot to a lower position and make it less visible. The example above was used for its simplicity with only one staking address, however, with the analogy that the user will have 8 staking addresses and transition to the next phase, we are already talking about more significant impacts – slot size from size "8" to "16". And in case of non-action, loss of 50% staking reward (from the original "2,640" coins to "1,320" coins). The inactive user will continue to receive staking reward, but since the staking limit will be reduced by 50%, he will also receive only 50% of the value from staking. This will not in any way affect the original balance of the coins on the account – the user will not lose his coins, only the future reward will be reduced.

Over time, this will almost completely eliminate the inactive users, both in terms of visibility on the platform and in terms of receiving a staking reward. The inactive user will not be beneficial to the ecosystem and will therefore not be rewarded.

On the other side, if the inactive user will become active again, he will have the possibility to receive his full position on the platform.

3.2.6. Smart contract notary

The Busy platform will be fully decentralized, so there will be no central authority to resolve any disputes between two users. The solution to this problem will be a smart contract notary. The smart contract notary will operate on the principle of a virtual notary, which will release the blocked amount of coins for the service after confirmation of the completion by both parties.

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The principle of the notary will consist of few automatic steps of the system and manual confirmation of both users:

1. The user asking for the service will write to the offering user.
2. If the conversation will conclude that realization will take a place, both parties will sign a transaction for an electronic smart contract notary with their wallets.
3. The virtual notary will block the number of coins for the service from this buyer.
4. If the service is realized to the satisfaction of both parties, both parties must confirm the service and the coins will be released to the service provider.

Apart from the notary, there will be a forum on the platform where users will be able to discuss, help each other with experiences, etc.

3.3. Smart contracts

Busy technology will use smart contracts through so-called Transaction Families[2]. Thanks to this option, everyone will be able to automate and digitize his or her project in the Busy network.

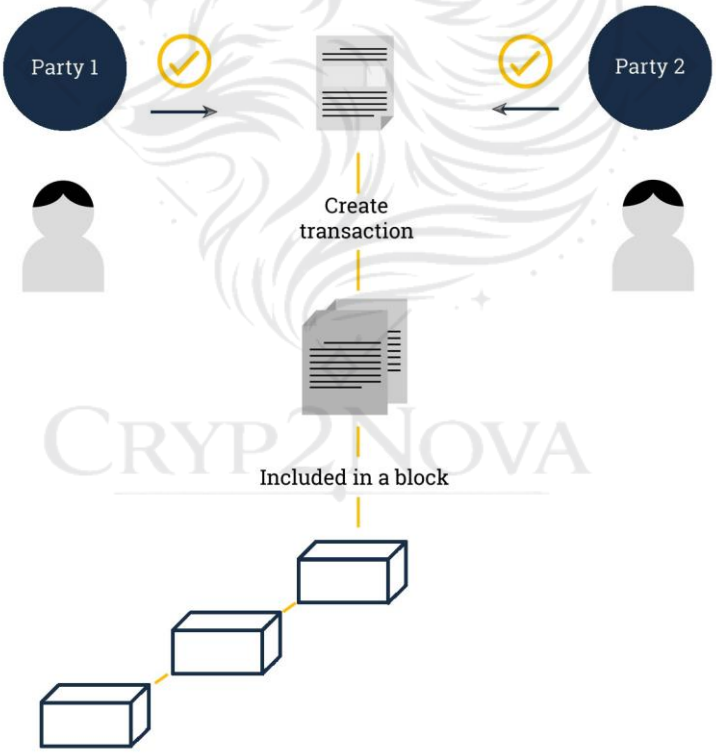


Figure 16: Smart contracts flow diagram

Smart contracts are small programs that take a transaction as input, process it, and produce output. Thanks to Transaction Families, after receiving the transaction, it is

[2] Transaction Family is a group of operations or transaction types that can be allowed in a ledger.

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written to the distribution log and after passing through the log, it is routed to the appropriate transaction process. After completing the process, the smart contract will be successfully entered.

Creating a transaction processor is a way to limit the types of actions that can be performed in a blockchain to improve security and performance.

Transaction Families act as validators between a blockchain client and the blockchain. Its task is to select which transaction goes to the blockchain and which does not. Instructions for selecting the appropriate transactions are defined in the Transaction Family.

The Transaction Family includes these components:

- A transaction processor to define the business logic for your application.
- A data model to record and store data.
- A client to handle the client logic for your application.

