



Northern

WHITEPAPER

Northern: An energy-efficient and scalable blockchain

The Northern Team
cryptonorthern@gmail.com
<https://nort.network>
v1.0.0 June 2018



Abstract. In order for cryptocurrencies and blockchain technology to reach mainstream adoption, we need to find a solution to the most pressing issue faced by most blockchains today – maintaining the integrity of the network in an energy-efficient way. We believe that a Proof-of-Stake consensus mechanism is the best foundation to ensure that a blockchain can continue to scale and offer adequate use-cases to its userbase for many years to come.

1. Introduction

Since the inception of Bitcoin, the first and most successful cryptocurrency to date, the interest and development around the cryptocurrency space has reached levels that have not yet been seen before in any sector of technology. Every day, new innovations and inventions in the space lead to more efficient and scalable solutions to implement blockchain technology in a variety of sectors.

Proof-of-Work, the consensus mechanism used by cryptocurrencies such as Bitcoin and Ethereum, requires a lot of computer hardware and electricity in order to maintain the integrity and security of a particular blockchain. This is akin to computers of the past, that used a lot of resources and had very little output.

As we have seen in more recent times, every piece of technology has evolved and adapted to be more efficient with its energy usage - computers, televisions, smartphones etc. Even applications that were once heavy on computer resources have been improved upon.

Blockchains are no different, in that they too, like most technologies, have been improved upon since their inception. Consensus mechanisms such as Proof-of-Stake, enables blockchains to be used for an array of different applications, while still performing competitively, in an energy-efficient and environmentally-friendly way.

2. Energy-efficient blockchain

Proof-of-Work, the consensus mechanism used in Bitcoin and many other cryptocurrencies, requires computer hardware (CPU's, GPU's and now ASIC's) in order to maintain the integrity of the blockchain. Only these “miners” with their particular hardware can create or “mine” new coins on the network.

While miners play a very important role – processing transactions, calculating mathematical equations and adding blocks onto the network, as well as voting on feature updates to the protocol – the current growth in Bitcoin mining is gaining a lot of negative attention¹, for the simple fact that Proof-of-Work mining uses a lot of electricity to maintain the blockchain².

Proof-of-Stake, the consensus mechanism used in Northern's codebase, allows for anyone with a balance of NORT coins to act as a miner. Whereas on a Proof-of-Work blockchain, you do not need any coins to mine – only hardware – a Proof-of-Stake system ensures that ONLY users with a balance can mine.

By requiring nothing besides a balance of Northern coins to mine, the blockchain is a lot more energy-efficient. A miner simply needs a computer to be online and running the Northern wallet software, with any amount of Northern coins the wallet. The wallet will now act as a miner on the network and will attempt to submit blocks onto the blockchain.

3. Proof-of-Stake

Similar to Proof-of-Work where a miner with 10% of the hashing (computing) power on the network will earn 10% of the blocks (on average) – a Northern holder with 10% of the coin supply in their wallet will mine 10% of the blocks (or more, depending on how many coins are being “staked” on the network at that time).

The reason Proof-of-Stake has been chosen as the preferred consensus mechanism on the Northern blockchain is to ensure that the blockchain has a low impact on the environment and is also easy for users to participate in. **This results in two things:**

1. The barrier to entry for those who would like to mine on the Northern blockchain is a lot lower than coins like Bitcoin. On Northern's blockchain, anyone with a NORT balance can act as a miner, who will secure the network and earn a portion of the block reward.
2. Northern's blockchain is a lot more energy-efficient than Proof-of-Work blockchains, as a result of the Proof-of-Stake consensus mechanism. This will allow the Northern blockchain to exist well into the future, when energy-efficiency becomes more of a global concern.

¹ <https://www.theguardian.com/technology/2018/jan/17/bitcoin-electricity-usage-huge-climate-cryptocurrency>

² <https://digiconomist.net/bitcoin-energy-consumption>

4. Consensus and resistance to 51% attacks

Whereas on Proof-of-Work blockchains, consensus is shown through computing power, on Proof-of-Stake blockchains (such as Northern's) that incorporate masternodes, governance is done through a process of voting on proposals.

