WHITEPAPER

VERSION 1.0   English   ›› ‹‹

INTRODUCING

X42

PROTOCOL

A BLOCKCHAIN FOR ENTREPRENEURS

00. TABLE OF CONTENTS

>>   Click to go to page   <<

01. SUMMARY

Application publishing is something that was somewhat streamlined over the years, but almost always costly, to the point that frequently small developers get cut out of the publishing process due to budget constraints and other similar limitations, processing power being only one of dozens of common problems for hosted applications not even taking into account the ones that require an active internet connection connection at all times.

x42 allows for regular users to launch applications that would require big publishers to host them, at a much higher cost; be those decentralized applications for your cell phone, PC, Mac or even single-board computers like the Raspberry Pi. The x42 protocol allows for anyone that is creative and drivenenough to launch any type of project for a near zero cost, and without any transaction fees after that.

Decentralized applications like maps, search engines, smart grids and smart retail are just the beginning of what this platform can do, it can also run games, control other technology connected to the blockchain and even possibly allow for control of smart vehicles.

Another interesting aspect of the x42 protocol is that the core development team is focused on scalability, be that running nodes on a mobile phone or even enterprise hardware for large applications, our blockchain protocol allows for any and all users to choose what type of wallet application and node selection is best suited for them, giving greater freedom when producing and coordinating secondary projects around the x42 protocol. When your application becomes more popular and profitable, it is easy to incentivise the network to run your application nodes, so they will do the hard and costly work to host your application and allow you to focus on the development of your project. at all times.

The x42 protocol allows for that and much, much more; not only you will be able to launch any type of software you feel like, but you will also be able to make it completely decentralized by allowing it to be hosted on cell phones, PCs, servers and virtual machines all over the world via a reputation and rating system.

Many businesses and individual security-minded users want or need privacy enabled platforms to keep their records, client data, and dealings out of the public eye. The x42 protocol will allow for private transactions and contracts to be signed, executed and maintained.
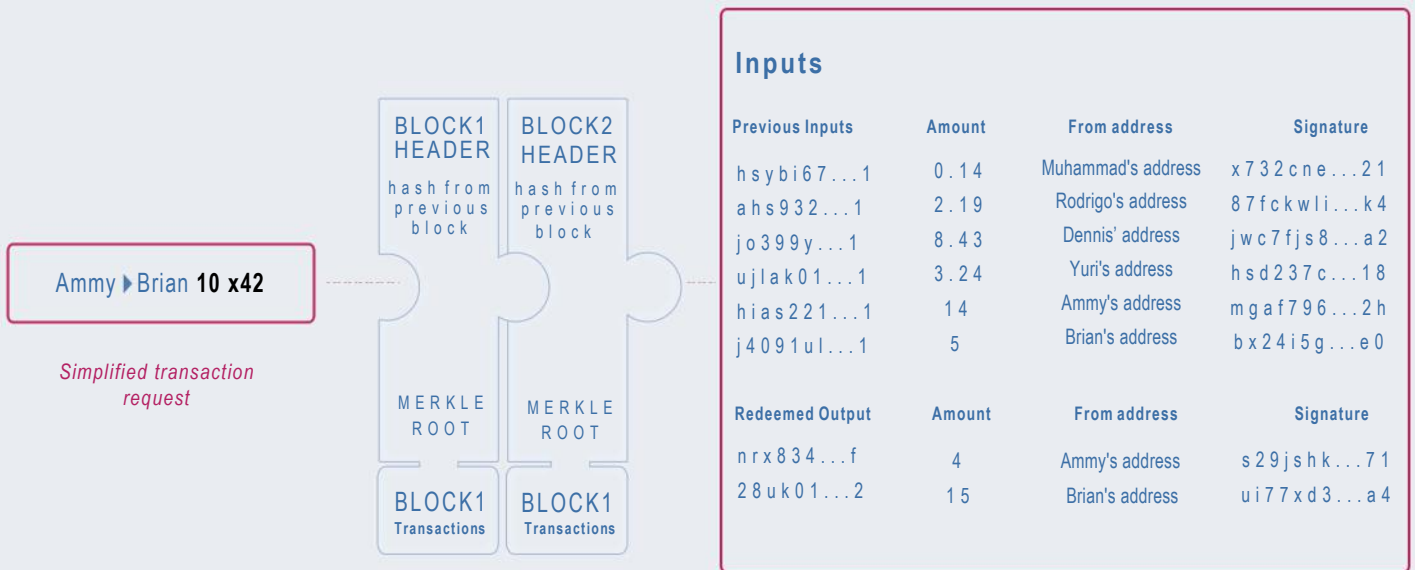
02.   WHAT IS BLOCKCHAIN?

