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Problem

There is an inherent problem with applications that are hosted on the traditional internet. Usually, modern applications require closed-source server-side backends in order to maintain security, privacy, and functional efficiency. This leads to an inherent ***lack of transparency***. End-users have no insight into what happens to their personal data nor any control over how it is used. This situation is being taken advantage of by corporations and applications of all sizes, who can implement intrusive data tracking methods for purposes of e.g. unauthorized monetization of user data or influencing political campaigns [1] [2].

Blockchain technology introduces a new ability for projects to make key elements of their applications' server-side backend code truly transparent, giving end-users complete insight into what happens to their data. Applications can also take advantage of new technologies that are provided by blockchain, such as smart contracts, verification of data legitimacy, self-sovereign digital identity, and tokenized digital assets. Applications that deeply integrate with blockchain technology are often referred to as ***decentralized applications***, or ***dApps***.

Modern public blockchain platforms (such as NEO and Ethereum) are currently witnessing a sharp increase in development and distribution of new, ambitious dApps.

To facilitate the anticipated growth in consumer-level adoption, dApps need to be as user-friendly as "traditional" internet services that regular consumers are familiar with. Currently this not the case:

- dApps may introduce their own crypto-currency ***token*** (e.g. based on the NEO NEP-5 Standard [3] or the Ethereum ERC-20 Standard [4]) which often play an essential role in application functionalities. Therefore, users who wish to interact with multiple dApps must ***acquire different tokens*** through means of ***trading*** on ***crypto-currency exchanges***. The activities required to purchase and manage these tokens are far too complicated for consumer-level end-users, and therefore act as a roadblock to mainstream adoption of decentralized applications.
- Many consumers are not aware of the various ***security*** considerations when using dApps. Many applications require interaction with user-owned crypto-currency wallets, which are secured by a ***private key***. A typical ***phishing*** approach by hackers is to hijack the domain names of such applications. In these instances, a user may unknowingly give bad actors access to their crypto-currency wallet, leading to a loss of funds. Browser plug-ins such as Metamask [5] provide far more secure methods of interacting with web-based decentralized applications. However, as the EtherDelta and MyEtherWallet domain hijackings have shown [6] [7], a substantial amount of dApp users remain sensitive to unknowingly authorizing malicious transactions, even when using such browser plug-ins.
- ***Discoverability*** remains limited for dApps, creating a barrier to widespread adoption [8].

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- The existing ***high difficulty of dApp development*** withholds many projects from achieving production-readiness [9].

---

nOS – Blockchain-Powered Operating System

1. Introduction

Below you will find an abstract summary of nOS along with its associated benefit.

1.1. Abstract

nOS is a ***virtual operating system*** that introduces a new, decentralized internet. On this new internet user data is safe, and it only goes where the user wants it to go.

nOS solves key issues surrounding dApp development, deployment, discovery, and interaction, allowing for true adoption of ***decentralized applications*** and ***blockchain technology***.

Because applications can choose to make their back-ends fully open-source and transparent, this new implementation of the *World Wide Web* is defined as the ***Open Internet***.

1.2. Summary

On nOS, applications and websites can be deployed in a completely open and decentralized manner by integrating smart contracts, client-side code, and public-key cryptography.

Unlike server-side backend code, smart contracts can be open for all to read, allowing users to review how their data will be transmitted before any final commitments to action.

Client-side code and other frontend materials can be distributed via ***nOS Filesystem***, a decentralized file sharing protocol that allows for secure and transparent distribution of static files.

By serving both backend logic and frontend material in an open-source, decentralized manner, true transparency between user and application can be achieved.

dApps that are deployed to nOS can be accessed through ***nOS Client*** [***nOS Client***] [10], a software solution for desktop and mobile that (among other features) introduces ***nOS Browser***.

nOS Browser functions as a web browser, with the added benefit that it integrates with the ***nOS Protocol***, a blockchain-powered web protocol that facilitates secure and open accessibility of nOS dApps.

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The nOS Protocol resolves domain names that exist on ***nOS Name Service***, a blockchain-powered decentralized implementation of a Domain Name Service, and allows for dApps to register domain names which are discoverable on nOS (e.g. *my-dapp.neo* or *my-dapp.eth*) [***Name Service***].

The ***dApp Gateway*** [***nOS Client: dApp Gateway***] is a user-friendly dApp discovery platform (or *"App Store"* [11]) where rankings are decided in a completely decentralized manner via ***Decentralized Authority*** [***Decentralized Authority***].

In order to achieve the features such as the ones described above, nOS is powered by the ***nOS Utility Token*** [***nOS Utility Token***].