As a result of masternodes requiring a collateral amount in order to receive payments, masternode holders are economically incentivized to act in the best interests of the blockchain. Acting in a malicious or potentially harmful way, in an attempt to cause damage to the blockchain, would result in the value of NORT coin to fall, and this in turn would hurt the bad actor economically – which would not make sense for anyone to do.

This is contrary to what we have seen with the recent 51% attacks on coins such as Bitcoin Gold³ and ZenCash⁴ – where no collateral amount of BTG or ZEN is required to mine – meaning an outside miner with negative intentions and enough computing power can disrupt and potentially corrupt the blockchain with his own transactions.

However, with Northern requiring the native NORT coin as a pre-requisite to mine on the blockchain, a miner with malicious intentions would have to acquire more than half of the current circulating supply, in order to either mine malicious blocks or submit and pass malicious governance and treasury proposals using the masternode system.

With current “hashpower renting” websites such as <https://www.nicehash.com/>, users with malicious intentions can rent the computing power they need – only for a short amount of time, and then use this power to inject false blocks into the blockchain, resulting in the malicious party being able to “double-spend” funds on the network.

Today, 51% Proof-of-Work attacks can be performed for as little as \$500⁵ – and could result in the hacker getting away with far more in revenues than that, at the cost of innocent users on the blockchain.

To contrast this with a Proof-of-Stake network such as Northern's, a 51% attack would cost orders of magnitude more than \$500 and would also be a much slower and more difficult process than simply renting a lot of computing power.

Furthermore, as the market for computing power in the form of ASICs is controlled by only a handful of actors, it results in those actors being able to accumulate more than 51% of the network's computing power – even on larger networks such as Bitcoin's⁶. This is a serious threat to the integrity of the network and could result in Bitcoin being manipulated and controlled by this centralization of actors, without anything anybody else on the network can do besides try and accumulate more computing power.

³ <http://fortune.com/2018/05/29/bitcoin-gold-hack/>

⁴ <https://cryptodisrupt.com/zencash-suffers-51-attack/>

⁵ <https://news.bitcoin.com/you-can-now-51-attack-a-coin-for-as-little-as-500/>

⁶ <https://bitcoinist.com/bitmain-51-percent-bitcoin-hashrate/>

5. The Northern blockchain as a base layer protocol

With a stable Proof-of-Stake blockchain in place, Northern will be able to scale without issues and will therefore be able to function as more than just a currency. NORT, the native coin to the Northern blockchain will act as a base currency for future applications that will be built on top of Northern's blockchain.

Most cryptocurrencies are just that – currencies, with no other use case than functioning as a medium of exchange or store of value. However, the NORT coin will open users up to a variety of services that are built on the Northern blockchain.

When Northern integrates with BlockNet⁷ in July 2018, their “**xrouter**” technology allow for the Northern blockchain to incorporate cross-blockchain decentralized applications – essentially allowing applications to be built on top of Northern's blockchain and communicate across blockchains with other networks such as Bitcoin's.

“The Blocknet is infrastructure for the coming "inter-blockchain era", an emerging technology epoch characterized primarily by the superseding of the current API ecosystem with an intrinsically monetizable "token ecosystem".

If blockchains are to achieve their true potential, then broad, generic interoperability between blockchain services is required. Without inter-chain interoperability, blockchain-based services will either (a) deliver services only within the confines of the limited customer base that runs its nodes or sacrifice the unique security properties of blockchains in delivering to centralized entities, and (b) face enduring problems with chain bloat and, relatedly, the market-related pressure to build further features onto a single chain.