Blockchain is a decentralized digital ledger technology in which all transactions between users are recorded in a chronological and public manner. The technology was first devised by a figure known as Satoshi Nakamoto, an alias for an unknown person or team, Satoshi was responsible for the idea that gave birth to Bitcoin and the blockchain.

The blockchain is an unchangeable ledger which allows for basically any kind of record to be kept, be that related to cryptocurrencies, assets, games, DApps or anything else developers can come up with.

This ledger is hosted by a network of nodes which will certificate, sign and distribute each and every transaction made within that network, each block is only generated when linked and certified to be part of the same network that created the previous block, that way an unbreakable chain is formed, wherein the older the block, the more signatures it has.

The longer the chain, the stronger it is, and the harder it is to take it down because it is decentralized by its very nature, to the point of near impossibility when it reaches a large amount of users. Taking the example of Bitcoin, the first functional decentralized cryptocurrency, the only alternative nowadays to take the Bitcoin blockchain down in a somewhat permanent manner would be to shut down the entirety of the internet, and even then transactions would be possible via private keys and local networks to some extent.

Blockchain ledgers are a great option for a resilient form of data storage and transference, the technology allows for instant records to be made and updated in a very clear and defined timeline.

Ammy ▶ Brian **10 x42**

Simplified transaction request

| Inputs			
Previous Inputs	**Amount**	**From address**	**Signature**
h s y b i 6 7 . . . 1	0 . 1 4	Muhammad's address	x 7 3 2 c n e . . . 2 1
a h s 9 3 2 . . . 1	2 . 1 9	Rodrigo's address	8 7 f c k w l i . . . k 4
j o 3 9 9 y . . . 1	8 . 4 3	Dennis' address	j w c 7 f j s 8 . . . a 2
u j l a k 0 1 . . . 1	3 . 2 4	Yuri's address	h s d 2 3 7 c . . . 1 8
h i a s 2 2 1 . . . 1	1 4	Ammy's address	m g a f 7 9 6 . . . 2 h
j 4 0 9 1 u l . . . 1	5	Brian's address	b x 2 4 i 5 g . . . e 0
Redeemed Output	**Amount**	**From address**	**Signature**
n r x 8 3 4 . . . f	4	Ammy's address	s 2 9 j s h k . . . 7 1
2 8 u k 0 1 . . . 2	1 5	Brian's address	u i 7 7 x d 3 . . . a 4

Real Transaction Request

03. WHAT IS THE x42 PROTOCOL?

x42 is a decentralized cryptocurrency based on the Stratis technology designed to be a multi-chain solution for DApps (decentralized applications) that allows for a range that goes anywhere from small indie developed games to large entrepreneurial projects that span dozens of facilities.

The main idea behind x42 is to be a scalable, on-chain solution for any developer that wants to launch games and applications in general with minimal initial investment, zero transaction fees and near infinite scalability. The protocol works around a main blockchain which hosts all the x42 coins and three types of nodes. Side blockchains can be created at will by the developers that decide to use the x42 protocol to launch their projects, side blockchains are very flexible and allow for a great deal of customization.

