market space

An innovative data storage system

For professionals only

White Paper

Decentralized self-regulatory host aggregator
for data storage, transmission and direct
content distribution

ver. 1.1
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1 Introduction

1.1 Project overview

Market.space is a decentralized self-regulatory system for data storage, transmission and direct content distribution. It performs several non-standard functions which make it stand out from the competition:

— As a host aggregator, Market.space allows professional hosting providers and data centers to thrive on leasing the unused storage capacities

— Our system works as a marketplace, without imposed plans or transaction fees, which means affordable pricing

— With Market.space, authentic content can be distributed seamlessly and securely bypassing intermediaries and their fees. This function is intrinsically embedded in the system architecture while the competitors would need centralization or additional apps for it

The responsible data storage is carried out in accordance with the algorithms set in the smart contract. All the participants are treated equally and receive a remuneration for their engagement in data transmission. Use of the distributed ledger technology along with involvement of professional hosting providers underpins utterly secure and reliable service while request and offer system with exchange-based pricing provides affordability.

1.2 Inception

The concept of Market.space platform was finalized in the third quarter of 2017. Our Team has been actively involved in development and support of international data storage and transmission projects for more than 5 years. Thus the idea of a system which would allow for reliable data storage at affordable price has been nursed for a long time. Now that the market needs such a system heavily, we have embarked on developing the internal architecture.

2 Data storage market

2.1 Main figures and expectations

Today, the number of Internet users reaches up to 3.8B people, which makes almost 50% of the world population. Developing countries account for the majority of users (about 2.5B). The number of users in developed countries equals to about 1B.
As of 2016, the volume of the cloud storage market (PCS — Public Cloud Storage) made $26.4B and is expected to hit $99B mark by 2022 (figure 1). On average, the market is growing by 24.8% [1] per year.

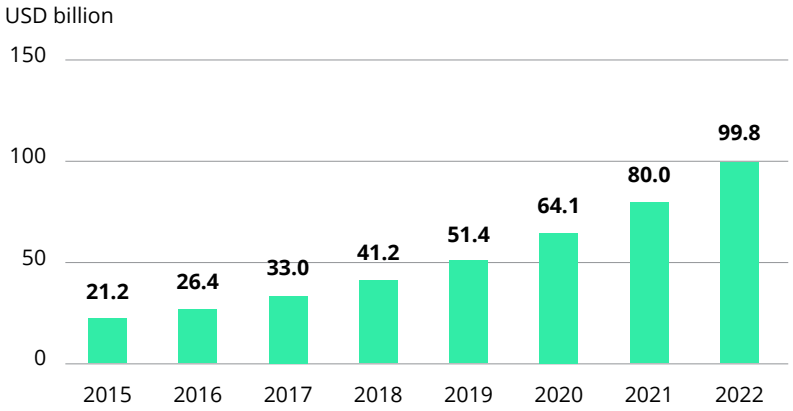


Figure 1. The PCS market growth, 2015-2022

Currently 39% of the Internet users, or 1.5B people, regularly use cloud storage services. By 2020 this number is forecast to surge to $2.3B [2] whereas market penetration will have grown from 47% to 59% (figure 2).

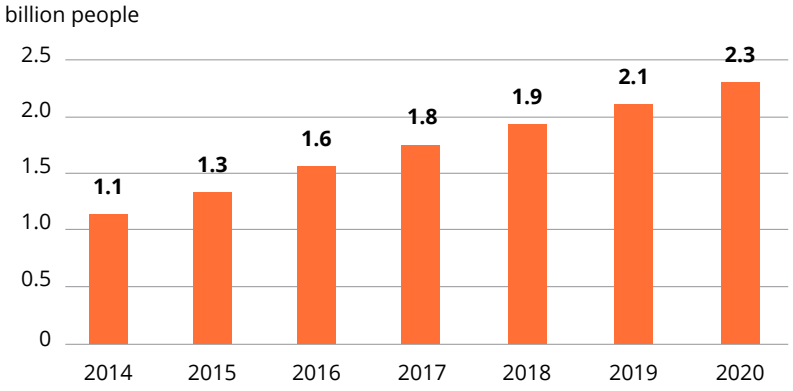


Figure 2. Number of PCS users worldwide, 2014-2020

As projected by the analysts [1], the most rapid growth will be demonstrated by the countries of the Asia-Pacific region (APAC), Latin America, Middle East and Africa (LAMEA).

2.2 Major players

Today the list of the largest PCS players includes OneDrive (Microsoft), Google, Dropbox and Apple with more than 900M subscribers. Apple is not reflected in most of the reports though since storage service is embedded in its ecosystem. Amazon and Dropbox currently constitute the forefront of B2B segment.

The smaller players operating in the market include pCloud, BlackBlaze, FlipDrive, JustCloud and others.

There are also newcomers — hosting providers working on cloud storage services jointly with software companies like Microsoft as well as companies devising decentralized blockchain-based storages. This new market segment is now known as cooperative storage cloud.

For further analysis it should be noted that depending on the user type storages may aim at SMB or large enterprises. They are also classified as public, private or hybrid [3] by deployment mode (figure 3). In case of hybrid storages, one part of data is stored on the hosting provider's servers in a public cloud, and another part — on the company's private servers which it rents for a long time. Such storages combine the options of public and private storages so that the clients can choose the privacy mode they need.

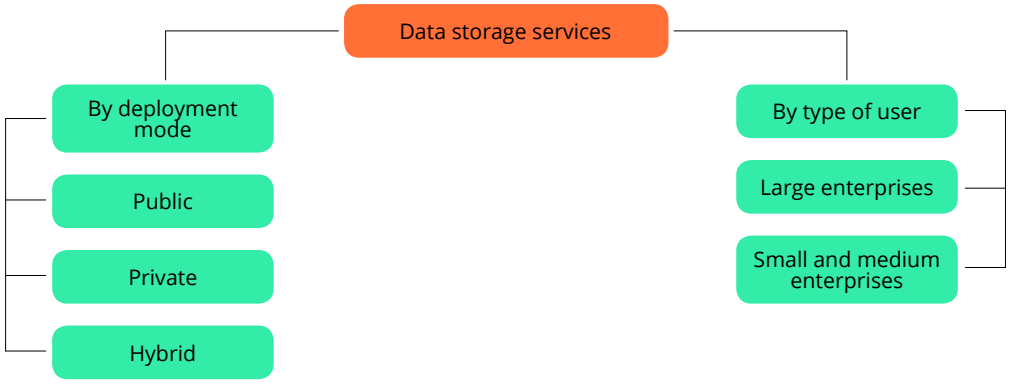


Figure 3. Data storage services

2.3 Growth drivers

The market is now experiencing a burgeoning demand of both individuals and businesses. The latter (SMB in particular) vastly use cloud storage services to ensure uninterrupted business processes, improve customer support and leave behind the traditional IT infrastructure calling for substantial expenses and professional expertise.

Large businesses mostly opt for private and hybrid storages which add up to corporate agility and flexibility while saving on infrastructure maintenance. The expected demand increase in most industries (from manufacturing to mass media) is attributed to relatively low cost of data storage and processing.