From a software-as-a-service (SaaS), the token ecosystem embodies two fundamental advancements: (a) the comparatively frictionless monetization of services, and (b) the leveraging of the unique robustness, decentralization, and security properties of blockchain technology.”⁸

Furthermore, the Northern team will be establishing a Northern Foundation, which will make use of the budget and treasury system on the Northern blockchain and use this to fund the developments of applications on top of the network. These funds will be distributed to public community developers, who submit ideas and proposals to the network. This will allow Northern to make use of a self-funding development model in a true open-source way.

The **Northern Equinox Fund™**, which is mentioned and explained below, will serve as another layer on top of the Northern blockchain and will also only make use of the native NORT coin as a currency.

⁷ <https://www.blocknet.co/block-dx/>

⁸ <https://blocknetprotocol.com/>

6. Northern Equinox Fund™

The Northern Foundation will establish the **Northern Equinox Fund™**, which will be the first of its kind – a masternode hedge fund, with the NORT coin acting as the native currency.

Since the inception of masternodes, they have been popular among investors for the reason that one can earn block rewards, simply by owning an amount of coins and using them as a collateral on a Virtual Private Server. However, a trend that became apparent with a lot of these coins, was they would come out, usually after being auctioned for about 1 BTC, with an ROI% of sometimes up to 1000%.

What followed after this, would be a severe crash in price, as far too much supply would come to the market as a result of the high ROI%. With the demand not nearly capable of meeting the supply, these coins would usually lose 95% of their value – severely hurting their investors.

Even with their high ROI%'s, these coins would never make their investors whole again.

After careful analyses, we have come to the conclusion that these coins lose their value for multiple reasons:

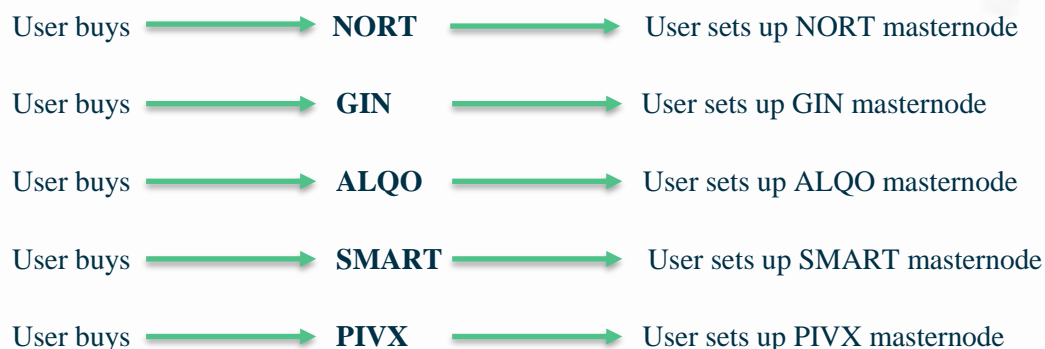
- With high ROI% coins, supply far exceeds demand, leading to a price drop
- A lack of development and use cases with these coins means that nobody has any reason to hold them, apart from running a masternode or staking

The **Northern Equinox Fund™** aims to completely change the current model of masternode earnings for the reason of trying to create liquidity for the NORT coin, give the coin multiple use cases and ensure that there is not too much selling pressure on the NORT/BTC market.

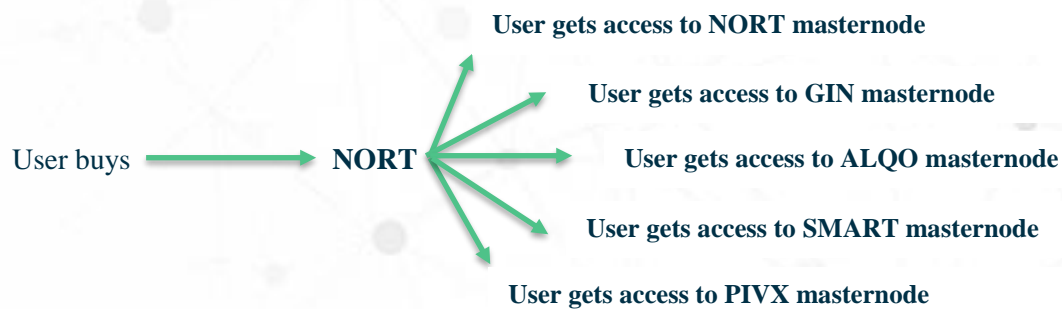
The fund will invest in a basket of masternode coins – similar to how a hedge fund would operate. This basket of masternode coins will comprise of a few different coins, which will only be added after meeting a number of strict investment criteria.

