NUCLEAR PLATFORM

Saving-Investment Amenities

Abstract

Financial - saving

Financial saving has occurred since the beginning of modern civilization. With these characteristics people carry out economic activities only to meet their own needs or their organizations, while on the other side most can't plan their finances in the future, they don’t know how to save their assets safely and create additional income. The growing number of people is base reason that everyone need more organized, safe and planned financial system.

Financial - income

Most people when hear the word “investment” what cross their minds is the need for large amounts of capital, and investment models which most know such as stocks, properties and gold. Even though is not like that. Human growth increasing rapidly accompanied modernization from all sector. If your parents save their asset as: " houses, land, gold and others", there is nothing wrong with what they do, but the problem is whether such investment models can be done by everyone even by people with financially mediocre?

Current Problem

Financial problems that are often thought of in modern times are how to save their assets easily, safely, become additional income and give profits to them.

Bitcoin – Proof of Work

Bitcoin has proven that a peer-to-peer electronic cash system can indeed work and fulfill payments processing without requiring trust or a central mint. However, for an entire electronic economy to be based on a fully decentralized, peer-to-peer solution, it must be able to do the following: process transactions securely, quickly and efficiently, at the rate of thousands per hour or more; provide incentives for people to participate in securing the network; scale globally with a minimal resource footprint; offer a range of basic transaction types that launch cryptocurrencies past the core feature of a payment system alone; provide an agile architecture that facilitates the addition of new core features, and allows for the creation and deployment of advanced applications; and be able to run on a broad range of devices, including mobile ones. NCL satisfies all these requirements.

Solutions

Investment – Platform

Systems or platforms that are able to provide security guarantees, financial planning, manage funds, investment planning that can be accessed by everyone.

NCL – Proof of Stake

NCL is a 100% proof-of-stake cryptocurrency, constructed in open-source Java from Nxt algorithm[1]. NCL unique proof-of-stake algorithm (Nxt algorithm) does not depend on any implementation of the "coin age" concept

[1] Read section 2.1 Proof of Stake

used by other proof-of-stake cryptocurrencies, and is resistant to so-called “nothing at stake” attacks.

A total quantity of 23,333,333 available coin were distributed in the genesis block. Curve25519 cryptography is used to provide a balance of security and required processing power, along with more commonly-used SHA256 hashing algorithms. Blocks are generated every 60 seconds, on average, by accounts that are unlocked n network nodes. Since the full coin supply already exists, NCL is redistributed trough the inclusion of transaction fees which are awarded to an account when it successfully creates a block. This process is known as forging, and is akin to the “mining” concept employed by other cryptocurrencies. Transactions are deemed safe after 10 block confirmations, and NCL current architecture and block size cap allows for the processing of up to 367,200 transactions per day. NCL transactions are based on a series of core transaction types that do not require any script processing or transaction input/output processing on the part of network nodes.

1 Background

NUCLEAR PLATFORM is a platform that provides multi-sector investment, combined with Nuclear Blockchain Network trough Nxt algorithm. The vision of NUCLEAR PLATFORM is to be a platform that can provide investment convenience for everyone, not limited to age, or amount of fund. To achieve that goals NUCLEAR PLATFORM become a trusted bridge between company and investors.

We are optimistic that NUCLEAR PLATFORM will be a new breakthrough in the 21st century in finance and investment system.

To support this, NUCLEAR PLATFORM created utility coin as bridge between the company and investors (contract) or as proof of transactions, payments and withdrawals of capital by companies from investors.

The Coin is built on the Nuclear Blockchain Network and will be known as NUCLEAR (NCL) under the auspices of the NUCLEAR PLATFORM.

NUCLEAR (NCL) is the payment media of cooperation between those parts trough a dedicated platform, which can also be tradable in other cryptocurrency exchanges. As a utility coin, NUCLEAR (NCL) offers several features that can be applied in various sectors, such as:

1. Contract Payment

Anyone in the world can submit their company proposal to be listed on NUCLAER PLATFORM and explain more about their company or their company's funding needs. Team behind NUCLEAR PLATFORM will collaborate with experienced and highly qualified legal and economic experts, we will analyze the prospects of the submitted proposals. If the future of the company and has a good track record, team will take part to connecting companies and investors, and for investors who have interested only need made deposit of NUCLEAR (NCL) with the specified amount according to their ability.