The main blockchain of the x42 protocol will have a maximum total of forty-two million coins mined into existence by the year 2030. The coins follow the same rules as most cryptocurrencies, every transaction is final, timestamped and will be registered to the blockchain ledger, blockchain explorers can be used to browse any and all transactions

Every project can have its own side blockchain, in which the development team can fully test and experiment on before going live to the store, because of that need all side blockchains have access to individual testnets.
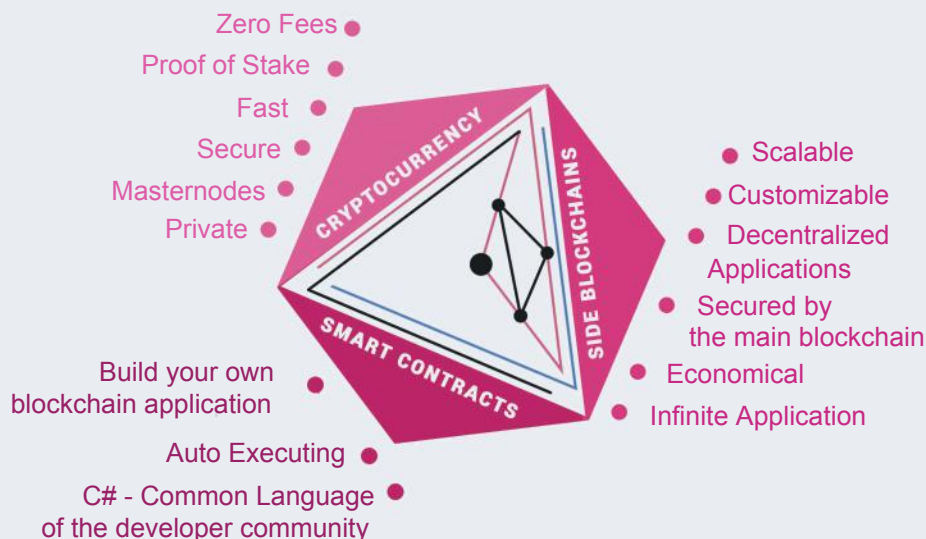
04. 42 KEY FEATURES

■ *Why x42?*

x42 is undoubtedly a great option for both new and proven developers to **publish anything they desire** in a fast, cheap and secure manner without going through any unnecessary hindrances. You could **feasibly launch a game or other type of application using a single x42 coin or even less**. The x42 protocol can also be used as a near-instant, feeless, and easy to use alternative for those who needs a viable option when compared any to fiat currency, be that in countries with declining economies and devaluation, maybe even hyperinflation of the same currency, or in countries that are flourishing with a strong economy; x42 can be used in any and all environments as a means of exchange of value without the interference of a third party.

■ *Zero Fees*

The x42 protocol is meant to be used by everyone, **so the main blockchain is completely free of any transaction fees**, all block rewards will use the proof of stake as a block validation method to sign and allow for new transactions. This will allow for any project that requires thousands of transactions per minute, or even per second, to run on side blockchains without having to worry about transaction cost bottlenecks, and allowing to focus entirely on the creation of a great final product.

■ *Proof of Stake and Masternodes*

Any user with **at least a thousand units of x42 can host a masternode**, which will seed the entire blockchain and help in the development of the network itself, while being paid in the form of newly generated x42 coins according to the percentage of coins they hold when compared to the rest of the network (network weight). Every user can stake their coins, there is no need to host a masternode to stake. The more coins you have, the more you will generate until the last one is minted. Before and after that masternode owners will also get a portion of the revenue generated by the hosted side blockchains and their product(s), the percentage of revenue shared will be chosen by the application developer

■ *Infinitely scalable sideways*

Any developer that chooses to use the x42 protocol **will be able to create a unique side blockchain that will scale as much or as little as the developer needs**, that side blockchain can be hosted by any or even all the masternode owners. Masternodes will be validating all side blockchain transactions, so there is no need to worry about the security of each individual side blockchain because all of them will be processed by same security protocols as the main blockchain.

■ *Transactions per Second (TPS)*

The common bottleneck of TPS **does not affect x42**, side blockchains can be edited to hold as many TPS as the developer deems necessary. The x42 main blockchain already supports over ten times the number of transactions compared to what the bitcoin is capable of at the writing of this document.

■ *Initial Investment*

x42 allows developers to publish with almost no investment. Side blockchains can be generated at will for the **cost of a single unit of x42 on the main blockchain**, so creating side blockchains will not be a problem even for the smallest of developers. This minimum price can be scaled down as x42 gains in price.

