Scrypta

Archiving and Certification Infrastructure

-LIGHT PAPER-

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ABSTRACT

Scrypta is a Peer-to-Peer infrastructure designed for new business models and public governance management. The system is based on the digital currency called 'LYRA'. Scrypta is a blockchain with advanced decentralized features for greater scalability, flexibility and is suitable for the creation of complete architectures for unlimited projects and new use cases. The Scrypta hashing algorithm guarantees high-speed transactions and instant payments. The monetary emission scheme, and therefore the rewards distribution, is based on Quark that have an energy-efficient and secure PoS/ Masternode consent layer.

Scrypta is a constant evolution project with decentralized nature that makes it particularly suitable for collaborations and contributions from developers who want to create practical solutions based on its architecture. Moreover, the Scrypta based ecosystem offers exceptional features of archiving, certification and verification which represent excellent tools for all those companies wishing to look at the technological innovation offered by the blockchain.

At the release of the White Paper, expected in february 2019, we will provide more details about the composition of the Core Team.

Everything you read in this document is really working, it is not about the visionary project of a startup: the code is already developed and tested.
You can request a demo by sending an email to: info@scryptachain.org

BLOCKCHAIN CURRENT STATUS

Critical aspects analysis

- 2017/2018 has been a crucial period for the development of the entire blockchain ecosystem. However, companies and startups have focused too much on the lucrative and financial aspects, putting the blockchain language and potential at the backseat.

- Ethereum as a “Smart Contracts” creation code has not yet reached the widespread adoption that was expected. Its enormous potential stay in Smart Contract and in their implementation in real use cases. Currently these instruments are mainly used for the mere financial purposes.

- Market of cryptocurrencies are populated by approximately 2000 digital coins, but a big part of them not have a real use cases and have seen their value dropped by 90%, so creating a widespread discontent among investors, especially the medium-small ones.

- The focus on dApp (Decentralized Applications blockchain-oriented) and their security has risen enormously: not only the insiders, but also many ordinary people are conscious that the classic data-centric services represent a past destined to disappear in favor of an architecture that allows a high level of privacy and control of the user data.

- The blockchain language, as well as in other technologies, is complex. The winning role of companies and developers is to make technology accessible, creating user-friendly services that solve real problems.

- Focus on real use cases is the key to bring an ecosystem that can have a significant impact to improve various social and economic

aspects. Our mission is to build and spread the technical infrastructure to support a mass adoption of blockchain technology.

SCRYPTA BLOCKCHAIN

LYRA

Data entry and data exchange into the Scrypta P2P Network happens thanks to the transactions in LYRA, a "digital asset". The operating cost for entering data into the Scrypta blockchain is of thousandths of LYRA per operation. This allows the creation of complex infrastructures on a solid, accessible and low-cost basis.

PoS (Proof-of-Stake)

The Proof-of-Stake algorithm used by Scrypta acts to validate transactions and obtain distributed consensus. With the Proof of Stake, the creator of a new block is chosen in a deterministic way according to its 'wealth', defined as 'stake'. The Scrypta consensus algorithm selects a validator every 60 seconds and assigns it the right to create a single block. The blockchain is therefore based on incentive nodes to maintain an "economic participation" in the network. In other words, it means that the "digital wallet" open to the network, generate new coins and ensure a passive income.

The developers and the Scrypta community use the Proof of Stake for a more "green" and therefore less expensive form of accord. Thanks to the PoS system, validators have not use their computing power because the only factors that influence their chances of being rewarded are the number of their "locked" coins and the healthy competition between stakeholders.

Masternode

A masternode is a server, online 24 hours a day, 7 days a week, which works as super validator and it is rewarded in LYRA. The masternodes perform standard node functions such as hosting a copy of the blockchain and validating transactions on the network, and they also act as shareholders, voting for proposals to improve the Scrypta ecosystem. Masternodes also allow other important features like "SwiftX" for Instant Transaction and "Obfuscation" to increase users privacy.

Operating as a masternode validator requires ownership of 15,000 LYRA. Masternodes must also have a static IP address and meet the minimum requirements for CPU, RAM, disk space, and network bandwidth.

SCRYPTA LANGUAGE

A hint of technologies

Each application, whether centralized or decentralized, requires two fundamental entities: data (file) and storage (database). Through Scrypta it is possible to insert data into the blockchain and to create complex and decentralized storage systems.