2. Main Payment Instrument

NCL will be the main payment instrument for all transactions on NUCLEAR PLATFORM. Funds withdrawn by company after the contract agreement or profit given by the company to investor will be NCL with conversion of the real price of NCL on the market at that time.

3. Affiliate Program

All affiliate programs for NUCLEAR PLATFORM promotions will be paid in NCL so users of NUCLEAR PLATFORM and NCL holder community are widespread.

4. Staking

After Nuclear Platform is fully launched, NUCLEAR (NCL) holders can generate additional income using NUCLEAR (NCL) that they hold in the staking program.

ROOT CAUSE

Investment can be mean save a portion of your income to grow in the future. Also can be interpreted as an action to growth your assets in the hope of give additional income or returns of money in the future. So, if your assets do not grow, that's not investment but only saving. However, investments are not easily done. The problems we face today when we want to invest our funds are:

1. **Age:** Not all ages can be involved to invest in a company, at least they must have National ID.

2. **Amount of funds:** Many are interested to invest but their constraints are the very limited amount of their funds.

3. **Company Access:** Even when someone has enough funds to invest, they are confused thinking about how to connect with the correct company.

4. **Fraud:** Fraud is not a new thing that is often experienced by investors. They lose their funds which unclearly allocated.

SOLUTIONS

NUCLEAR PLATFORM is a platform that provides multi-sector investment combined with the power and broad possibilities of the Nuclear Blockchain Network, trough Nxt algorithm.

The vision of NUCLEAR PLATFORM is to be a platform that can provide investment convenience for everyone, not limited to age, or amount of fund. To achieve that goals NUCLEAR PLATFORM become a trusted bridge between the company and investors.

NUCLEAR PLATFORM - Savings-Investment Service

1. Basic Investments

Low risk investment services through staking programs that can be accessed by everyone without age restrictions.

2. Investment Intermediates

Medium-term investment services in companies that have corporation, with the company's status have operated more than 2 years.

3. High Risk Investments

Medium-long investment services in companies, with the status of the company is development phase.

4. Saving Asset Management

Saving services through NUCLEAR WALLET with portfolio assistance.

ASSET TOKENIZATION

The first assumption, X is the owner of the company with the company value 1000.000$. In urgent situation, X needs capital for business expansion. As solution X can apply for loans to BANKS, etc. But what if X only needed $ 500,000 and wanted to keep the company? Does the BANK approve the amount of loans requested by X? How much the cost spent to pay for administrative fees? How much interest have to pay every month to the BANK by X?

Another solution is to go to the investor X, offer a new business that X want to create, explain the amount of capital needs for a new business, make a contract agreement and profits sharing agreement. But the problem is how many prospective investors should X meet?

The second assumption, Y have fund worth 200.000$. Y planned this fund to invest in a company.

The third assumption, Z have fund worth 300.000$. Z planned his fund to invest in a company Z can have additional income from his fund from different times Y and Z looking for companies that can receive the capital from them, but every company that Y and Z comes, requires investors with more capital than their have.

The fourth assumption, X makes fundraising on NUCLEAR PLATFORM, submits a complete proposal about his company, information about profit sharing, capital that X needs (always converted to NCL according to NCL prices on the market at that time).

Professional Manpower NUCLEAR PLATFORM conducts a feasibility audit of the company owned by X.
In the same time, Y and Z register themselves on NUCLEAR PLATFORM as an Investor.

NUCLEAR PLATFORM publishes feasibility, audit results about company that X have, profit sharing information, capital that company needs (always converted to NCL according to NCL prices on the market at that time).

The amount of money Y and Z if united and used to buy NUCLEAR COIN in the market, the amount meets with capital amount needs by X (always converted to NCL according to the NCL price on the market at that time).