■ *Control over Publishing*

Masternode owners can choose to host projects as their are launched on any of the non-private side blockchains. To host a private side blockchain you need access that can only be given by the developer or organization. If you do not agree with a particular development team or project you can **choose not to host their product or even unhost it in case you are already hosting it**, the process is very simple and by giving choices to x42 masternode owners great projects will flourish very quickly. Projects that share more of the generated revenue with masternode owners will also more likely be hosted quickly and maintained by the same masternodes for much longer periods.

Reputation system

From the beginning the idea of the platform was to allow for users to vote on projects being hosted by smart contracts. By **browsing a store users will be able to download, run and host varied applications and smart contracts** that were posted on the network. Users will also be able to add their personal projects to the same store, and get paid and pay masternode owners for this.

This store is going to run **on a reputation system that goes from one star (the worst possible grade) to five stars (the best)**, not only will you be able to grade applications but also users, that can be very important in communities that choose to use the x42 blockchain as a governance system.

You will also be able to **recommend applications and commend users** using the same system, which will also allow for **blocking, downgrading users, applications and smart contract**

Smart Contracts

Smart contracts are self-executing blockchain-based contracts that follow terms of a previous agreement between two or more parties. They are meant to enforce a certain set of rules agreed to between the parties and auto-execute upon those terms being either finalized or broken. These contracts do not need to be financial in nature: they can range anywhere from the complex inner workings of a company to the transference of small physical or digital objects. The only real limitation here is how talented the programmer or team writing the contract are.

Smart contracts are **capable of storing persistent data of any kind**, they can react to a certain set of events pre-programmed, or auto-execute for any threshold that is programmed beforehand.

x42 **smart contracts use C#** to make them easy to develop, test, and debug.

Privacy

All users of the x42 protocol will be able to enjoy private transactions by using the Breeze Wallet protocol, which will make any transaction private and untraceable **not only on x42's main blockchain** but also **on all side blockchains that choose to enable the option for private transactions in their code**.

05. ARCHITECTURE AND DEVELOPMENT

The platform itself allows for near infinite freedom when it comes to publishing, creating an environment where DApps can be posted on our blockchain easily and hosted by other node owners, allowing for decentralized processing of the various applications published to x42 side blockchains.

The x42 protocol has a layered architecture, and it uses C#, Microsoft .NET and the NBitcoin library. There are threemain levels of the x42 architecture:

1. *Stratis Bitcoin full node* – this is responsible for interacting with interface and infrastructure layer as well as the Node policy layer. All the APIs and user interface are handled through the x42 Bitcoin Full Node.

2. *LibConsensus* – This is the Bitcoin Core version and is responsible for deciding what is to be considered a valid block.

3. *NBitcoin* – This does anything remaining and fills in the gaps between the Consensus Layer functions while also handling messages between nodes in the Network Layer

06. BLOCK VALIDATION

x42 uses PoS (proof of stake) as a coin generation method as well as validation for newly generated blocks, which benefits the interest of organizations running the network, and securing it against attacks. This is very useful because any user or organization can take advantage of running a x42 full node and the nodes needed for their own blockchain without the need for expensive and dedicated hardware.

Block reward will be 20 coins per block until block number 550.000, after that all blocks will only generate 5 coins until the maximum supply of 42.000.000 x42 is reached.

Owners of x42 masternodes will be able stake their coins to generate new ones related to the amount they are currently staking until the total supply is created. Until and after that point owners will also receive a percentage of transaction fees fromthe games and decentralized applications hosted on the side blockchains that they decided to host on their masternode

- *Why proof of stake and not proof of work?*

Proof of work (the bitcoin mining and block validation method) is quickly proving to be wasteful both in electricity and electronics, and the x42 team believes in a greener world, so we decided to utilize the proof of stake method to generate new coins and validate blocks. By choosing that path new coins can be generated by any device running a wallet and signing transactions, no need to for expensive ASICs equipment or overpriced GPUs.

07. NODES

Almost all cryptocurrencies in circulation nowadays use the node concept, which is simply the term used for a computer connected to a blockchain network and running a wallet software that allows for the connection and distribution of blockchain-related information, be those transactions, votes or block validation of any kind.