Only 6% of businesses survive for more than two years after the loss of valuable data. More than 65% [4] of businesses globally use cloud storage services to back up the data. Reinforcing data security and anonymity will expand the PCS target audience due to manufacturing, finance and insurance, healthcare and retail enterprises, which refers to both national companies and municipal corporations.

It's also worth mentioning that the demand for hybrid storages is growing. They are relatively affordable and flexible in contrast to the costly private storages and insecure public clouds with their regular data leakage.

2.4 Basic trends

At present the PCS market is experiencing the following trends:

— The share of private storages in both large enterprise and SMB segments is growing due to insecurity and inconsistent quality of the public storages

— The functionality of cloud services is advancing. This comprises document editing, opportunities for safe file sharing, team work etc

— Decentralized blockchain-based storages are seeing a rise in popularity

2.5 Market problems

2.5.1 Traditional cloud storages

In spite of the increasing market penetration, the demand for secure and reliable data storage is still unmet (this refers to both businesses and individuals).

So far the market is dominated by large cloud storage vendors although data volumes stored by their clients may vary, traditional cloud storages don't cater for individual needs. The bundled pricing they offer means fixed storage volumes (e.g. 1 TB) and/or fixed time period (e.g. 1 month).

Absence of encyption by design and a probability of third parties accessing the data still put off a lot of potential users (especially those from the enterprise segment). It comes as no surprise given the abundant reports of data leakage, theft and compromised accounts.

Moreover, centralized data storage leaves room for data scanning which is now commonplace due to deep machine learning algorithms. The latter allow extracting data even from audio or video. This means that your valuable data can be stolen for commercial use or transferred to third parties.

The access is normally delayed for cold storage (long-term data retention implying one-time recording and rare reading) compared to other modes. With the vast majority of the hosting providers, data transfer from cold storage to a regular mode with instant access requires a fee.

2.5.2 Blockchain-based storage services

Decentralized data storage on consumer devices solves the security problem. However, they are not adjusted to high load and 24/7 work. This incurs certain risks for the customer:

— Data is inaccessible when the host's PC is offline

— Consumer devices are highly vulnerable to corruption, thus the chances of data loss are high

— Data access speed is potentially low due to instability of the host's Internet channel

3 Market.space System

3.1 What Market.space has to offer

- **Reliability**
  — Decentralization ensures high fault tolerance of the system, for example in case of DDoS attacks.
  — Data storage is delegated to professionals (experienced hosting providers).
  — The insurance deposit guarantees contractors' liability while objective rate system based on metrics incentivizes the contractors to fulfill their commitments.
- **Anonymity** of the participants is reached through absence of centralized registration. Market.space is devised as a zero knowledge system: all the upload and download links are temporary; each link stands for an encrypted part of the file. In other words, only uploader and downloader can access the files.
- The offer and request system and unlimited number of participants allow the platform to function as a marketplace and thus form a more affordable price in comparison with the analogous services.
- Market.space doesn't impose fixed pricing: a customer pays only for time and storage used.
- Data security is guaranteed by the distributed ledger system and encryption of parts the file is split into.
- All the participants of data transmission are remunerated.
- Advanced equipment used by professional hosting providers is more energy efficient than consumer devices exploited in other decentralized storage services. Thus CO_2 emission is reduced globally whereas companies get an opportunity to make expenses more cost-effective.

The table below highlights the advantages of Market.space relative to competitors (including both popular cloud storages and decentralized services based on blockchain).

Table 1. Market.space competitive advantages

	Market.space	Decentralized storages	Traditional cloud storages
Flexible pricing	**YES**	NO	NO
Data storage reliability (absence of amateurs)	**YES**	NO	YES
Swift and stable data access	**YES**	NO	YES
Cost-effective data storage	**YES**	NO	YES
Data security	**YES**	YES	NO

3.2 Why blockchain?

The usage of blockchain-based system for data storage and transmission gives some essential advantages:

Decentralization increases reliability and fault tolerance
If the system had a single center, it would be highly susceptible to destabilization.

Anonymity
Proof of identity is not required. The addresses (wallets) are used as identifiers.

Equality
All the participants have equal rights; each of them acts within their functionality, adhering to the stipulated rules

The date and time of the file upload
As soon as a file is uploaded to the system, a timestamp is generated and added to hash. Invariability and integrity of blockchain allows the user to refer to this timestamp if needed (for instance, it can be used as proof of ownership).

Proof of copyright
A unique address serving as a private key (a kind of signature) is used for any file when it's uploaded to the system. Thus the key owner can easily prove their copyright.

3.3 p4p concept for business security

Currently data storages are used for the following purposes:

— frequent data recording with frequent data reading;
— rare data recording with frequent data reading;
— one-time data recording with rare reading or reading upon a specific request (also known as cold storage).

Frequent recording with frequent reading enjoys popularity with the general public (mostly individuals). Market.space is rather tailored to the needs of corporate clients interested in rare data recording with frequent reading.

We call such interaction of businesses and storage services p4p model — "professionals for professionals". Corporate clients prefer addressing market professionals for data storage, making use of reliability and encryption.

As far as cloud storages are concerned, there is a possibility of network scanning and sensitive information theft. In their turn, decentralized systems resort to storage on PCs of individuals, which is fraught with risks of data corruption and loss.

Market.place acts as a host aggregator engaging professional hosting providers and thus granting reliable storage with instant and round-the-clock data access. Decentralization, encryption of the parts the file is split into, access through private key and anonymous upload ensure security. At the same time, Market.space will offer competitive and affordable pricing attained through the exchange-based mechanisms of price formation.

3.4 Hosting providers as a promising market participant

Renting free disc space from hosting providers allows reducing the risks associated with the use of consumer devices and implies uninterrupted and swift data access. What is more, if we take power efficiency (calculated as storage volume to electricity consumption ratio), the equipment used by hosting providers proves far more efficient than consumer devices.

Today hosting providers use 1.5% of the world's electricity. This figure is growing by 60% annually [6]. Also, they incur serious costs associated with infrastructure maintenance and data security (protection from DDoS attacks, for example).

Enrolling in Market.space will allow market professionals to form a separate distribution channel. Another incentive is the ability to utilize the outdated equipment and unused disc space thus gaining additional profits.

3.5 What makes Market.space stand out

— Market.space acts as a host aggregator providing a self-regulated transparent platform where hosting providers can interact with customers. Thus market professionals benefit from lending their unused capacities whereas customers can choose from a wide range of contractors taking into account their storage needs

— The system functions as a marketplace, without imposed plans or transaction fees, which underlies affordable pricing

— Authentic content can be distributed seamlessly and securely without intermediaries and their fees. In Market.space architecture this functionality is included by design

3.6 Team expertise

Market.space founders have a rich first-hand experience in designing, developing and promoting data storage systems. Alexandr Rakhmanov, a founder and CTO of Market.space, was in charge of RapidGator.net development earlier. With the storage volume equalling to 15 PB and a few dozens of servers all over the globe, RapidGator is now one of the most popular file sharing services. As of 2017, RapidGator.net was included in top 10 Best File Sharing Sites (according to Alexa) and took the 16th place among the most visited file sharing resources [5].