The nOS Utility Token employs various staking and reward utilities which are intended for developers who wish to deploy and maintain dApps on nOS, and for end-users who wish to practice governance by Decentralized Authority.

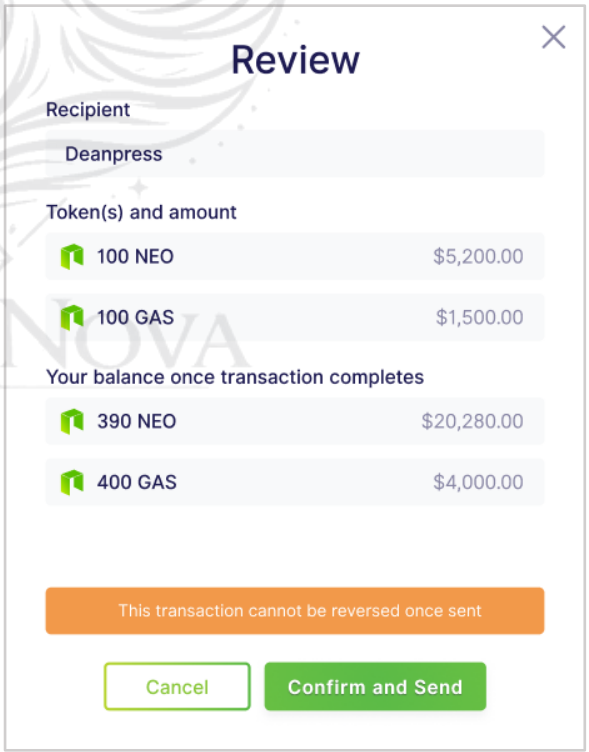
nOS eliminates the need for end-users to manually exchange crypto-currencies in order to make use of various dApps. By integrating crypto-currency exchange APIs, nOS Client ***automatically converts primary blockchain platform currencies*** (e.g. NEO/GAS for NEO, ETH for Ethereum) into the required amount of application tokens that are needed to make specific transactions or invocations [***Automatic Token Conversion***].

2. Features

2.1. Isolated dApp environment

dApps can choose to run inside an ***isolated environment*** within nOS Client [***nOS dApp Infrastructure Diagram***]. Such dApps can send requests to the host (end-user client) to make transactions and smart contract invocations on various blockchain platforms[1] all the while never requiring the user to expose their private keys to the dApp (or any third party for that matter).

Upon emission of a transaction/invocation request, an ***authorization prompt*** appears for the end-user, allowing them to review, and approve or decline the request.