Three types of nodes will be available on the x42 protocol, two of them will allow the user to stake their coins:

- *Client Node*

A client node in the x42 network is defined by any client that runs a wallet connected to the x42 main blockchain. This software wallet allows for the user to be able to receive and send transactions at will. This wallet can also be encrypted and perform private transactions if the user chooses to do so, but it does not require the user to download the entire blockchain. **This type of node does not allow staking.**

- *Full Node*

A full node is any device that is running a software wallet, has the entire blockchain saved and is connected to the x42 main blockchain. The full node will seed the blockchains, both main and side, to all users (allowing client nodes to run), and it also has all the functionalities of a client node. Full nodes also get more voting weight on the network. **The full node can stake coins on the main blockchain.**

■   *Masternode*

A masternode is a wallet client that has at least 1000 x42 coins on the main blockchain. This type of node not only allows for all the functionality of a full node, but also by **owning a masternode any user will also get a percentage of the income generated by the DApps, games and smart contracts on side blockchains that the masternode owner chooses to host**. There will not be a limit set by the blockchain to the amount of applications that can be hosted, however hardware processing power and internet bandwidth can affect how many hosted applications the masternode owner can maintain at the same time. Like the full node, **masternodes can also stake coins on the main blockchain**.

08. PRIVACY

The x42 protocol has privacy options built in the network which is based around the Breeze Wallet project of the Stratis Platform.

This technology will offer complete and utter privacy in any and all transactions that the user deems necessary. It works by using TumbleBit, which is self-described as 'an untrusted Bitcoin-compatible anonymous payment hub'.

Having integrated the **TumbleBit** into the **Breeze Wallet** the Stratis team made a breakthrough in blockchain privacy, **allowing for any and all transactions, be those Bitcoin, Stratis or x42 to be made completely private** without relying on a central tumbler or node.

By using this technology x42 will allow for compatible, private and trustless transactions, which will give an extra option for those seeking for truly private blockchain alternatives.

09. SCALABILITY AND SIDE BLOCKCHAINS

The main blockchain of the x42 protocol specifications are the following:

- ~60 transactions per second on the main blockchain
- 1 megabyte block size (averages out at 2500 transactions per block)
- A new block is generated every 60 seconds (one minute block time)
- 42 million total minable coins by the proof of stake validation method over a ten year period (difficulty adjustments will be active in the network)

x42's main blockchain only maintains the coins. Most transactions will be made on side blockchains, which are customizable. Developers can choose block size, TPS escalation, even block time among several other minor and some extensive customization options.

Side blockchains scalability is only really limited by the processing power of that particular blockchain. A side blockchain could feasibly have over one million transactions per second if the owners of that particular blockchain had a product good enough to be hosted on most or all masternodes. Side blockchains are very flexible on what they can do, and how they do it, especially taking into account talented and driven programmers.

All applications running on a masternode will require some processing power from the host machine, which in part is used to secure all transactions going through that masternode and all side blockchains hosted. The more applications you host, the larger the CPU, RAM and network bandwidth drain will be.

10. CONCLUSION

The x42 protocol is a great option for developers of any size, no matter if you are a single person team or an enterprise with a global footprint, anyone can make use of this platform and get something productive out of it. It offers a great all-in-one platform for developers of any kind that desire to learn and use a new system that allows for development, publishing and maintenance of the software without having to use several different platforms.

The main idea behind this platform is to give the tools to anyone that wants them. The x42 protocol core development team strived to make a solid, upgradable blockchain so that everyone can have access to the means that wouldn't necessarily be there if this platform did not exist.

The scalability of the x42 allows for near infinite application. Our team will develop several secondary projects on side blockchains, and we hope to see several useful applications running on the network, allowing this blockchain protocol we are so passionate about to flourish in the way it deserves.

Get involved:

http://www.x42.tech - *Website*
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https://github.com/x42protocol/ - *Wallet*
https://twitter.com/x42protocol - *Twitter*
https://www.reddit.com/r/x42/- *Reddit*
https://discord.gg/tdN4ue6 - *Discord*

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https://github.com/bitcoin/bitcoin/projects/6 - *Libconsensus*
https://github.com/MetacoSA/NBitcoin - *NBitcoin*

x42