4 How the System works

4.0. Definitions

System — data storage and transmission service based on the distributed ledger technology**.**

Customers

Sender is a customer who uploads some data to the Market.space System and pays for the storage with the internal cryptocurrency.

Receiver downloads the data from the System. Depending on the conditions set by Sender, Receiver can download data either for a fee or free of charge. Naturally, Sender may act as Receiver. In order to download and decrypt the data, Receiver must obtain a public key from Sender.

Contractors

Host acts as the main contractor storing Sender's data.

Miner creates blocks and verifies transactions.

Proxy is an optional contractor lending their device and Internet channel as one of the nodes during data transfer from Sender to Host(s). That's how the real IP-address of Sender is hidden from Host.

Insurer is another optional participant who takes a small commission to underwrite the Customer's risks.

Passphrase (Password) is an easy-to-remember phrase, word or a number of symbols set by Sender.

Chunk is part of a file encrypted with the private key.

Private key is created on the basis of passphrase and serves for encryption of chunks.

Public key created on the basis of the private key is used for decryption.

Metadata is the information required to identify a chunk stored by Host.

4.1 Request and offer system

Request and offer system is a market-based mechanism of interaction between Contractors and Customers. Customers send their requests and receive offers from Contractors.

Request is an inquiry for storage of some data unit. A request can be initiated by Sender (upload request) or Receiver (download request). Request contains storage terms set

by Customer (time of storage, download fee, payment address etc). It's not obligatory to define the size of the file/chunk at once.

Offer is Contractor's response to the Customer's request. It contains storage terms (if Contractor is Host).

Let's take a closer look at how the request and offer system works.
Assume the Customer is presented by Sender who wants to place a 100 MB file into the System for 1 month. For privacy reasons, Sender also wants to break the file into 10 MB chunks. Let's suppose Sender would also like to grant access to other users and receive a fee for every download.

1. Sender forms a request and sends it to an exchange.
2. This request is visible to all the Contractors (Hosts in this case) since all the requests are broadcast transactions and thus are addressed to all the receivers.
3. Any Contractor eager to respond can put forward an offer (as long as they have sufficient capacities).
4. Sender receives the offers and decides which one to accept. They are free to accept the offers of two or more Hosts should they want to duplicate the file for safety reasons.

The case above is illustrated in figure 4.

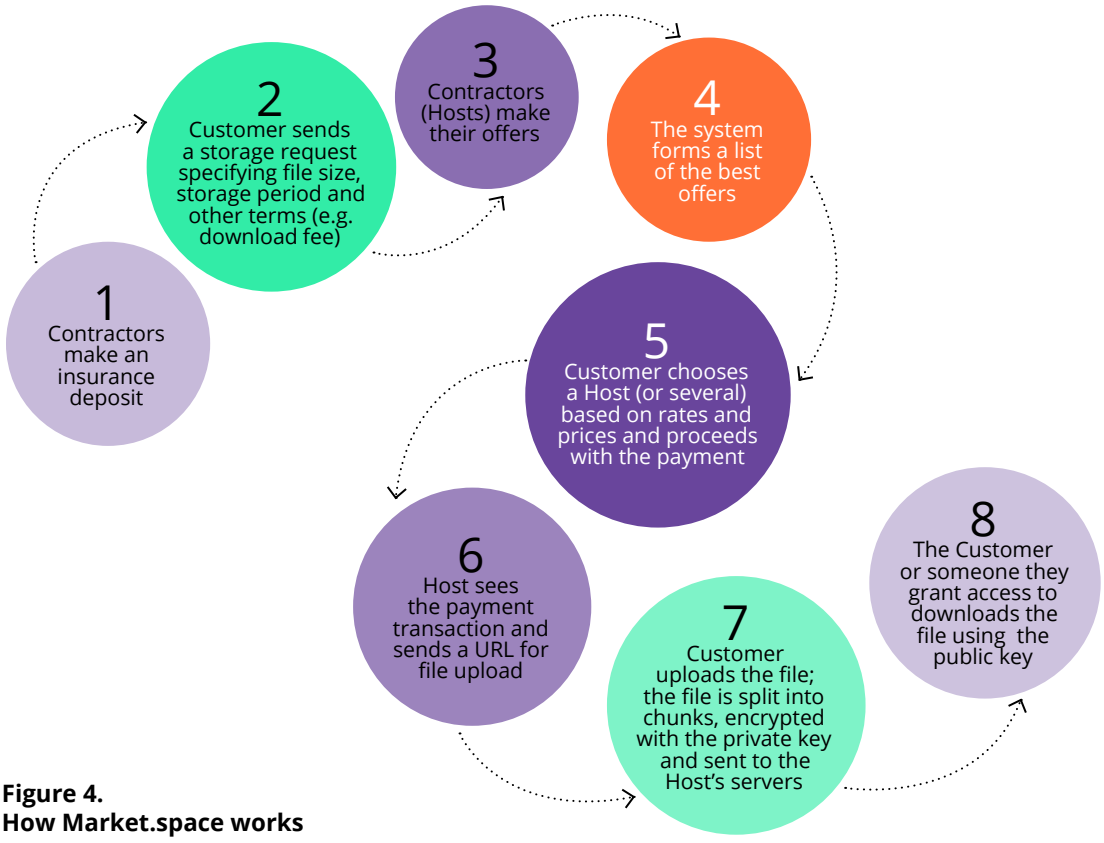


Figure 4.
How Market.space works

4.1.1 Insurance deposit

No technical restrictions are applied to Contractors: the storage capacity may vary. The liability of Contractors is provided by the insurance deposit made in MASP tokens. The deposit is held until the Contractor fulfills their commitments. The insurance deposit depends on the volume of data stored by the Contractor (for Hosts), the number of insured accidents, total time the Contractor in question has worked without accidents and so on — the assessment criteria may be modified and adjusted as the System is developing and getting more complex.

Thus the System rejects untrustworthy agents and at the same time provides an ample opportunity for numerous Contractors to join it, which eventually creates a flexible and attractive marketplace.

4.1.2 Rate system

It's crucial to figure out what underlies the Customer's choice of a specific offer. Here a rate system steps in. It's based on metrics obtained from blockchain and comprises different criteria: how long the Contractor in question has worked in the System; how often they were chosen by Customers; whether there have been complaints and so on.

