ADEPTIO

White Paper upgrade, *v2.0.0.0*
+ *storADE tech.*

January, 2019

Abstract

Adeptio is a fair distribution oriented cryptocurrency with a universal 3rd generation technology, that combines the best features of different coins in order to create an excellent new digital payment asset. Coin uses peer-to-peer technology to operate with no central authority. With the help of masternodes across the entire globe, network stability is brought to the blockchain using PoS**,** a distributed consensus achieving algorithm (*Proof of Stake*).

StorADE service technology with valuable adeptio masternode functionality serves storage & streaming platform for every day usage.

Keywords:

1. *Fair-distribution*
2. *Proof of Work; Proof of Stake;*
3. *Hybrid coin*
4. *Masternodes*
5. *Masternode tracking platform*
6. *Transparency*
7. *Scalability*
8. *HyperSend*
9. *ZeroCoin*
10. *Adeptio roots*
11. *storADE*
12. *Web Wallet*
13. *Android App & iOS App*

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1. Specifications

Blockchain name:	Adeptio
Cryptocurrency prefix:	ADE
Open Source:	yes
Genesis block:	2018-05-30
Coin on it’s own blockchain:	yes
ICO:	**no**
Presale:	**no**
Airdrop:	**no**
Premine*:	**50 002** coins (*at 1st block*)
Fee**:	7.5% (*from fixed blocks*)
Algorithm:	Hybrid – PoW/PoS
PoW Algorithm:	Quark
PoW Blocks:	2 – 345600
PoW Ending:	~240 Days after init launch
Block Time:	60 seconds
Block Size:	1MB
Max. Coin supply:	infinite
Decimals:	8
Proof of Work period:	2 – 345600 blocks
Proof of Stake launch:	starts at 345601 block

Network Port:	9077
RPC Port:	9078
storADE Port:	9079
Tor network:	capable
IPv6 network:	capable
Masternodes:	activated
MasterNode requirement:	10 000 ADE
Coin maturity:	100 Confirmations
ZeroCoin protocol:	implemented, not activated
Address prefix:	Capital letter “A”
Hex decimal prefix:	23
Script decimal prefix:	16
Secret decimal prefix:	193
Example public address:	ASpLv9c3UTN6SZXYR29iW46xFGjHRRvPWf
Org structure:	centralized
Hardware wallet:	not implemented yet
Development status:	on-going development

*50 000 coins from the premine will be used for the initial five MasterNodes, which will ensure network peer availability at the launch of the blockchain. After 1 year of operation, 5 initial, developer maintained masternodes will be wiped out from the chain, meaning the sum of 50 000 coins will be burnt.

** As the premine is 0 coins for the developers after the burning of MasterNodes, an implementation of 7,5% developer fee per block helps maintaining the project and it’s growth, while distributing the coins fairly to everyone, including the development team.

2. Brief History

During the “golden” era of cryptocurrency price rise (*late 2017 y.*), altcoin masternodes became surprisingly popular amongst the crypto investors. Many crypto-coins, which provide masternode functionality, have risen, attracting large amounts of investments. This was the next step in cryptocurrency reward system – a properly set up masternode required almost to no maintenance work, comparing the reward system to a hardware crypto-coin miner (*cpu; gpu; asic; fpga; etc.*). The masternode gathers payments from the blockchain itself, processing blocks for specific period of time, before getting a reward. This attractive crypto-making method also gathered the unfair – individuals, who know how to exploit the current crypto coin development system, making them able to scam the community and claim the instantly profited bitcoins or other currency. Since the “golden” era of the bitcoin, many fraudulent masternode coins have risen, seeking for a quick profit. Large amounts of fake coins, which provided untrue information, eliminated the trust on the crypto-related projects. The project “Adeptio” and it’s cryptocurrency, seeks to be honest, user friendly, flexible and trustworthy system, with active development team and always improving project goals.

3.Roadmap

The roadmap consists of a detailed list of small goals, which will be aimed to complete as soon as possible. The project Adeptio will have the goals and their steps updated every quarter of a year.