Y and Z agree with the rules of the contract and profit sharing which is informed by X and invests their fund (NCL) in the company owned by X. Every month, X must deposit a certain amount of profit from the company to the NUCLEAR PLATFORM in NCL, the amount of

NCL must matches with profit amount that will be given to Y and Z. Y and Z receive income in NCL in proportion to the profit of company X get.

2 Core Technologies

2.1 Proof of Stake

NCL is a 100% proof-of-stake cryptocurrency, constructed from open source Nxt[2] algorithm. NCL uses a system where each "coin" in an account can be thought of as a tiny mining rig. The more coins that are held in the account, the greater the chance that account will earn the right to generate a block. The total "reward" received as a result of block generation is the sum of the transaction fees located within the block. NCL does not generate any new coins as a result of block creation. Redistribution of NCL takes place as a result of block generators receiving transaction fees, so the term "forging" is used instead of “mining”.

Subsequent blocks are generated based on verifiable, unique, and almost-unpredictable information from the preceding block. Blocks are linked by virtue of these connections, creating a chain of blocks (and transactions) that can be traced all the way back to the genesis block (the original block).

NCL transactions are based on a series of core transaction types that do not require any script processing or transaction input/output processing on the part of network nodes. These transaction primitives allow core support for:

- a fully-decentralized asset exchange
- alias creation, transfer and sale
- storage of small, optionally-encryptable strings of data on the blockchain
- a digital goods store

[2] Source code for Nxt is available at https://bitbucket.org/JeanLucPicard/nxt/src

- account control features

By leveraging these primitive transaction types, NCL's core can be seen as an agile, base-layer protocol upon which a limitless range of services, applications, and other currencies can be built.

2.1.1 Some Security Principles

The security of the blockchain is always of concern in Proof of Stake systems. The following basic principles apply to NCL's Proof of Stake algorithm:

- A cumulative difficulty value is stored as a parameter in each block, and each subsequent block derives its new "difficulty" from the previous block's value. In case of ambiguity, the network achieves consensus by selecting the block or chain fragment with the highest cumulative difficulty

- To prevent account holders from moving their stake from one account to another as a means of manipulating their probability of block generation, coins must be stationary within an account for several blocks before they can contribute to the block generation process. Coins that meet this criterion contribute to an account's effective balance, and this balance is used to determine forging probability.

- To keep an attacker from generating a new chain all the way from the genesis block, the network only allows chain re-organization 720 blocks behind the current block height. Any block submitted at a height lower than this threshold is rejected. This moving threshold may be viewed as NCL's only fixed checkpoint.

- Due to the extremely low probability of any account taking control of the blockchain by generating its own chain of blocks, transactions are deemed safe once they are encoded into a block that is 10 blocks behind the current block height.

2.1.2 Contrast with Proof of Work

In the traditional Proof of Work model used by most cryptocurrencies, network security is provided by peers doing “work”. They deploy their resources (computation/processing time) to reconcile double-spending transactions, and to impose an extraordinary cost on those who would attempt to reverse transactions. Coins are awarded to peers in exchange for work, with the frequency and amount varying with each cryptocurrency’s operational parameters. This process is known as "mining". The frequency of block generation, which determines each cryptocurrency’s available mining reward, is generally intended to stay constant. As a result, the difficulty of the required work for earning a reward must increase as the work capacity of the network increases.

As a Proof of Work network becomes stronger, there is less incentive for an individual peer to support the network, because their potential reward is split among a greater number of peers. In search of profitability, miners keep adding resources in the form of specialized, proprietary hardware that requires significant capital investment and high ongoing energy demands. As time progresses, the network becomes more and more centralized as smaller peers (those who can do less work) drop out or combine their resources into "pools". This leads to possible vulnerabilities. The incentives provided by Proof of Work systems would result in the centralization of the mining process.

In NCL’s Proof of Stake model, network security is governed by peers having a *stake* in the network. The incentives provided by this algorithm do not promote centralization in the same way that Proof of Work algorithms do.

2.2 Network Nodes

A node on the NCL network is any device that is contributing transaction or block data to the network. Any device running the NCL software is seen as a node.