4.2 General data upload algorithm

This is how data upload to the System generally looks (figure 5):

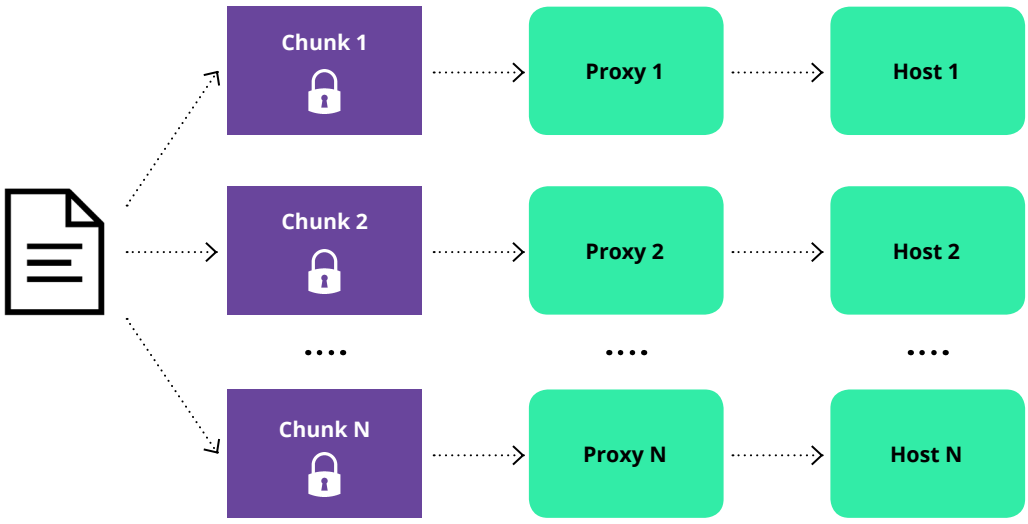


Figure 5. Data upload algorithm

The Sender's file in the form of chunks is sent to Host(s) through Proxy.
The steps are elaborated below:

1. The file is split into chunks and each of them is encrypted.
It should be underlined that alternative storage services offer to encrypt the entire file first and then only to divide it into parts. However, if there is quite a big file to be encrypted (e.g. 1GB), Sender should have at least 1 more gigabyte of free space on their drive to place the encrypted version there, which is hardly feasible. Therefore such a model doesn't work for large data volumes.

Our solution is to break the file into chunks directly in the Sender's hard drive; afterwards each part is encrypted and sent to Host. This eliminates the need to have free space equal to the size of the file you're sending.

2. CRC is calculated for each chunk. Error detection information is required to ensure the chunk has arrived intact to Host. When the chunk upload is complete, Host calculates its CRC, and Miner compares it with the initial CRC.

3. The **chunks are uploaded to Host's servers** through Proxy. The use of Proxy (or several) is optional though.

4.3 Exchanges

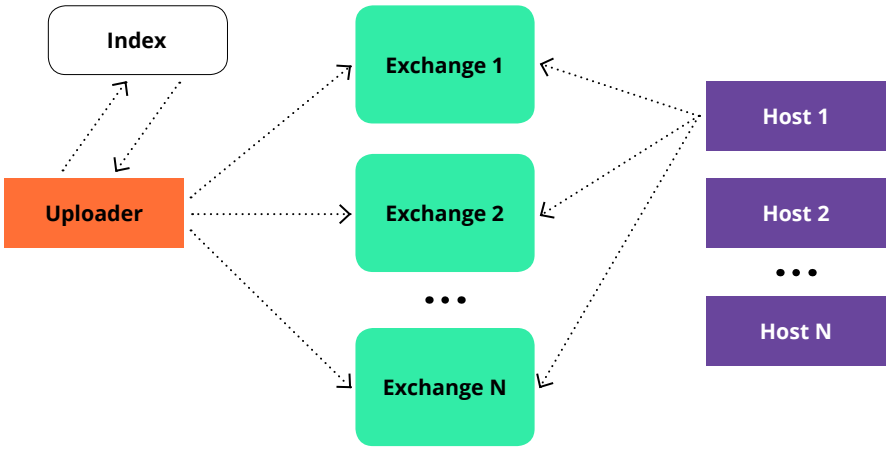


Figure 6. Exchanges in Market.space System

The figure above illustrates the interaction of the following participants:

Uploader is Customer's software which places files into the System. IP addresses of all Indexes are embedded in the Uploader so that the program has the address to turn to once launched.

Index is an Internet server that "knows" the IP addresses of all the exchanges in the System. Having received a request from the Uploader, the Index responds with

the address of the nearest exchange (the one with minimal response time). The aim is to increase the speed of data transfer between Customer and exchange.

Exchange is a server responsible for receiving, processing and temporary storage of Customers' requests and Hosts' offers.

One of the functions of the exchange is to avoid overloading the blockchain with temporary data (e.g. forgotten requests or multiple responses of Hosts, which are necessary only until the transaction is completed).

Another function of the exchange is to increase the operational speed. Processing all requests and offers through blockchain would be slow and inefficient.

Since there's a plethora of exchanges in the System, DDoS attacks on one or several of them cannot disrupt it. The Index will just reroute you to the exchange which is up and running. Market.space also provides for the cases when all the exchanges are down, although it's highly implausible. A Customer concerned with such a probability can opt for Hosts with emergency links where files can be downloaded should the DDoS attack affect all the exchanges. The links will stay inactive as long as the exchanges are functioning normally.

Exchange gets a fee from Host as a commission on the order they accepted.
There may be several exchanges. Each of them may outline its own usage profile (for instance, rejecting requests for files under 1 TB, accepting requests for long term storage only etc).

4.4. Mempool

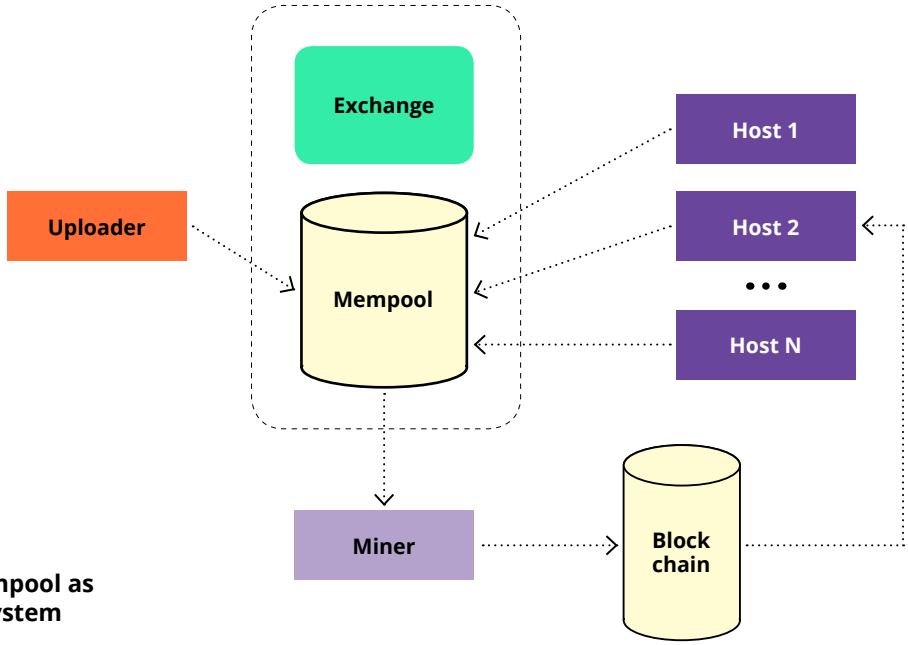


Figure 7. Mempool as part of the System

Mempool (figure 7) serves as a temporary repository for all transactions which haven't been verified by Miners yet and thus are not in blockchain. These include, for instance, payment transactions from Sender, or transactions confirming the download from Host.

Requests and offers are not transactions and have their own format. For their temporary storage a separate element exists, which is also supervised by exchanges.