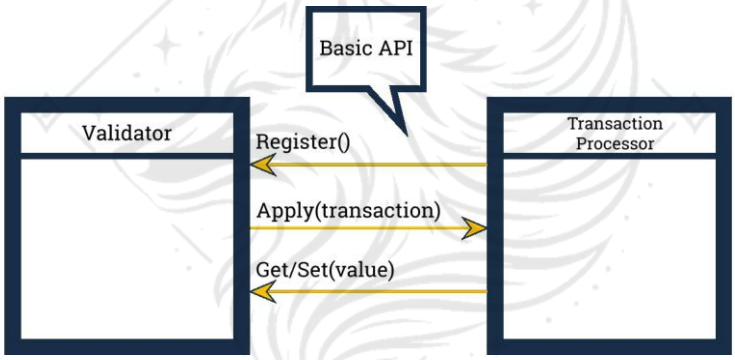


Figure 17: Transaction Families process

The architecture of the Transaction Family addresses the architectural boundaries and transaction expressiveness. Rather than trying to create a new language or define the perfect set of opcodes for all domains, Transaction Families breaks down the logical problem by domain, where the domain is the set of implemented functions. If we divide the logical layer into two layers, we get a set of rules for the domain and a composition layer for creating universal transactions in this domain.

Transactional Families are more powerful than other logical approaches. The Transaction Family code is deployed natively within the validator. The embedded verification code defines the data model and the set of relevant updates. The author of the distributed application can then build a new transaction logic from the available methods. This method is a more secure approach than providing all the logic for all domains as a single interface to the general ledger.

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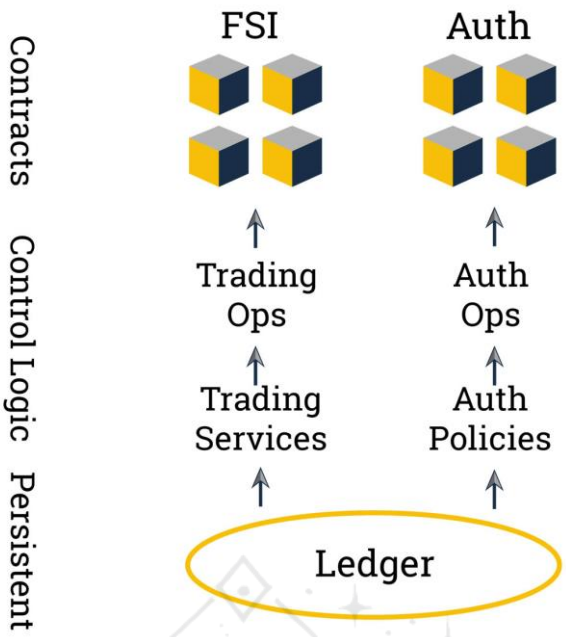


Figure 18: Transaction Family Architecture

Thanks to the features of modified Busy proof of stake consensus and Transaction Families for smart contracts, the overall complexity of calculations and the entire network is lower, so it is ideal as a platform for a wide range of different uses.

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3.4. Token economy

The total distribution of tokens from the initial number of 255,000,000 is visible on Figure 19. After Mainnet, minting will be applied and additional coins will be mintable exclusively for a staking reward distribution.