Nodes can be subdivided into two types: hallmarked and normal. A hallmarked node is simply a node that is tagged with an encrypted token derived from an account's private key; this token can be decoded to reveal a specific NCL account address and balance that are associated with a node. The act of placing a hallmark on a node adds a level of accountability and trust, so hallmarked nodes are more trusted than non-hallmarked nodes on the network. The larger the balance of an account tied to a hallmarked node, the more trust is given to that node. While an attacker might wish to hallmark a node in order to gain trustworthiness within the network and then use that trust for malicious purposes; the barrier to entry (cost of NCL required to build adequate trust) discourages such abuse.

Each node on the NCL network has the ability to process and broadcast both transactions and block information. Blocks are validated as they are received from other nodes[3], and in cases where block validation fails, nodes may be "blacklisted" temporarily to prevent the propagation of invalid block data.

Each node features built-in DDOS (Distributed Denial of Services) defense mechanisms which restrict the number of network requests from any peer to 30 per second.

2.3 Blocks

As in other cryptocurrencies, the ledger of NCL transactions is built and stored in a linked series of blocks, known as a blockchain. This ledger provides a permanent record of transactions that have taken place, and also establishes the order in which transactions have occurred. A copy of the blockchain is kept on every node in the NCL network, and every account that is unlocked on a node (by supplying that account's private key) has the ability to generate blocks, as long as at least one incoming transaction to the account has been confirmed 1440 times. Any account that meets these criteria is referred to as an active account.

[3] All possible block parameters are verified, to prove that the generating account actually contains the effective balance (stake) that won the right to generate the block.

All blocks contain the following parameters:

- A block version, block height value, and block identifier
- A block timestamp, expressed in seconds since the genesis block
- The ID of the account that generated the block, as well as that account's public key
- The ID and hash of the previous block
- The number of transactions stored in the block
- The total amount of NCL represented by transactions and fees in the block
- Transaction data for all transactions included in the block, including their transaction IDs
- The payload length of the block, and the hash value of the block payload
- The block's generation signature
- A signature for the entire block

2.3.1 Block Creation (Forging)

Three values are key to determining which account is eligible to generate a block, which account earns the right to generate a block, and which block is taken to be the authoritative one in times of conflict: base target value, target value and cumulative difficulty.

Base Target Value In order to win the right to forge (generate) a block, all active NCL accounts "compete" by attempting to generate a hash value that is lower than a given base target value. This base target value varies from block to block, and is derived from the previous block's base target value multiplied by the amount of time that was required to generate that block.

Target Value Each account calculates its own target value, based on its current effective stake. This value is:

$$T = Tb \times S \times Be$$

where:

T is the new target value

Tb is the base target value

S is the time since the last block, in seconds

Be is the effective balance of the account

As can be seen from the formula, the target value grows with each second that passes since the timestamp of the previous block. The maximum target value is 1.53722867 x 1017 and the minimum target value is one half of the previous block's base target value. This target value and the base target value are the same for all accounts attempting to forge on top of a specific block. The only account-specific parameter is the effective balance parameter.

Cumulative Difficulty The cumulative difficulty value is derived from the base target value, using the formula:

$$D_{cb} = D_{pb} + 2^{64}/Tb$$

where:

D_{cb} is the difficulty of the current block

D_{pb} is the difficulty of the previous block

Tb is the base target value for the current block

The Forging Algorithm Each block on the chain has a generation signature parameter. To participate in the block forging process, an active account cryptographically signs the generation signature of the previous block with its own public key. This creates a 64-byte signature, which is then hashed using SHA256. The first 8 bytes of the resulting hash gives a number, referred to as the account's hit.

The hit is compared to the current target value. If the computed hit is lower than the target, then the next block can be generated. As noted in the target value formula, the target value increases with each passing second. Even if there are only a few active accounts on the network, one of them will eventually generate a block because the target value will become very large. The corollary of this is that you can estimate the time that will be required for any account to forge a block by comparing that account's hit value to the target value.