Exchange and mempool are two intermediate operational repositories required to speed up the operation of the System.

This is how data exchange inside the System looks:

1. Sender forms a request and sends in to a specific exchange.

2. Hosts working with this exchange see this request and prepare their offers.

3. Sender accepts one of the offers and forwards a payment transaction to mempool. This transaction contains the amount to write off and other information about the file sent to the System.

4. Miner takes the transaction from mempool and confirms it by adding to blockchain.

5. Host sees that a new transaction with a payment addressed to them has been confirmed and appeared in blockchain.

6. Host creates a response with a URL for the file upload and sends it to the exchange. Sender receives the URL from the exchange and uploads the file to the Host's servers.

7. Host creates a transaction as soon as the upload is completed and places it into the mempool.

8. Miner takes the completion transaction from the mempool, compares its CRC with the CRC of Sender's transaction added to blockchain previously. If they match, Miner confirms this transaction by adding it to blockchain.

9. The deal is closed now.

10. If Sender hasn't chosen any of the offers (see point 3), all the temporary data are deleted. Moreover, the exchange can ban the Sender abusing the System with multiple requests. This way technical flood is avoided.

Thus only final transactions (i. e. for the deals that are actually closed) are added to blockchain. It's also important to note that we operate with two transaction-related concepts:

— Confirmation — adding a transaction to blockchain

— Verification — transaction confirmation performed by Miner. E. g. Miner verifies two transactions containing file's CRC — one from Sender, another from Host.

Although requests and offers don't belong to transactions, they can be subject to verification executed by the exchange. A request, for example, may be checked for the validity of Sender's address. Requests from non-existing addresses are rejected automatically so as to avoid DDoS attacks.

The algorithm of interaction between Senders and Hosts within the exchange is also valid for Proxy and other possible Contractors like Insurers. We will not look into it separately (the general process is laid out below).

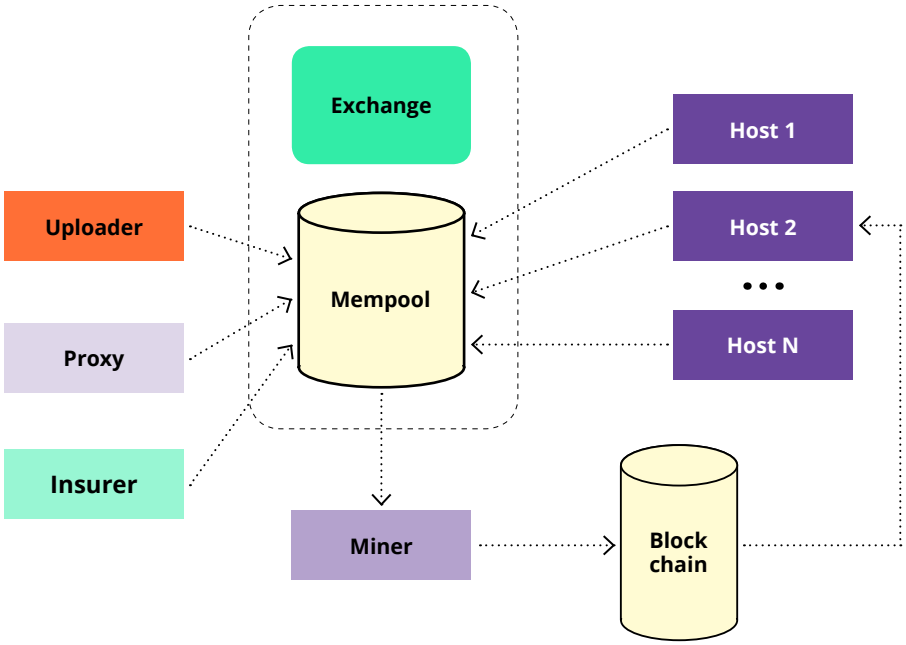


Figure 8. System operation with Proxy and Insurer involved.

The tables below show the sequence of steps for file upload and file download correspondingly.

Table 2. The sequence of transactions during the file upload to the System.

#	Initiator	Transaction	Description
1	Sender	1. Sender's address 2. Empty address of Receiver (in this case Hosts understand it's a request) 3. Storage terms (file size and storage period) 4. Download terms (e.g. fee for download)	Sender's request for Hosts
2	Host	1. Host's address 2. Sender's address 3. Storage terms (storage fee depending on the data volume) 4. URL, login details and password for upload (so that the file can be uploaded immediately if the offer is accepted)	Hosts interested in the request send their offers
3	Sender	1. Sender's address 2. Receiver's address 3. Host's address 4. Storage fee 5. CRC of the file sent	Sender accepts one or several offers and proceeds with the payment
Host makes sure the payment transaction has taken place and permits the upload. File upload begins.			
4	Host	1. Host's address 2. Hash of transaction #3 (transaction reference) 3. CRC of the file received	Host creates their own CRC once the upload is over
Miner compares the CRC details of two transactions. If there's an error, Miner reports it to both Sender and Host so that Sender could upload the file again. If CRC details match,Miner adds the transaction to the block where Host can see it. Storage timing begins.			

Table 3. The sequence of transactions during the file download.

#	Initiator	Transaction	Description
5	Receiver	1. Receiver's address 2. Host's address 3. Hash of transaction #3 (transaction reference) 4. Key word: download	Receiver creates a download request
6	Storage Provider	1. Host's address 2. Receiver's address 3. Sender's download terms (if any). E.g. download fee	Host sees the request and responds with a download offer
7	Receiver	1. Host's address 2. Receiver's address 3. Sender's address (where the payment will be sent) 4. Download fee (none if Sender allowed free download)	Receiver accepts the terms, i.e. proceeds with the payment
Host sees the conditions have been met and approves of the download			
8	Host	1. Host's address 2. Receiver's address 3. Temporary URL, login and password for download	

5 Economy

5.0 Definitions

MASP (Market Space Token)
is a token originally issued on the basis of Ethereum.

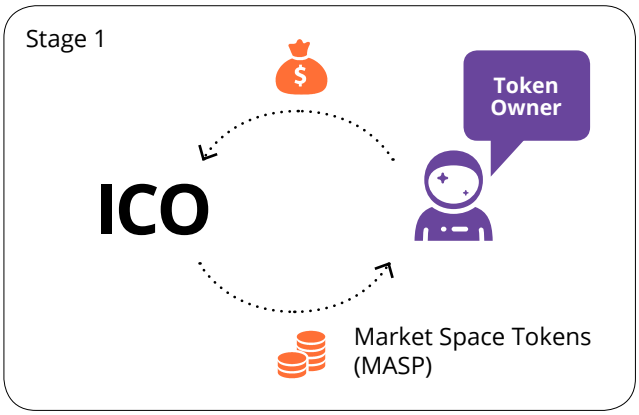
MASPC (Market Space Coin)
is internal cryptocurrency of the System.