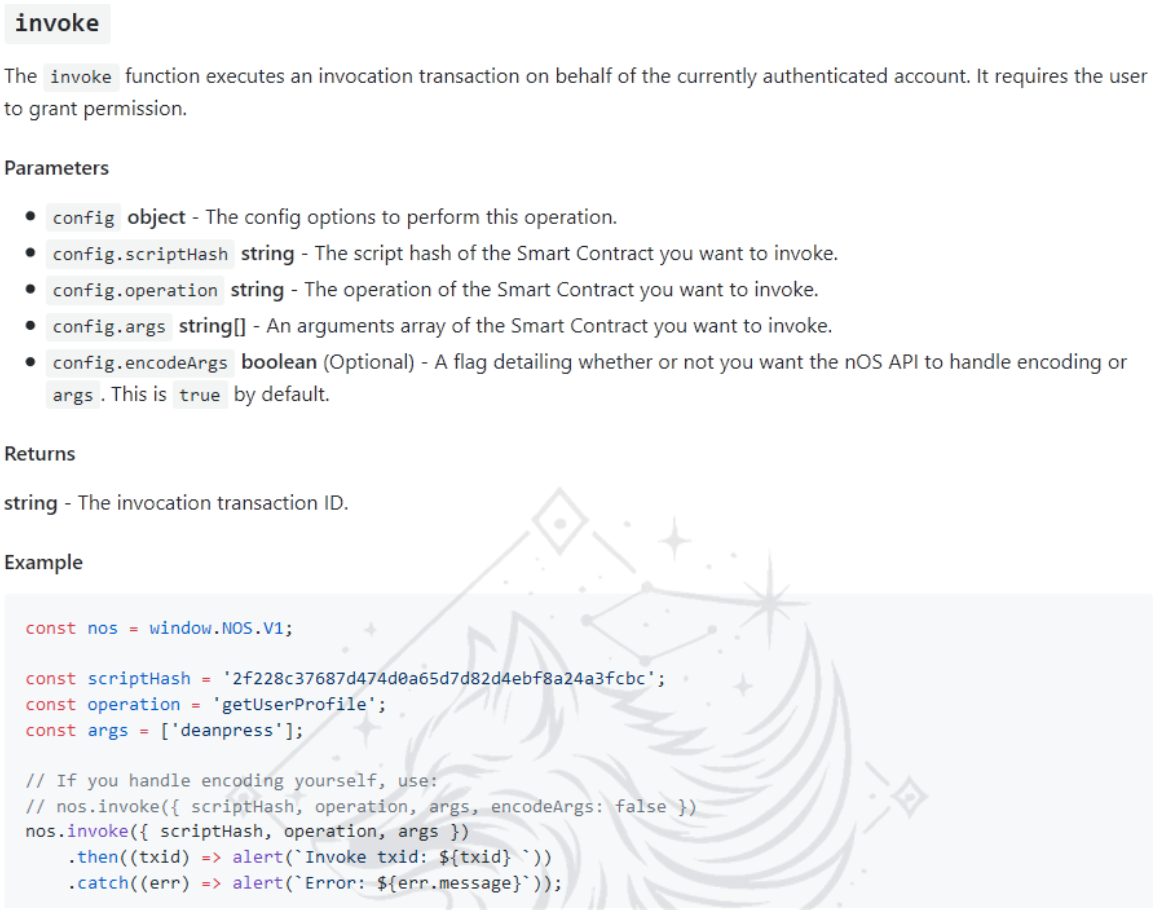


Transaction Authorization Prompt

[1] Currently the nOS dApp API supports interactions with the NEO blockchain. Support for the Ethereum blockchain is in development. Support for other various blockchain platforms may also be integrated in the future.

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Example request code snippet from nOS API Documentation [12]:



`invoke`

The `invoke` function executes an invocation transaction on behalf of the currently authenticated account. It requires the user to grant permission.

Parameters

- `config` **object** - The config options to perform this operation.
- `config.scriptHash` **string** - The script hash of the Smart Contract you want to invoke.
- `config.operation` **string** - The operation of the Smart Contract you want to invoke.
- `config.args` **string[]** - An arguments array of the Smart Contract you want to invoke.
- `config.encodeArgs` **boolean** (Optional) - A flag detailing whether or not you want the nOS API to handle encoding or `args`. This is `true` by default.

Returns

string - The invocation transaction ID.

Example

```
const nos = window.NOS.V1;

const scriptHash = '2f228c37687d474d0a65d7d82d4ebf8a24a3fcbc';
const operation = 'getUserProfile';
const args = ['deanpress'];

// If you handle encoding yourself, use:
// nos.invoke({ scriptHash, operation, args, encodeArgs: false })
nos.invoke({ scriptHash, operation, args })
    .then((txid) => alert(`Invoke txid: ${txid} `))
    .catch((err) => alert(`Error: ${err.message}`));
```