Quarters:

2018:

1st – January to March

2nd – April to June

3rd – July to September

4th – October to December

2019:

1st – January to March

2nd – April to June

3rd – July to September

4th – October to December

3.1 Goals

- *Completed*
- *In Progress*

2018

	Quarter 1:	Goal Status:
1.	*Project vision*	✓
2.	*Project planning*	✓
3.	*Other cryptocurrency analysis*	✓
4.	*Adeptio code tests*	✓
5.	*Adeptio blockchain tests*	✓

	Quarter 2:	Goal Status:
1.	*Bitcointalk announcement*	✓
2.	*Adeptio blockchain launch*	✓
3.	*Linux wallet launch*	✓
4.	*Windows wallet launch*	✓
5.	*Official mining pool*	✓
6.	*Official blockchain explorer*	✓
7.	*Custom Masternode monitoring*	✓
8.	*Masternode All-in-One install script*	✓
9.	*Paper wallet launch*	✓
10.	*Whitepaper promo*	✓

11.	*List on first exchange (Crex24)*	✓

	Quarter 3:	**Goal Status:**
1.	*Official Website launch*	✓
2.	*Full whitepaper release*	✓
3.	*Official roadmap*	✓
4.	*List on Livecoinwatch*	✓
5.	*List on Coinlib*	✓
6.	*List on Coingecko*	✓
7.	*List Adeptio on second exchange*	✓
8.	*Release new wallet v1.0.0.2*	✓
9.	*Cold Masternode setup guide*	✓
10.	*Launch Adeptio statistics page*	✓

	Quarter 4:	**Goal Status:**
1.	*New Wallet release v2.0.0.0*	✓
2.	*Launch storage & stream system - "StorADE"*	✓
3.	*Launch official blog*	✓
4.	*List on Coinmarketcap*	✓
5.	*Hire new people for further development*	✓
6.	*Website upgrade.*	✓

3.2 Goals

2019

The roadmap constantly changing due to storADE technology. More and more new challenges occurring . In order to get up-to-date version about development, please check out our official adeptio website:

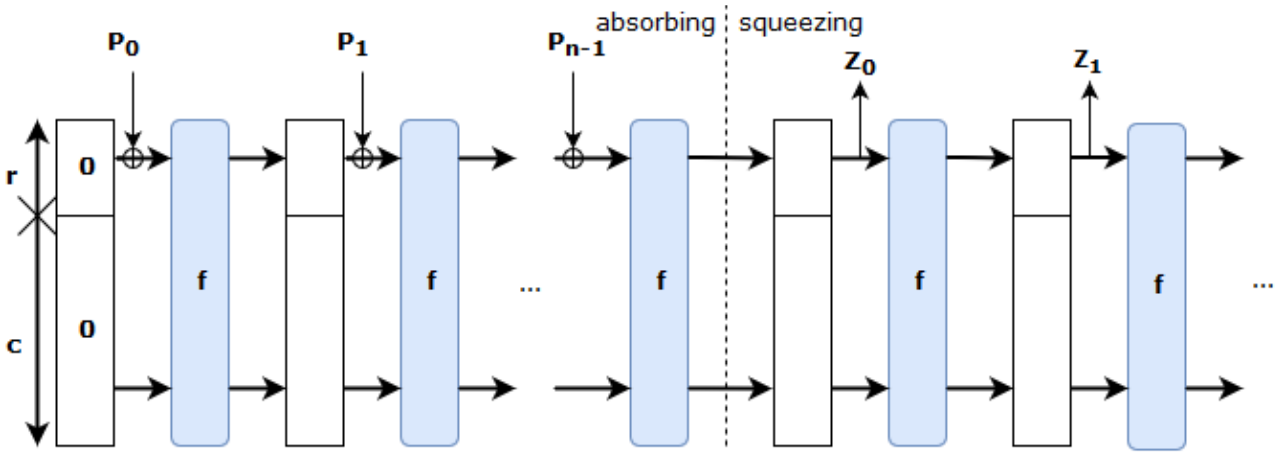
https://adeptio.cc/#roadmap

4.Technologies

4.1 The Quark algorithm

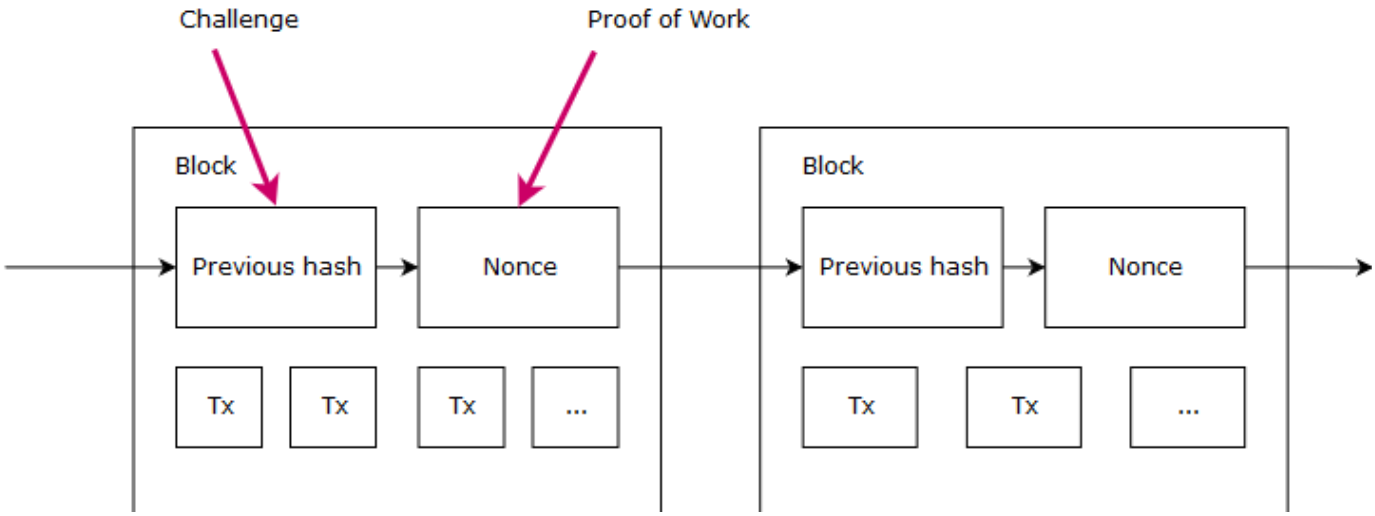
The Adeptio cryptocurrency uses **Quark** hashing function method, which was created because of the expressed need by application designers for a lightweight cryptographic hash function. It was created by Jean-Philippe Aumasson, Lica Henzen, Willi Meier and Maria Nava-Plasencia. The algorithm itself is based on a certain security level, which uses sponge construction to minimize memory requirements, see the picture below.

The hash function family – Quark – consists of three instances, which are u-Quark, d-Quark and t-Quark. Hardware benchmarks show that Quark compares well to previous lightweight hashes. Using optimal algorithm for cryptocurrency hashing not only saves energy costs, but increases efficiency of processing data.



4.2 Proof of Work

The initial phase of the Adeptio coin is based on ***Proof-of-Work*** mining, allowing hardware cryptocurrency miners to allocate their resouces for Adeptio block processing. During this phase, there will be no other way of obtaining Adeptio (ADE) from it's blockchain. After the block 345600 has been reached, the proof of work (PoW) phase will stop and the blockchain will merge



into Proof-of-Stake (PoS) phase.

The concept of *Proof-of-Work* provides block processing technique, which includes finding a solution using hardware computing resources. For every block, a challenge is given, containing hashes which were gathered from previous blocks. Once the solution is found, the network quickly accepts the result and broadcasts the solution to all of the blockchain nodes. If any of the block hashes appear to be found in the blockchain

simultaneously, the quickest answer to reach 51% of the network nodes, wins. This way, blocks continue to grow in the same way.

4.3 Proof of Stake

As a Proof of Stake cryptocurrency, adeptio is significantly better for the environment than Proof of Work focused cryptocurrencies due to its lower energy consumption requirements.

Although, the block processing method *Proof-of-Work* is enabled since the launch of Adeptio, this algorithm type will be replaced by ***Proof-of-Stake*** algorithm at a certain point. When the blockchain reaches block number **345601**, *Proof-of-Stake* will become enabled (~240 days after initial start). While the probability of mining a block depends on the work done by the miner, with *Proof-of-Stake,* the resource that's compared, is the amount of adeptio (ADE) an investor holds. For example, someone holding 1% of the circulating Adeptio supply, can mine 1% of the Proof-of-Stake blocks.