The last point is significant. Since any node can query the effective balance for any active account, it is possible to iterate through all active accounts in order to determine their individual hit value. This means it is possible to predict, with reasonable accuracy, which account will next win the right to forge a block. Interestingly, the new base target value for the next block cannot be reasonably predicted, so the nearly-deterministic process of determining who will forge the next block becomes increasingly stochastic as attempts are made to predict future blocks.

When an active account wins the right to generate a block, it bundles up to 255 available, unconfirmed transactions into a new block, and populates the block with all of its required parameters. This block is then broadcast to the network as a candidate for the blockchain.

The payload value, generating account, and all of the signatures on each block can be verified by all network nodes who receive it. In a situation where multiple blocks are generated, nodes will select the block with the highest cumulative difficulty value as the authoritative block. As block data is shared between peers, forks (non-authoritative chain fragments) are detected and dismantled by examining the chains' cumulative difficulty values stored in each fork.

Balance leasing Since the ability for an account to forge is based on the effective balance parameter, it is possible to “loan” forging power from one account to another without giving up control of the coins associated with the account. Using a transaction of the “account control” type, an account owner may temporarily reduce an account’s effective balance to zero, adding it to the effective balance of another account. The targeted account’s forging power is increased until the end of a time period specified by the original account owner, after which the effective balance is returned to the original account.

Accounts with leased forging power generate blocks more often and earn more transaction fees, but those fees are not automatically returned to lease accounts. With a bit of coding, however, this system allows for the creation of nearly-trustless forging pools that can make payouts to participants.

2.3.2 Accounts

NCL implements a brain wallet as part of its design: all accounts are stored on the network, with private keys for each possible account address directly derived from each account’s passphrase using a combination of SHA256 and Curve25519 operations.

Each account is represented by a 64-bit number, and this number is expressed as an account address using a Reed-Solomon [4]error-correcting notation that allows for detection of up to four errors in an account address, or correction of up to two errors.

The Reed-Solomon-encoded account address associated with a secret passphrase is generated as follows:

1. The secret passphrase is hashed with SHA256 to derive the account’s private key.
2. The private key is encrypted with Curve25519 to derive the account’s public key.

[4] For more information: http://en.wikipedia.org/wiki/Reed–Solomon_error_correction

3. The public key is hashed with SHA256 to derive the account ID.

4. The first 64 bits of the account ID are the visible account number.

5. Reed-Solomon encoding of the visible account number, prefixed with “NCL-”, generates the account address.

When an account is accessed by a secret passphrase for the very first time, it is not secured by a public key. When the first outgoing transaction from an account is made, the 256-bit public key derived from the passphrase is stored on the blockchain, and this secures the account. The address space for public keys (2256) is larger than the address space for account numbers (264), so there is no one-to-one mapping of passphrases to account numbers and collisions are possible. These collisions are detected and prevented in the following way: once a specific passphrase is used to access an account, and that account is secured by a 256-bit public key, no other public-private key pair is permitted to access that account number.

Account Balance Properties For each NCL account, several different types of balances are available. Each type serves a different purpose, and many of these values are checked as part of transaction validation and processing.

- The effective balance of an account is used as the basis for an account’s forging calculations[5]. An account’s effective balance consists of all coins that have been stationary in that account for 1440 blocks. In addition, the Account Leasing feature allows an account’s effective balance to be assigned to another account for a temporary period.

- The guaranteed balance of an account consists of all coin that have been stationary in an account for 1440 blocks. Unlike the effective balance, this balance cannot be assigned to any other account.

- The basic balance of an account accounts for all transactions that have had at least one confirmation.

[5] See 2.3.1 Block Creation (Forging)

- The forged balance of an account shows the total quantity of NCL that have been earned as a result of successfully forging blocks.
- The unconfirmed balance of an account is the one that is displayed in NCL clients. It represents the current balance of an account, minus the coins involved in unconfirmed, sent transactions.
- Guaranteed asset balances lists the guaranteed balances of all the assets associated with a specific account.
- Unconfirmed asset balances lists the unconfirmed balances of all the assets associated with a specific account.