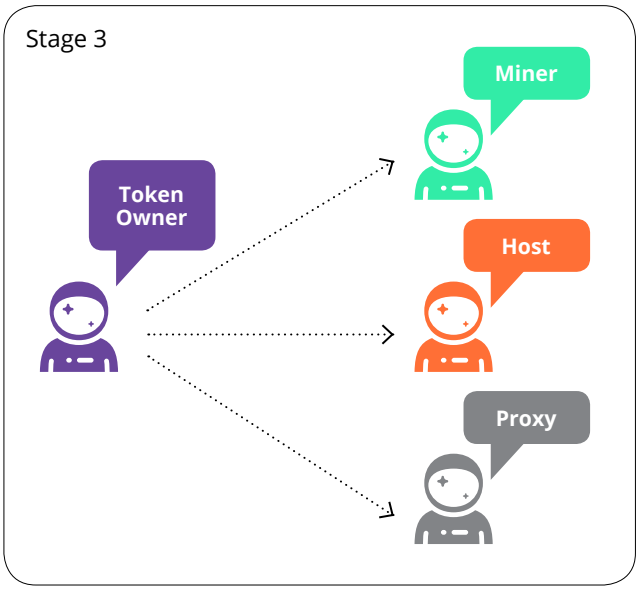
Smart contract #1
regulates MASP emission.

Smart contract #2
regulates operations with deposits.

Deposit — some amount in MASP which Contractor places into the system as a proof of liability. The deposit is held by smart contract #2 and returned to Contractor if they quit the System.

Contractor — anyone who makes a MASP deposit and thus acquires a right to work in the System.





5.1 MASP token

MASP token is issued on the basis of Ethereum and is compatible with ERC-20 standard.

MASP is a utility token required for all the Contractors (Hosts, Proxies, Miners, Exchanges etc) to gain access to the System.
The Contractors make deposits in MASP which serve as a proof of their liability.
The deposits are held by the smart contract and returned to the Contractors should they decide to quit, which is possible only as long as the Contractor has fulfilled all the commitments and/or delegated them to another Contractor.

5.2 MASPC cryptocurrency

MASPC is the internal cryptocurrency used to reward the Contractors.

After the ICO, Contractors who bought MASP earlier make insurance deposits and offer their services to Customers.

Customers, in their turn, purchase MASPC on exchanges to pay Contractors. Thus Contractors receive the payment in MASPC which they can swap for fiat money at the current rate on exchanges.

Let's clarify some nuances related to MASPC use and remuneration:

— If a file is stored for a long time, Host receives the reward in parts so that they can cover the current costs.

— Receiver, depending on the terms specified by Sender, can either download the file free of charge or has to pay for it in MASPC.

— Optional Contractors (Proxy, exchange, Insurer) are also rewarded in MASPC. Exchange receives a commission on the transaction between Sender (Receiver) and Host. It's Host who pays it.

5.3 Difference between MASP and MASPC

MASP and MASPC circulate and function absolutely independently from each other. MASP cannot be exchanged for MASPC (or vice versa).

MASP is an Ethereum-based utility token. Its emission is regulated by the smart contract #1.

It's not possible to foresee and include all the details of the System complex architecture in smart contract #1 since both funds and time for elaboration and testing are required. This necessitates the development of another smart-contract which would allow for a fully fledged system. The latter will manage billing operations and involve its own internal cryptocurrency.

Cryptocurrency on the basis of Market.space own blockchain means absence of commissions paid to Ethereum (gas) as in case with MASP, which constitutes the rationale behind parallel use of MASP and MASPC (figure 9).

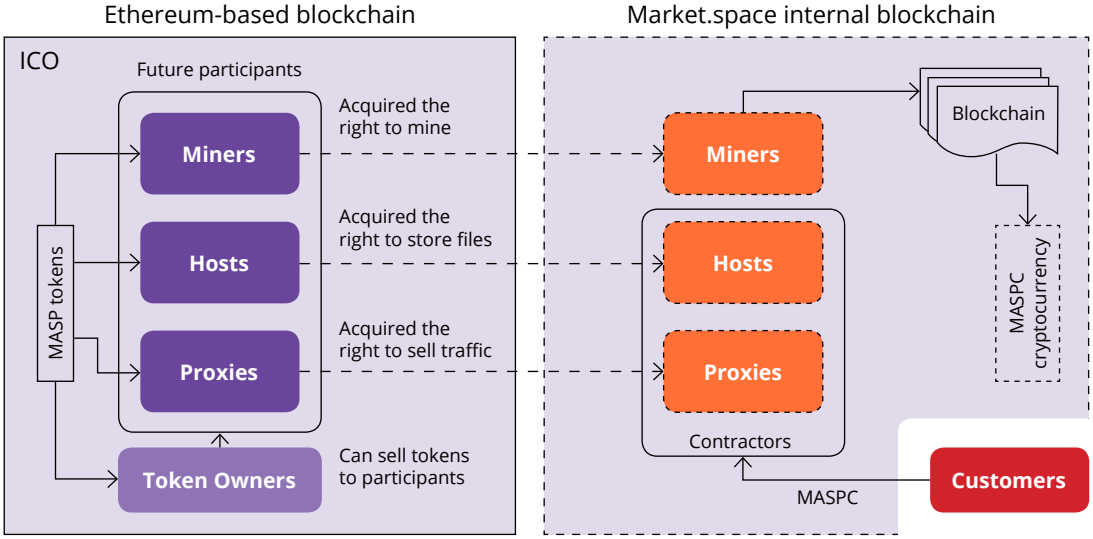


Figure 9. The difference between MASP and MASPC

5.4. Smart contract functions

Smart contract #1 regulates MASP emission. Smart contract #2 keeps a registry of Hosts, Proxies, Miners and Insurers, and also controls operations with deposits.

5.5 Economic model viability

Market.space is a product devised by Market.space Foundation OU. The operational activity of the company is aimed at Market.space development, and launch.

As the system expands, the number of participants and volume of transactions will gradually grow.

We believe in the development of Market.space because we offer:

a. A service that covers the unmet demand of the ever-growing data storage market
b. A System all the participants can benefit from
Customer gets supersafe and affordable data storage and transmission
Host gets a reward for data storage along with an additional distribution channel
Miner is remunerated for verifying transactions and forging blocks
Proxy is rewarded for data transmission

According to the company's analysts, the market share of the project is forecast to reach 25% of the distributed storage segment within the first year after the launch.

6 Use cases

In addition to its data storage and transmission functions, Market.space provides solutions to meet non-standard needs of some customer groups.

1. Market.space can secure international deals with remote payment. Sending an invoice through the system helps to avoid MitM-attacks since the chances of malicious intervention and data substitution are close to zero.

2. It's rather inconvenient and costly to deliver new film prints to each cinema on a physical medium. With Market.space it's just required to download a release print once, choose all the cinemas that should receive it, set the terms of payment — and the movie will be delivered securely to all the recipients, without data leakage and extra costs incurred.

3. Market.space can provide safe and anonymous transfer of photo and video materials. As soon as the photographer uploads the files, they receive an authentication certificate. The timestamp assigned to the file is immutable and can be used as a proof of copyright.

4. Market.space is a perfect fit for direct distribution. It enables secure and seamless delivery of audio, video and any other digital content (from works of art to language courses). Performers, artists, film studios etc enjoy their guaranteed royalty and proof of copyright.