4.4 InstantSend

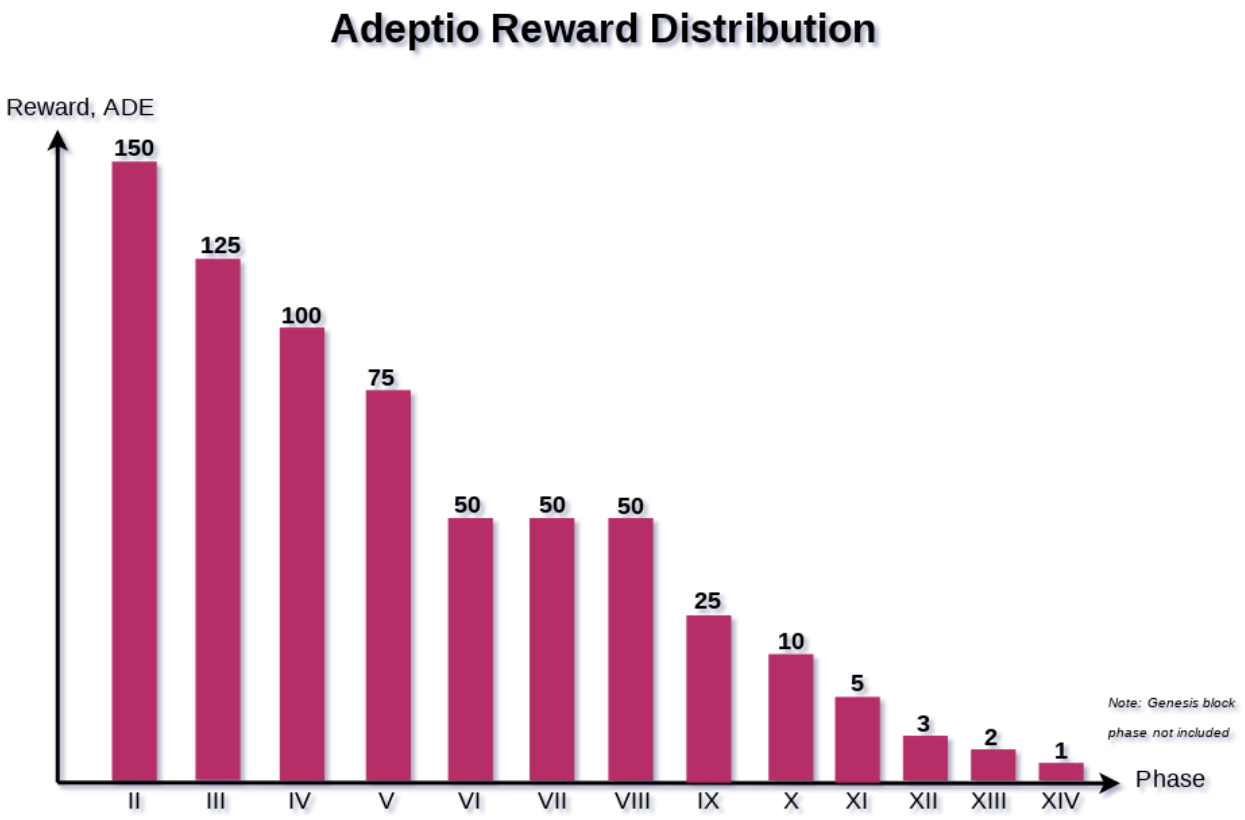
By utilizing masternode quorums, users are able to send and receive instant irreversible transactions. Once a quorum has been formed, the inputs of the transaction are locked to only be spendable in a specific transaction. Transaction lock takes up to four seconds to be set currently on the network. If consensus is

reached on a lock by the masternode network, all conflicting transactions or conflicting blocks would be rejected thereafter, unless they matched the exact transaction ID of the lock in place.

5. Reward distribution

The blockchain reward distribution system is separated into several phases, which bring different amounts of Adeptio coins to the network. The genesis block contains 50 001 coin, which are dedicated for initial start. During the first steps of network growth, it is essential to bring 5 Adeptio masternodes online to ensure peer-to-peer communications between blockchain nodes. Adeptio blockchain phases and reward amounts per block, are shown below.

Phase	Block Height	Reward Amount
I	*1*	*50 001 ADE*
II	*2 - 86400*	*150 ADE*
III	*86401 - 151200*	*125 ADE*
IV	*151200 - 302400*	*100 ADE*
V	*302401 – 345600* ***PoW ends***	*75 ADE*
VI	*345601 – 388800* ***PoS starts***	*50 ADE*
VII	*388801 - 475200*	*50 ADE*
VIII	*475201 – 518400*	*50 ADE*
IX	*518401 – 561600*	*25 ADE*
X	*561601 - 604800*	*10 ADE*
XI	*604801 - 1209600*	*5 ADE*
XII	*1209601 - 2419200*	*3 ADE*
XIII	*2419201 - 4838400*	*2 ADE*
XIV	*4838401 - infinite*	*1 ADE*



The upper graph indicates every Adeptio blockchain phase from start. Starting from 150ADE reward per block, the graph gradually falls to 1 ADE for every block. Five coins are the lowest possible reward amount per block, which will continue infinitely from the last phase.