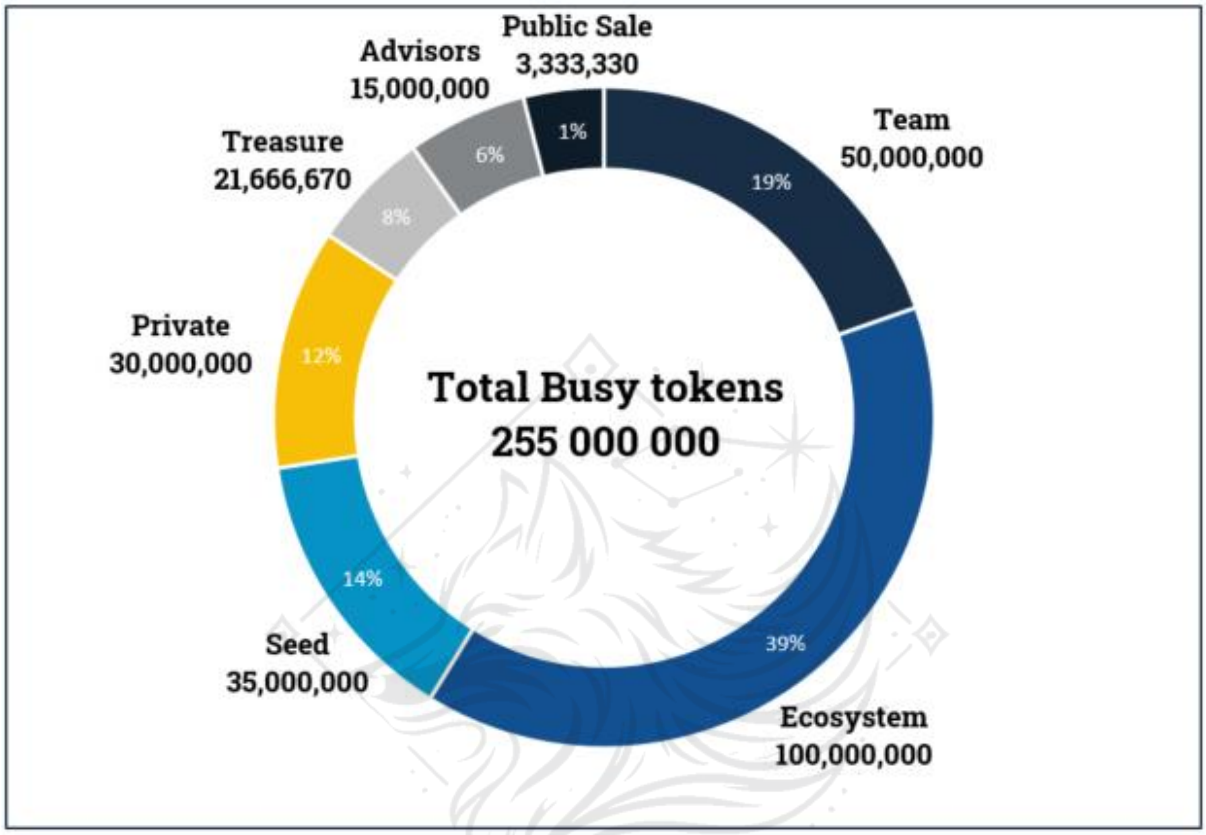


Figure 19: Token economy

From the seven components of the initial token supply, five will be locked and set to vesting. It means that it will not be possible to release the entire amount of tokens at once, but over time. One of them will be immediately distributed to the community in the form of a token offering.

The token release is set as follows:

- seed – the release of 15% immediately and the rest linear for 12 months,
- private – the release of 20% immediately and the rest linear for 12 months,
- advisors – linear release for 24 months,
- ecosystem – lock till mainnet, then vote by Governance,
- team – tokens locked for 12 months and then linear release for 12 months.

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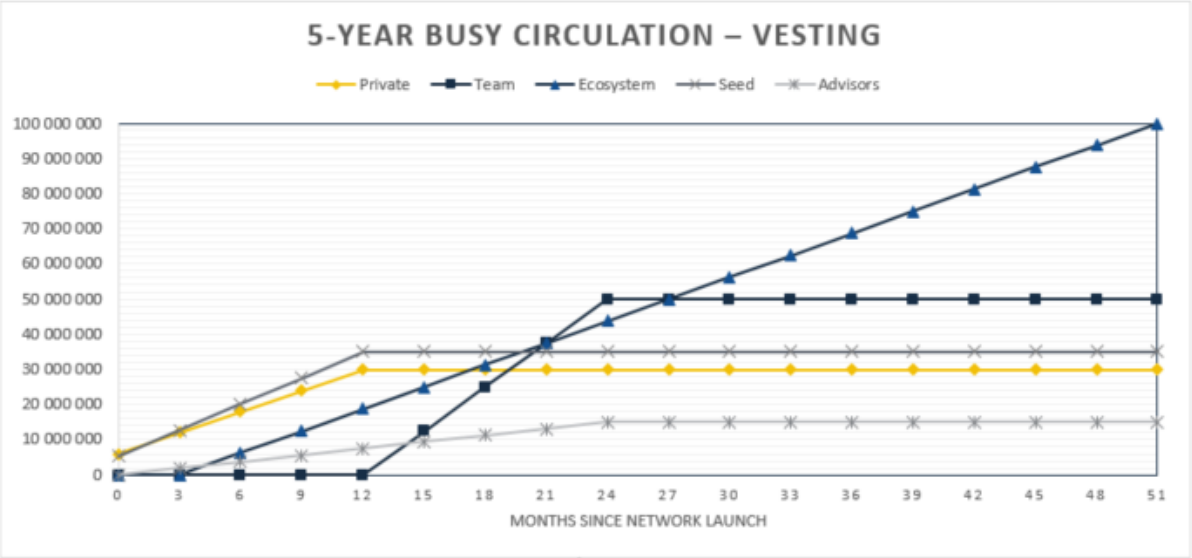


Figure 20: Vesting

3.5. Roadmap

2020 – Q1: Idea

The idea was born as a result of chaos, spam, preference of quantity over quality, and overpressure on the current freelance e-commerce platforms. To develop unique blockchain technology inseparable tethered with the platform to bring better solutions to e-commerce platforms, especially in freelance businesses.