The author/performer uploads the files and sets a fee for the download. Then they share the download URL and the public key with the audience (in social nets, on the website of their project etc).

Thus the artist receives a guaranteed payment for each download of the file while their authentic content is protected from the illegal download. Furthermore, both performer and the audience benefit from absence of intermediaries and fees they charge.

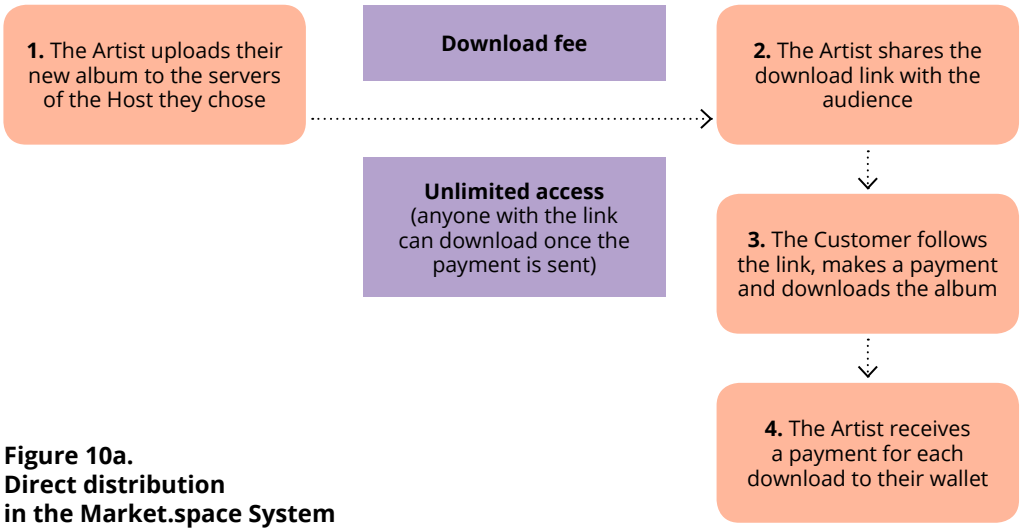


Figure 10a.
Direct distribution
in the Market.space System

Now let's assume the Artist turns to an Intermediary who assists with promotion and distribution (figure 10b):

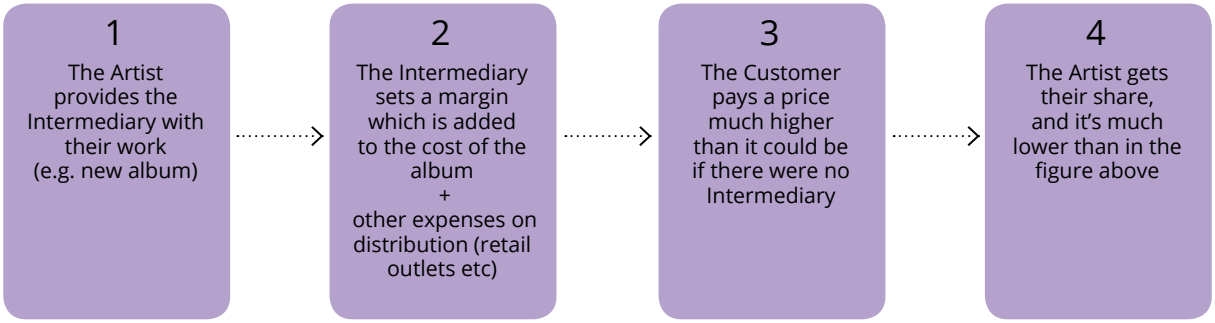


Figure 10b. Content distribution with intermediaries involved

Direct distribution function is embedded in Market.space architecture by design. Neither additional apps nor implementation of centralized control are required, which would be the case for other decentralized storage systems.

The distribution model offered by Market.space is more beneficial for both artists and end users.

7 ICO

7.1 Stages

1. Smart contract #1 development
2. MASP emission
3. Development of the System and smart contract #2
4. Launch

7.2 Key figures of the token sale

Token emission is limited to the ICO time — 6 weeks. No pre-sale will be carried out.

Whatever number of tokens is sold during the ICO, it's going to be finite. No additional emissions will be held after the ICO.

Soft cap — $15,000,000

Hard cap — $50,000,000

During the ICO we will adhere to the exchange rate below:

1 MASP = $0.35

Minimum contribution: $35

Maximum contribution: Unlimited

Accepted funds: ETH, ETC, BTC, BCH, LTC, DASH, Siacoin (SC), STORJ

7.3 Bonus program

Our special offers during the ICO include the following:

— 25% bonus for tokens bought till 11 a.m. GMT, April 19
— 15% bonus from 11 a.m. GMT, April 19 through 11 a.m. GMT, April 29
— 10% bonus from 11 a.m. GMT, April 29 through 11 a.m. GMT, May 13

7.4 Token and proceeds allocation

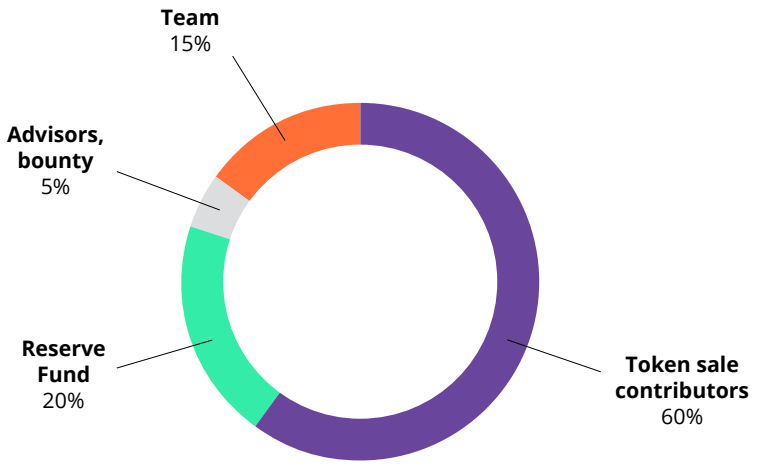


Figure 11. Token allocation

The proceeds from the tokens sold will be distributed in the following way (figure 11):

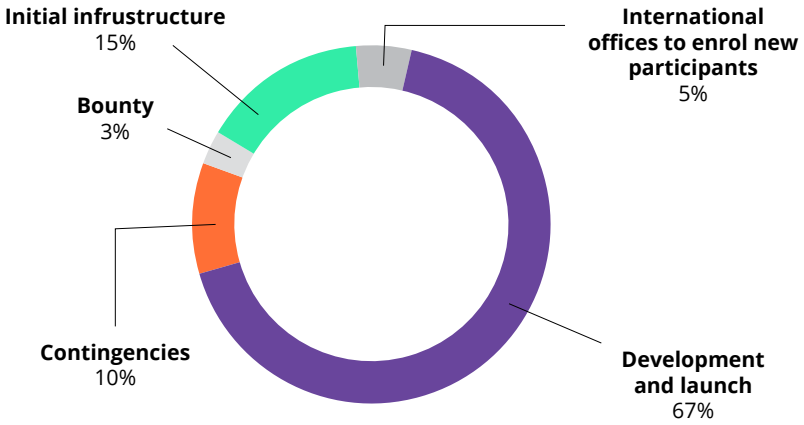


Figure 12. Proceeds allocation

67% of the proceeds will cover the system development and launch. This includes the points below:

— Developing and testing blockchain and smart contracts
— Elaborating a viable economic model, business plan audit
— Test launch
— Full fledged launch

Bounty program: 3% will be used as reward in bug search campaign
5% will be allocated to the international network of representative offices aimed at engagement of local participants (both Customers and Contractors)
15% for running the initial infrastructure to support the launch of the System. (We are going to acquire equipment and act as a Host on the same terms as other Contractors).
10% for unforeseen expenses (e.g. exchange rate volatility).