There are a maximum of eleven phases, although first phase ‘I’ is not shown above. The first phase consists of one block, containing 50 001 ADE, directed to the developer team, for the masternode set up. After the first block has passed, phase ‘II’ begins and the blockchain starts growing.

5.1 Blockchain Phase Changes

Approximate phase starting dates, calculated from initial launch by multiplying block heights by 60 seconds.

Phase*	Date**	Block Height***
I	2018 – June – 02	1
II	2018 – June – 02	2
III	2018 – August - 01	86401
IV	2018 – September - 15	151201
V	2018 – December - 29	302401
VI ***PoW ends/PoS starts***	2019 – January - 28	345601
VII	2019 – February - 27	388801
VIII	2019 – April - 28	475201
IX	2019 – May - 28	518401
X	2019 – June - 27	561601
XI	2019 – July 27	604801
XII	*Far in the future*	*1209600*
XIII	*Far in the future*	*2419200*
XIV	*Far in the future*	*4838400*

~3360 days or ~9.199 years to reach 14th reward phase (1 ADE) per block.

* *Adeptio blockchain phases.*

** *Dates for phase initialization calculated approximately.*

*** *Specified block height for a new phase.*

6. Adeptio Scalability

Adeptio crypto-coin seeks to be universal, highly scalable crypto currency with variety of uses, found in everyday cases. But the main focus is stream & storage project - “storADE”.

6.1 Mobile wallets

Smartphones were first released in 1999, in Japan, by a company NTT DoCoMo. Until now, billions of devices were sold and today they take a huge part in a modern person’s life. It is essential to integrate Adeptio crypto coin into most widely used operating systems on smartphones – Android and iOS. Not coming right after launch, the smartphone wallets will soon become a prioritized goal to accomplish.

6.2 Adeptio repository

In order to stay professional cryptocurrency adeptio developed a private repository where all the latest adeptiocore and storADE software packages can be safely downloaded to end point users.

The repository available for ordinary people & business clients as well. The VPS connection between the client and repository is encrypted and verified by GPG keys. For more information please take a look at our wiki page:

https://wiki.adeptio.cc/books/adeptio-repository

6.3 Monthly rewards

Thanks to incentivization, adeptio network has grown to ~1000 masternodes since launch in 2018, meaning adeptio peer-to-peer network is large enough to compete with other popular cryptocurrencies in the market. More nodes means more secure services, the better “storADE” performance and more capacity for end-users to access adeptio from anywhere in the world, 24/7.

It is widely known, that masternodes can provide constant rewards for being successfully deployed. After certain period, the node receives a specific reward amount of ADE coins, which are defined by block reward phases. Masternode reward system lets the maintainer receive constant payments for contribution to the network, while paying back for node energy costs with an addition. Small, constant rewards builds up motivation for the community to stay online as a part of the network.

7. Adeptio roots

Credit goes to Bitcoin Core, Dash and PIVX for providing a basic platform for Adeptio code. The wallet should be similar to PIVX and commands as well, except storADE code integration mechanism. Please take a look at adoption picture:

8. ZeroCoin

LibZerocoin—the Zerocoin Project—is a Github hosted C++ library developed by The Johns Hopkins University Department of Computer Science. It was developed as a practical C++ implementation of the Zerocoin concept for giving Bitcoin transactions privacy, which the developers felt it was sorely lacking.