Scrypta has create innovative blockchain interface techniques that allow developers to contrive specific decentralized applications using standard web programming languages. This area is mainly represented by the special **RESTful APIs**, developed for the information writing and reading into the Scrypta Blockchain.
In particular, the structure is based on what we have defined **Interconnected dApp Node (IdA Node)** that uses the most common development languages such as PHP, NodeJS and MongoDB and basically aid to decipher all the underlying and complex operations that are carried out by the end user of an application.

The founder of Scrypta also, through the union of the IdA Nodes and the Masternodes, designed a basic infrastructure on which to base the IPFS (Inter Planetary File System) technology: an innovative technique to create decentralized and distributed file storage system that can contain permanently large amounts of data, files and hypermedia.

In summary, the technologies and the languages used by Scrypta are:

• **MN / PoS (Masternode / Proof of Stake) Blockchain**, well tested against attacks of various kinds.

• **The interface node 'IdA Nodes'**, which incorporate the most common development languages such as PHP, NodeJS and MongoDB and basically are useful to decipher all the complex operations that are carried out by the final user of a decentralized application.

• Common **Web language**, which its used to create the user interface and is mainly represented by Javascript and the special **RESTful APIs**, created for writing and reading data in the Scrypta Blockchain.

THREE ASPECTS OF SCRYPTA

Infrastructure & Protocol Provider – Scrypta provides a Blockchain infrastructure on which to build secure platforms.

Application and Solution Provider – Scrypta's team is specialized in applications blockchain-oriented for specific use cases.

Middleware Provider – Scrypta provides the necessary software for the development of blockchain-oriented applications.

PRACTICAL ASPECT

An operational example

To understand the system's operation we will use a practical example: imagine that through a dApp, a user, with his smartphone, wants to put a photo inside the blockchain and the photo will be permanently maintained by the infrastructure.

Here are the steps:

1) The user accesses the dApp through an authentication process.
2) The system provides the user with a public address on the Scrypta blockchain and the respective access keys.
3) The user takes his photograph and proceeds with the loading process (let's imagine like to upload a picture on Whatsapp).
4) At this point, the system sends two commands to the IdA Node: the first concerns the upload of the file on IPFS, while the second allows the writing of the reference for this information (a unique identifier) inside the blockchain.
5) The user waits for the technical times to process its transaction (roughly 2 minutes).
6) The information and the linked file (the photo) are forever inside the Scrypta blockchain.

USE CASES

Significant implication in many areas

As well as we know, the blockchain had a major impact on the financial sector, with clear benefits in terms of data processing speed, transparency, security, but these benefits can be applied to many other economic, productive and social areas. Here are some potential application areas for Scrypta:

Supply Chain

The blockchain allows the creation of open supply chains in which all the actors - producers of raw materials, companies involved in logistics and transport, companies operating on raw materials at various levels of transformation, companies working on packaging and marketing and finally retailers - can provide data and information and control, with the full transparency, the data of all other actors. The data relating to each product can be put to the benefit of the final consumer.

Our technological proposal has the potential to allow not only producers, but also their customers, to access an innovative era of traceability in the supply chain. Scrypta's Blockchain can guarantee a clear and secure flow of information , and we can push ourselves to imagine a near future in which a "scan" of a label can show the customer the entire path of a product.

Industrial IoT (Internet of Things)

Scrypta's Blockchain stands as a key application for the Industrial IoT (Internet of Things). It can be used to track myriads of connected devices, allowing the processing of multiple data transactions and the coordination between physical devices.

This decentralized approach would eliminate the traditional networks points of failure, make easier the creation of an ecosystem on which the connected devices and machines can operate.

The blockchain is a public ledger for massive amounts of data and this would bypass the use of a central hub to manage and mediate communication between devices. Moreover, the cryptographic algorithms used by Scrypta would increase the protection and authenticity of the data.

Democracy and Governance

The architecture of Scrypta can radically change the relationships between citizens and governments due to a decentralized and distributed logic, which leads to greater transparency, greater security and accessibility.

Imagine the use of blockchain technology in the field of public record keeping, document preservation, digital identity, payments, tax collection, up to voting mechanisms.

Copyright, patents and contracts

Thanks to Scrypta's blockchain, it is possible to include documents as supporting evidence during legal disputes that unequivocally demonstrate ownership of a work or document.

There are two characteristics that make Scrypta particularly relevant for the certification system: "hashing" and "proof of existence" (Proof of Existence). Hashing is a process by which a document is transformed into a fixed length code that is defined with a "fingerprint". Every hash is unique.

The "Proof of Existence" shows that a certain hash existed at a given time. Demonstrating its existence means providing proof that a certain document existed at that fixed time, this process is called "timestamping". This opportunity is considered particularly interesting in all the processes that touch on the subject of intellectual property, patents and certifications.