7.5 System development budget

Table 4. System development budget

#	Development stage	Cost, M USD
1	Elaboration of the System architecture with technology and economic model taken into allowance	0.9
2	Technology	
2.1	Exchange-based interaction mechanism between Customers and Contractors	1.0
2.2	Software for Contractors	1.0
2.3	Front-end application for Customers	0.6
2.4	Internal blockchain based on Proof-of-Stake (development, testing and audit of smart contracts)	2
2.5	Development of deep machine learning algorithms for metrics-based rate system	0.5
2.6	All-comprising testing	2
3	Economy	
3.1	Project calculation and justification	0.1
3.2	Marketing&Sales	0.5
3.3	Network of regional offices: rental of property and equipment	0.8
4	Miscellaneous	
4.1	Legal	0.3
4.2	Information security	0.2
	Total	**9.9**

8 Timeline

8.1 Roadmap

QI 2018 ICO
QII 2018 Expanding the Team: looking for talented developers, economists, lawyers etc
QII-QIII 2018 Blockchain platform and smart contracts: development, testing, audit
QIII 2018 Legal: elaborating juridical documentation
QIII 2018 Viable economic model: elaboration and audit
QIV 2018 Devising basic version of customer software (console application for all the groups of participants)
QI 2019 Test launch
QI-QII 2019 Debugging
QIII 2019 System launch
QIII 2019 — QI2020 Further promotion and expansion: increasing the number of participants and entering new markets
QI 2020 Customer software for mobile platforms (Android, iOS)

8.2 Projected expenses

$25M

— Massive expansion including engagement of the largest hosting providers

$35M

— Integration with third-party cryptocurrency services

— Elaborating customer software for mobile platforms (Android, iOS)

— Creating a fund to finance intense promotion and active engagement of new participants

— Signing contracts with the largest record labels and film studios as well as independent artists so that audio and video content is delivered to Market.space customers at lower prices

— Developing a subsystem for interaction with the record companies and film studios (statistics and analysis system)

— An interface for artists/performers to join thematic groups depending on the content, which would facilitate the search for customers and augment the target audience for artists

— Engagement of music and film critics (for independent artists)

— Legal support

— Operational costs (for instance, management)

$50M

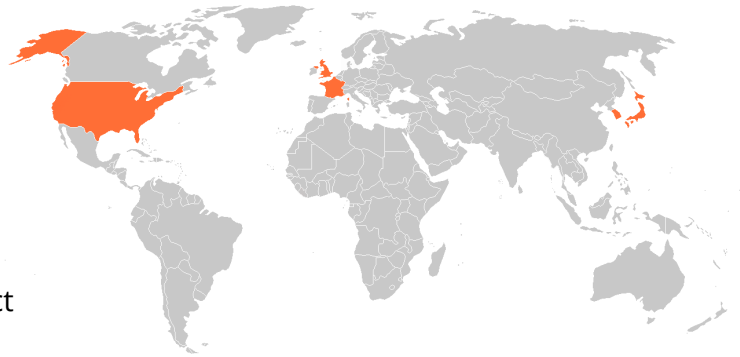
— Investment fund for integration of third party services and/or projects into Market.space system

— Integration of the major equipment vendors of “smart city” intellectual services into Market.space. Priority is given to public safety (e. g. video surveillance), financial transactions, tourism, real estate.

9 Expansion

The priority is given to the regions with the highest penetration of Internet technologies and largest number of Internet users as well as the regions where cryptocurrencies are widely used.

The map below is a preliminary list of countries and cities where we plan to open representative offices as the project develops.



World map. The countries and cities marked:
USA — New York, Los Angeles, UK — London, France — Paris, South Korea — Seoul, Japan — Tokyo, Hong Kong, Singapore, Switzerland

10 Legal

MASP belongs to utility tokens. It serves for entrance to the System (insurance deposit made by Contractors for further work). MASP does not have a legal qualification of a security.

MASP tokens do not entitle their holders to a share in the raised capital, dividends or any other income. Neither do they give voting rights which would allow to influence the project development, explicitly or implicitly.

Furthermore, we would like to clarify that once the System is launched no transaction fees or other payments will be collected. Thus there will be no revenue to distribute. All the funds raised will be allocated to the Market.space development, launch, promotion, and related purposes.

Market.space does not give any promise of future profit and therefore is not subject to any liability if one chooses to perceive Market.space tokens as an investment instrument regardless.

Market.space does not bear any responsibility for the compliance of the data stored, transmitted and distributed with the related local and international regulations, and neither do the Contractors working in the System. The same is applicable to cases when Senders, purposefully or not, upload corrupted files to the System. By design the file parts are encrypted at all stages, which means no one but for Sender and Receiver can access the content.

11 Risks

Since the project development depends on various factors (technical, economical, political, financial, legislative), the following risks may apply:

— security risks, e.g. theft of tokens, attacks on smart contract;
— cyberthreats (e.g. DDoS attacks);
— risks associated with Ethereum blockchain (any disruptions in Ethereum protocol);
— risk of legislative changes, prohibiting or restricting token-related operations in certain countries;
— risks associated with the new technologies (crypto tokens including MASP represent a new technology which can be labelled as unchecked so far);
— risk of government action and many others, internal or external, explicit or implicit.

Disclaimer

The information provided in this White Paper does not impose any restrictions on our right to change, add or remove any part of it for any reason, at any time — before, during and after the sale of MASP tokens. If there is any inconsistency between a translation and the English version of this White Paper, the English version prevails.

Residents of the USA, the Republic of Korea, the People's Republic of China or any other country where distribution or dissemination of Token Sale or Initial Coin Offering is prohibited or restricted should eschew acquiring MASP tokens. Should this happen, Market.space will not bear any responsibility.

MASP tokens should not be perceived as an investment. This White Paper does not constitute any advice to sell or purchase MASP tokens or give any help in any investment decision.

Anyone acquiring MASP tokens acknowledges and confirms the following statements:

— They have made themselves acquainted with Terms of Service and Terms of Token Sale and realize all the possible risks
— They purchase MASP in compliance with the regulation that is currently in force within their country
— They will not use MASP tokens to carry out illicit activities, such as financing of terrorism and money-laundering

Certain statements, estimates and information contained in this White Paper constitute forward- looking statements or information. These involve known and unknown risks and uncertainties which may cause actual events or results to differ from the estimates or results implied or expressed.

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