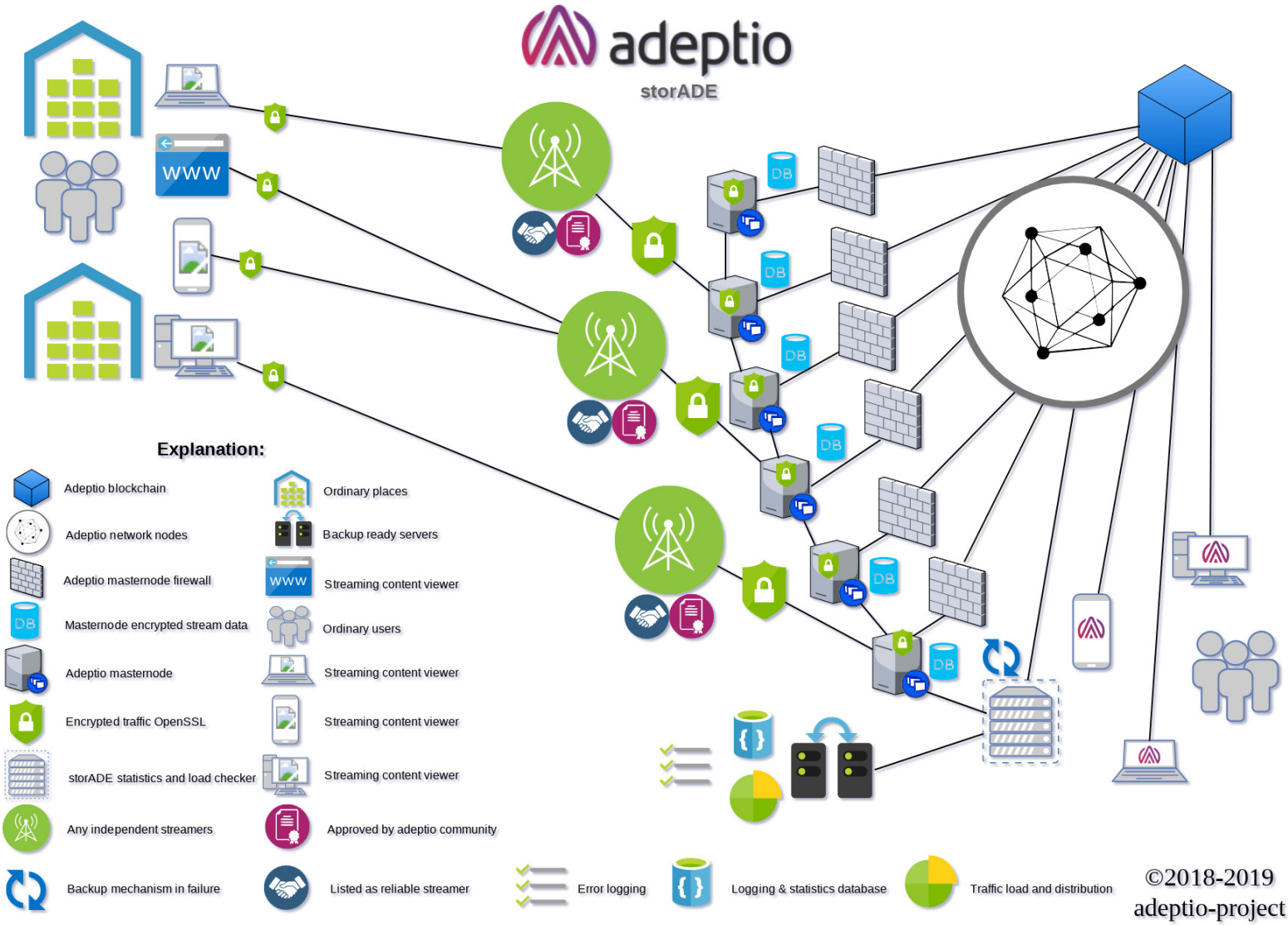
Zerocoin works by interspersing a second, private currency alongside the *basecoin* (original currency type) within blocks. These private Zerocoins are minted, their origin obscured, and added to the block to be later spent without revealing the

destination or amount, essentially leaving no trace. Adeptio ZeroCoin protocol activates at block: 1 000 000.

More information about zerocoin and how it works can be found here:

http://zerocoin.org/

9. StorADE technology



StorADE service technology with valuable adeptio masternode functionality serves storage & streaming platform for every day usage.

9.1 StorADE code

The software is written in python code. While python is not a leading edge programming language, although, was chosen by it’s simplicity and compatibility with most widely used VPS operating systems as Debian or Ubuntu. The less packages in order to start the storADE – the better for end point user & businesses.

StorADE core consist of asyncore - asynchronous socket handler module. This module provides the basic infrastructure for writing asynchronous socket service clients and servers. There are only two ways to have a program on a single processor do “more than one thing at a time.” Multi-threaded programming is the simplest and most popular way to do it, but there is another very different technique, that lets you have nearly all the advantages of multi-threading, without actually using multiple threads. It’s really only practical if your program is largely I/O bound. If your program is processor bound, then pre-emptive scheduled threads are probably what you really need. Network servers are rarely processor bound, however.