2020 – Q2: Team meets

We managed to find the best experts in their fields and this established an irreplaceable team of passionate blockchain enthusiasts and developers who shifted the Busy project from the idea to reality.

2020 – Q3: Early development, Smart chain

The team invented and designed the basic sophisticated elements of the technology and all mechanisms were properly tested and evaluated. The technology was proved as fully functional, scalable, and to be used worldwide.

2020 – Q4: Company found, White paper, ERC-20 token

Company Busy Technology, s. r. o., was founded to associate founders and a team of developers in a legal structure.

The technology's aspects and details were written and a white paper was created.

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ERC-20 token was chosen due to reliable properties, already established adoption to support early development of the community and project's ecosystem. It will be swapped in a ratio of 1:1 by our own mainnet coins later used as the main currency on the platform.

2021 – Q1: Private Sale, Public Sale, Testnet

The Private Sale was implemented to achieve a strategic partnership that will significantly support the development of the project.

The Public Sale is chosen for its decentralized property and overall adoption to support ecosystem and community development.

Testnet is launched so we can test all the functions and scalability of the blockchain solution for seamless mainnet launch.

2021 – Q2: Prototype, Offline wallet, Token swap, Mainnet

The first prototype of the platform will be created to identify and integrate more advanced and detailed features of the solution.

The offline wallet will be released as secure storage for our mainnet coins.

Mainnet will be launched and the ERC-20 tokens will be swapped to coins on our own blockchain.

2021 – Q3: Online wallet, Staking, Platform beta

The online wallet will be released together with a staking option.

Beta version of the platform will be launched for early adopters, testers and to receive feedback from our community.

2021 – Q4: Platform public alpha, Mobile app, Smart contract notary

Improvements to the platform will result in the release of a public alpha version.

For greater adoption, the Busy mobile application will be designed, created, and introduced to the world.

To secure user's transactions, the smart contract notary will be implemented.

2022 – Q1: Atomic swap, Smart contracts

Thanks to the atomic swap, you will be also able to pay on the platform without having to exchange coins through a third party.

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Our unique technology solution will be available for distribution in the form of smart contracts for use in other areas of e-commerce platforms.

2022 – Q2: Credit card option on the platform, Renting space option

A credit card payment option tethered with an exchange liquidity provider will be implemented on the platform. Purchased coins will be transferred to the buyer directly from the liquidity provider which will help to mainstream adoption, stabilize the system, and increase liquidity on the exchanges.

Space rent option will be implemented on the platform and users will be able to rent their own slots to the other users for a specified time and price.

2022 – Q3: Platform ready for mainstream adoption

Thanks to the implementation of the mainstream payment options tethered with blockchain solutions and extensive decentralization of the platform, platform and technology will be fully prepared for global mainstream adoption and will be able to compete with current platforms and technologies. It will be distributable to everybody who will see our solution as an advantage for their targeted business model through smart contracts.

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4. Conclusion

This white paper describes the principle and functionality of Busy technology and ecosystem. Busy brings a decentralized solution to the e-commerce industry based on its own blockchain technology.

At first, The Busy is going to focus on the freelance sector in e-commerce as there are many problems it can solve. The decentralized freelance platform will be build based on the unique Busy engine and the platform will be connected to the blockchain, which will be an indispensable part of it. Moreover, with its transparency and unique tools, the platform will be more trustworthy and secure than current solutions.

The platform will provide a decentralized ecosystem for everyone who will be looking for quality offers and services. There will be no central authority to manage, control, or collect fees; the users themselves will be part of the whole ecosystem. Thanks to utility staking, every freelancer will have an opportunity to present his products on the slot and will receive a 33% staking reward. The size of the slot and the final amount of staking reward will depend only on the user, according to the number of active staking addresses. It will be also possible to withdraw and eventually sell the coins on Exchange and provide additional liquidity to the ecosystem.

In addition, there will be more functions on the platform, for example, an anti-spam tool, where the coin will be in a role of a message carrier, and a smart contract notary, which will protect both parties.

The Busy solution will be distributable to everyone who will see an advantage in the technology through smart contracts.

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