2.3.3 Transactions

Transactions are the only means NCL accounts have of altering their state or balance. Each transaction performs only one function, the record of which is permanently stored on the network once that transaction has been included in a block. When a NCL account forges a block, all of the transaction fees included in that block are awarded to the forging account as a reward.

Until the size of all the transactions in a block exceeds the current 32 kilobyte block size limit, the minimum fee will be sufficient for all transactions to be included in blocks. In situations where the number of unconfirmed transactions exceeds the number that can be placed in a block, forging accounts will likely select transactions with the highest fees. This suggests that transaction processing may be prioritized by including a fee that is higher than the minimum.

Confirmations All Transactions are considered unconfirmed until they are included in a valid network block. Newly-created blocks are distributed to the network by the node (and associated account) that creates them, and a transaction that is included in a block is considered as having received one confirmation. As subsequent blocks are added to the existing blockchain, each additional block adds one more confirmation to the number of confirmations for a transaction. If a transaction is not included in a block before its deadline, it expires and is removed from the transaction pool.

Deadlines Every transaction contains a deadline parameter, set to a number of minutes from the time the transaction is submitted to the network. The default deadline is 1440 minutes (24 hours). A transaction that has been broadcast to the network but has not been included in a block is referred to as an unconfirmed transaction. If a transaction has not been included in a block before the transaction deadline expires, the transaction is removed from the network.

Transactions may be left unconfirmed because they are invalid or malformed, or because blocks are being filled will transactions that have offered to pay higher transaction fees. In the future, features such as multi-signature transactions may be able to take advantage of deadlines as a means of enforcing an expiry date.

3 Core Features

As derived from Nxt the following features are also applicable to NCL:

Agile architecture First-generation cryptocurrencies were primarily designed as payment systems. NCL recognizes that decentralized blockchains can enable a broad range of applications and services, but is not prescriptive about what those services should be or how they should be built. By design, NCL strips away unnecessary complexity in its core, leaving only the most successful components of its predecessors intact. As a result, NCL functions like a low-level, foundational protocol: it defines the interfaces and operations required to operate a lightweight blockchain, a decentralized communication system, and a rapid Transaction processing framework, allowing higher-order components to build on those features.

Transactions in NCL make simple adjustments to account balances instead of tracing sets of "input" or "output" credits. In addition, the core software does not support any form of scripting language. By providing a set of basic, flexible transaction types that can quickly and easily be processed, Nxt creates a foundation that does not limit the ways in which those transaction types can be used, and does not create significant overhead for using them. This flexibility is further amplified by NCL's low resource and energy requirements, and its highly readable, highly organized object-oriented source code.