The NORT coin will be the only way to buy into this fund – resulting in the NORT coin essentially being a gateway to the world of masternode coins.

The previous masternode model:



The Northern Equinox Fund™ model: (The coins used as merely exemplary and do not represent what the fund will hold).



With the above model, the NORT coin will serve as a gateway for users to get exposure to a variety of different masternode coins. The fund will pay out in BTC and will pay an amount to users based on how much NORT they have contributed to the fund in contrast to how much NORT is in the fund in total.

By allowing users to lock their NORT coins up in the fund and receive a passive income in BTC, which will be generated from masternodes of other coins, this will result in much less of the NORT supply making it onto the market (if users would rather invest their NORT into the fund and continue earning, instead of selling their NORT).

The demand for NORT should also increase, as now the NORT coin not only allows you to stake or run a masternode, but also gives users exposure to a whole portfolio of passive income from masternode coins.

The establishment of the Northern Equinox Fund™ is a completely unique concept and is something that has not yet been done in the cryptocurrency space. Our intentions with this are as follows:

- By creating a use case for the NORT coin apart from just running masternodes, we intend that this will drive more **liquidity** (buying and selling) to our market, resulting in a more stable price.
- By allowing our investors another way to earn passive income with their NORT coins from the markets of other coins, we intend to reduce the selling pressure on our market and create **less circulating supply**.
- By allowing the coins to be used for purposes other than masternodes and staking, **more demand** will be brought to the NORT market – as now people will be buying NORT to get access to a portfolio of masternode coins.

As of July 2018, the Northern Equinox Fund™ will begin its formation. A more thorough roadmap with exact deadlines for the activities of the fund will be published in a future update to this whitepaper, as well as on the Northern website and social media.

7. Statistics, inflation and emissions

Coin Specs

Block times: - 1 minute

Maximum supply: - 5,000,000 (5 million) NORT

Consensus mechanism: - Proof-of-Stake (85% masternodes, 15% stakers)

Algorithm: - Quark-hash

Masternode collateral: - 2,500 NORT

Features: - SwiftTX, budget, treasury and masternode governance is enabled

RPC Port: - 9332

P2P Port: - 6942

Block reward breakdown (Block height - Reward per block)

Block 201-30,00 - 5.000 NORT

Block 30,001-200,000 - 3.750 NORT

Block 200,001-500,000 - 2.500 NORT

Block 500,001-900,000 - 1.250 NORT

Block 900,001-1,500,000 - 0.500 NORT

Block 1,500,001-6,000,000 - 0.250 NORT

11-year tapering inflation reward, with a cumulative supply capped at 5,000,000 NORT.

8. Links

BitcoinTalk ANN:

<https://bitcointalk.org/index.php?topic=3094597.msg31947791#msg31947791>

Exchange:

https://wallet.crypto-bridge.org/market/BRIDGE.NORT_BRIDGE.BTC

Price / Market Cap:

<https://coinlib.io/coin/NORT/Northern>

Explorers:

<http://explorer.nort.network/>, <http://explorer2.nort.network/>

Website:

<https://www.nort.network/>

Source code:

<https://github.com/zabtc/Northern>

Wallets:

<https://github.com/zabtc/Northern/releases>

Twitter:

<https://twitter.com/NORTHERNcoin>

Reddit:

<https://www.reddit.com/r/NorthernCoin/>

Discord:

<https://discord.gg/9nzt37V>