If your operating system supports the `select()` system call in its I/O library (and nearly all do), then you can use it to juggle multiple communication channels at once; doing other work while your I/O is taking place in the “background.” Although this strategy can seem strange and complex, especially at first, it is in many ways easier to understand and control than multi-threaded

programming. The asyncore module solves many of the difficult problems for you, making the task of building sophisticated high-performance network servers and clients a snap.

asyncore.loop([timeout[, use_poll[, map[, count]]]])

9.2 StorADE possibilities

Actually, the possibilities are limitless. All computers and servers around us are mostly data of 1 and 0. StorADE has ability to store a vast amount of decentralized data depending only on masternode count. The data also can be presented on all most known platforms:

- Websites
- Adeptio GUI Wallet
- Adeptio lightweight Modern Wallet
- Android smarphone
- iOS smartphone
- Home TV box
- etc.

So what types of services storADE is capable with? Most useful examples:

- Live TV streaming

- Old TV stream show (old data are kept in masternode for some period)
- Compete with live youtube, twitch streamers
- Storing Photos, music, documents etc.
- Posting any anonymous announcements

9.3 StorADE requirements

In order to join in storADE movement and participate with others the users should meet the basic requirements:

- Have a working adeptio masternode with locked 10 000 ADE coins
- Installed the latest Ubuntu 16.04 LTS or Ubuntu 18.04 LTS version
- The VPS should have Python 2.7 or greater version
- Installed Python OpenSSL module
- 2 or more CPU Cores
- At least 10GB free space
- At least 1024MB memory space
- 100 Mbps bandwidth up/down speed or greater
- An open firewall for 9079/tcp/udp port
- No more than 1 external IP per masternode

The requirements could be slightly different during time. Please always check adeptio wiki for up-to-date information:

9.4 StorADE security

- Communication between "storADE" nodes can be made only from masternode IP's. Which means all other calls will be rejected to storADE port (security check)
- To import data - secret hash has to be given (security check)
- Each storADE node works with SSL encrypted traffic (security check)
- StorADE cannot work without fully enabled masternode (masternode check)

```
if pair is not None:
    sock, addr = pair
    ip, port = addr
    client_name = str(ip) + ":" + str(port)
    if not self.allow_client(ip):
        sock.close()
        logging.info('Incoming connection from %s was rejected', client_name)
        return
```

The above code is rejecting not a masternode IP's. The atacker calling to storADE 9079 port will be rejected due to intruder flag and cannot make a contact. This helps in any DoS situation.

The list is not up-to-date due to storADE active development.

9.5 StorADE extra rewards

Most common problem with all masternode coins including Dash, PIVX, Zcoin or even with zk-Snarks tech. for example Horizen - is lack of coin usability and liquidity. Most popular payments are made by Bitcoin or Ethereum. There is no room for others to increase their daily volume by making such a daily payments. StorADE service platform has a solution for this problem by forcing users or live streamers to pay a small adeptio fee in order to view the service (make the live stream).

The payments goes to masternode owners as an extra reward. Depending on streamer status they might get an extra reward too. Distribution ratio is still in negotiation.

Of course, masternode owners can view the content for free by placing a secret hash key from storADE platform which is generated every hour and constantly changing due to security measurements.

9.6 StorADE independent streamers

This information is still in negotiation and the requirements for independent streamers is not up-to-date. Currently are 6 independent streaming sources in queue and waiting full storADE launch. More information how to become independent streamer will be available at:

https://wiki.adeptio.cc/books/storade-independent-streamers

10. How Adeptio is different?

StorADE service technology with valuable adeptio masternode functionality serves storage & streaming platform for every day usage. This makes adeptio project unique and compete with other successful projects as Dash, PIVX, Horizen etc.

Our development team has enough skills and experience to deliver most cutting edge technologies and implement it in block-chain industry.

*The **Adeptio** team*.

January, 2019

Extra sources

- *https://bitcoin.org/bitcoin.pdf*
- *https://github.com/dashpay/dash/wiki/Whitepaper*
- *https://en.bitcoin.it/wiki/Proof_of_work*
- *https://en.bitcoin.it/wiki/Proof_of_Stake*
- *https://131002.net/quark/quark_full.pdf*