Health

Managing patient's medical data through the blockchain, will allow to share information on patients in a safe and fast way, and therefore would greatly help medicine and health to improve the service offered, with the possibility to have the entire medical record of a patient, and then to know his story in advance, in order to give faster and better care.

The blockchain is also a response in terms of managing complex scenarios that concern the presence and interaction between interregional health systems, between private subjects such as analysis laboratories, private health facilities or even insurance.

Scrypta's blockchain technology can also speed up the control procedures and operational mechanisms of hospitals and can bring significant efficiencies for a secure document management.

E-commerce

Scrypta can offer four benefit to the electronic commerce:

1. Fight against counterfeiting: ecommerce platforms can verify the authenticity of each product before exposing it to the public, to guarantee both the customer and their image.
2. Supply chain optimization: as we have seen in the previous section.
3. Speed up payment processes: currently involving in a plethora of players, the need for a central authority is eliminated with the blockchain, making the payment process practically in real time.
4. Security of transactions: the nature of blockchain is immutable and decentralized nature so it makes impossible to alter the data and therefore eliminates the possibility of fraudulent transactions.

Cyber Security

With the adoption of Scrypta-based databases it is conceivable a reduction in hacking, tampering and intrusion activities in company databases. The public distributed ledgers are more secure than many traditional systems, reducing the risks associated with human error.

Waste Traceability

In this sector Scrypta's Blockchain would function as a verification system that allow the detection of quality and quantity of material and origin, in order to trace the whole history of the supply chain, facilitating the relationship between the actors involved in terms of reliability and safety. Moreover, the blockchain, in relation to the waste management phase, can be used as a tool to encourage virtuous behavior of citizens.

Financial and Bank sector

Scrypta's Blockchain can help banks to provide services more suited to the needs of highly innovative companies, while at the same time having the most accurate information about the client company.

Insurance

Insurers would have in the Blockchain of Scrypta an opportunity to reduce costs of their management platforms, improve the customer experience and develop new solutions and opportunities to improve the data access.

Appendix I

TECH SPECS

Blockchain Name SCRYPTA	**Ticker** LYRA
Coin Type POS/MASTERNODE	**Hashing Algorithm** QUARK
Block Time 60 sec.	**Block Size** 1 MB
Max Supply 50,000,000	**Premined** 9,000,000
Reward Method SEE SAW MECHANISM	**RPC & P2P ports** 42223/42222

Appendix II

REWARDS DISTRIBUTION

(by block height)

Block eight	Block rewards	Supply (LYRA)	Aggregated days
0 > 10	0	0	0,006 days
11 > 31	450000	9.000.000	0,01 days
32 > 499	0	9.000.000	0,32 days
500 > 750	2	9.005.000	1,75 days
751 > 173551	10	10.733.000	4 months
173552 > 691952	9	15.398.600	1,3 months
691953 > 1210353	8,1	19.597.640	2,3 years
1210354 > 2247154	6,5	26.316.104	4,3 years
2247155 > 3283955	5,2	31.690.875,20	6,2 years
3283956 > 5357556	3,1	38.140.600,64	10,2 years
5351158 > 7431157	1,9	42.010.435,90	14,1 years
7431158 > 14573108	1,1	50.000.000	27,7 years

The rewards ratio between MN and PoS is dynamically balanced through the SeeSaw mechanism and changes according to several factors, first of all the shares of the total coins locked on the network by the masternodes. The assignment is expected with a 50/50 ratio to the achievement of 500 MN on the network (41.5% of the Circulating Supply), and will be reached approximately at the end of 2019.

Appendix III - **ROADMAP**

Event	Specification	Data
Genesis Block	Creation and hardcoding of the 0 block and start of the blockchain.	December 21st
Block Explorer	Block Explorer Release https://chainz.cryptoid.info/lyra/	Dicembre 22nd
Phase Genesis	Private contribution and n.50 Masternode activation	January 1st
Social and Forum Launching	Official Scrypta channels: BitcoinTalk/Discord/Telegram/Twitter	January 10th
Official Wallet Release	Official open source code release on Github platform	January 11th
Light Paper	Official release	January 12th
Scrypta Website Beta	Official release: www.scryptachain.org	January 13th
Pre-sale Launch	100 masternode (0,5 BTC for each masternode)	January 28th
Whitepaper	Official release	January 28th
Scrypta MN' Bot	Masternode monitoring bot via Telegram/Discord	January 30th
Exchange Listing	LYRA Listing on www.mecatox.com	February 16