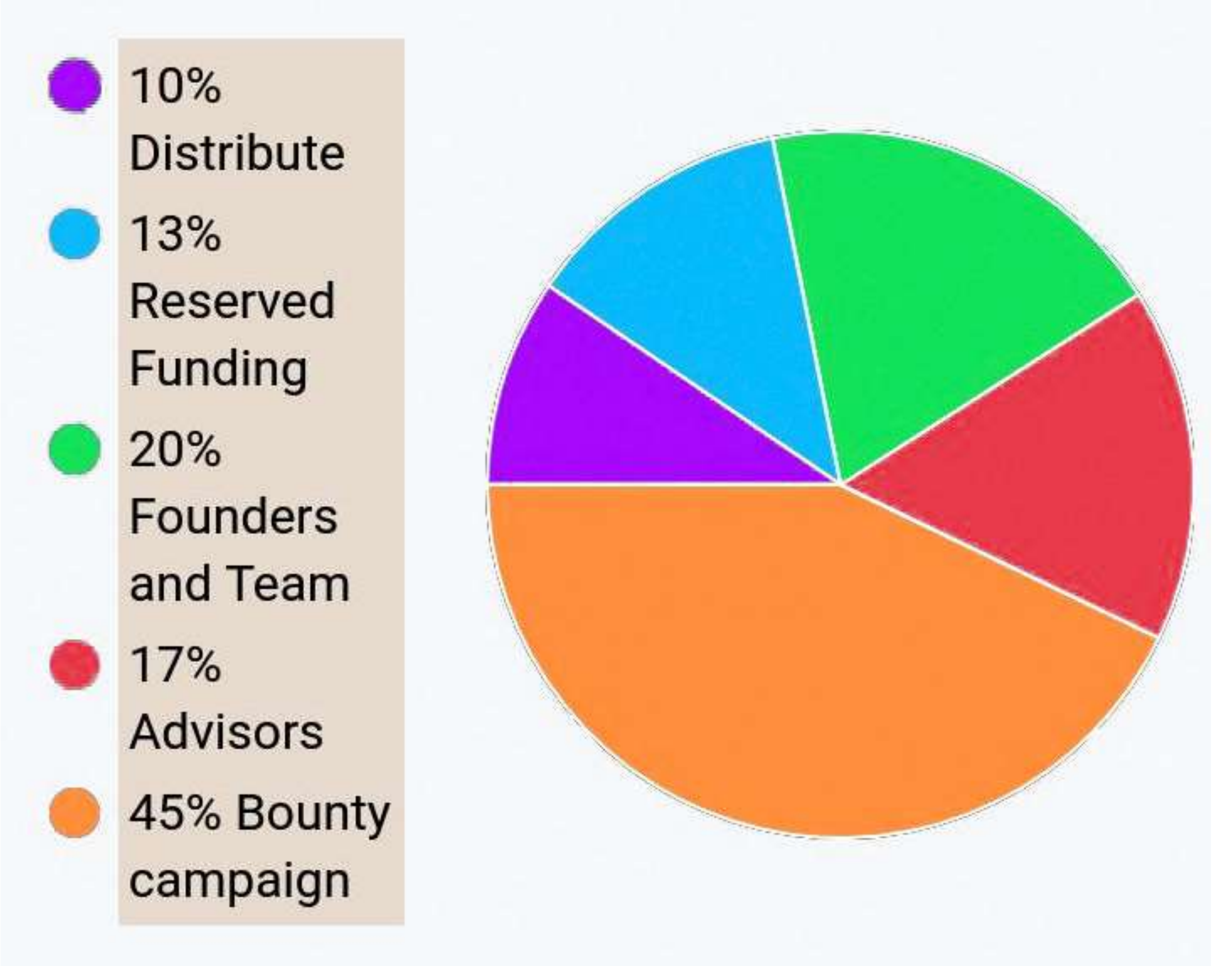
Basic Payments The most fundamental feature of any cryptocurrency is the ability to transmit tokens from one account to another. This is NCL's most fundamental transaction type, and it allows for basic payment functionality.

Arbitrary Messages Arbitrary strings of data up to 1000 bytes in length can be stored on the NCL blockchain using the Arbitrary Messages feature, and these strings may optionally be AES-encrypted. At the basic level, the system can be used to transmit human-readable messages between accounts.

Device Portability Due to its cross-platform, Java-based roots, and its Proof of Stake hashing, NCL is extremely well suited for use on small, low-power, low-resource devices. The low cost and resource consumption of these devices significantly reduce network costs in comparison with traditional Proof of Work cryptocurrencies.

4 Distribution

The NUCLEAR (NCL) supply will be distributed as shown in the following graphic:



5 Roadmap

February

- 1st NCL Snapshot for Nxt Holder
- 10th NCL Exchange Listing

March

- 1st Airdrop Round 1 China Region

April

- 1st China Regional Airdrop Distribution
- 1st Airdrop Round 2 American Region

May

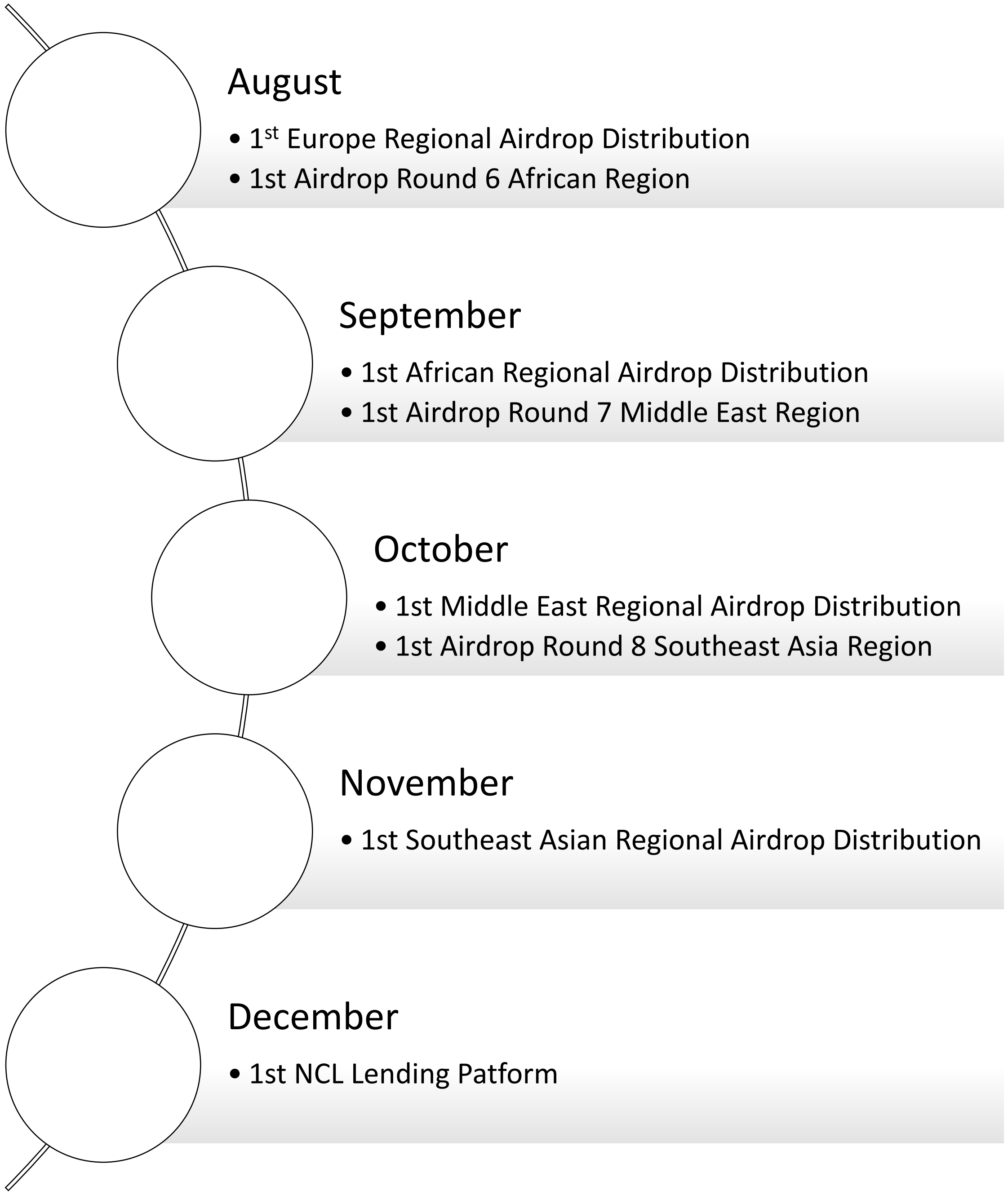
- 1st American Regional Airdrop Distribution
- 1st Airdrop Round 3 Korea and Japan Region

June

- 1st Korea and Japan Regional Airdrop Distribution
- 1st Airdrop Round 4 Russian Region

July

- 1st Russian Regional Airdrop Distribution
- 1st Airdrop Round 5 Europe Region



August

- 1st Europe Regional Airdrop Distribution
- 1st Airdrop Round 6 African Region

September

- 1st African Regional Airdrop Distribution
- 1st Airdrop Round 7 Middle East Region

October

- 1st Middle East Regional Airdrop Distribution
- 1st Airdrop Round 8 Southeast Asia Region

November

- 1st Southeast Asian Regional Airdrop Distribution

December

- 1st NCL Lending Patform

2021 The future of developing NCL in ecommerce.

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