2.2. Decentralized Distribution of Applications

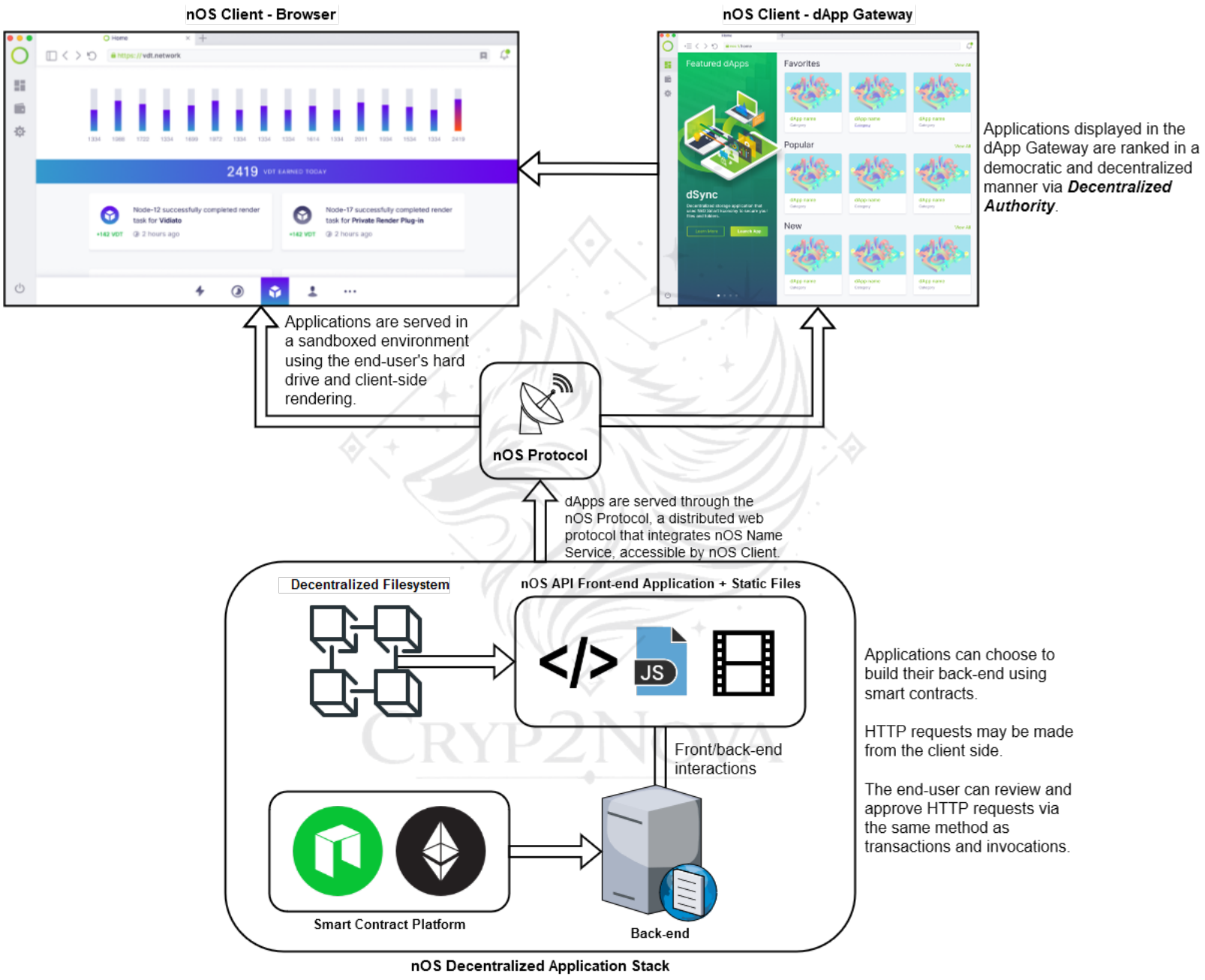
For the ***nOS Client MVP***, dApps can serve their frontend material (e.g. *client-side code*, *static files*, and *data*) to the end-user via **GitHub repositories**. In the future, content will be served via ***nOS Filesystem*** [***Decentralized Filesystem***].

nOS Filesystem is a peer-to-peer protocol that allows for content to be distributed in a secure and decentralized manner. This content gains increased availability, transparency, and longevity compared to traditional data hosting solutions. Content integrity can be validated by looking up a file's hash within nOS Filesystem, therefore increasing file verifiability.

Content that resides on nOS Filesystem is served via the ***nOS Protocol,*** which also adopts ***nOS Name Service*** [***Name Service***] and the ***dApp Gateway*** [***nOS Client: dApp Gateway***] [***nOS dApp Hosting Diagram***].

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2.2.1. nOS dApp Infrastructure Diagram



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2.3. Universal Smart Contracts (USC)

Universal Smart Contracts (or *USCs*) are smart contract templates that contain common behaviors for managing Identity, Tokens, and Storage. These smart contracts are built for various blockchain platforms and can be utilized by any nOS application.

Apart from serving as templates, USCs can also serve as *master* smart contracts. A ***Master USC*** is already deployed to its blockchain platform. dApps can set up their storage structure with the Master USC, allowing for the hosting and manipulation of dApp storage items by calling the smart contract's exposed functions. This eliminates the requirement for dApps to build and deploy their own smart contract.

nOS USCs greatly simplify dApp development and deployment costs, and introduce the ability for a larger spectrum of dApps at various scales to be built, prototyped, and deployed.

2.4. Automatic Token Conversion

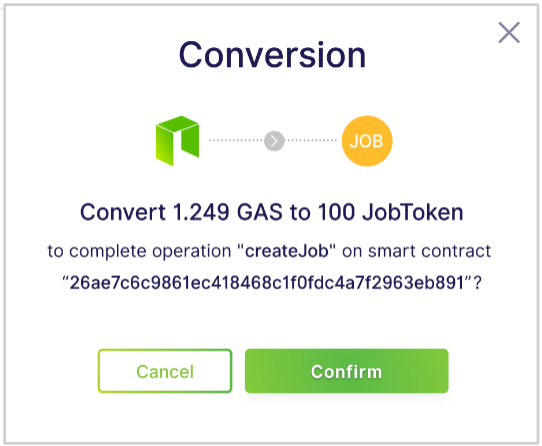
2.4.1. Description

Automatic Token Conversion addresses the sharp increase in deployments of various virtual tokens, a phenomenon that causes severe inconvenience to users who wish to regularly engage with decentralized applications.

With nOS, the primary crypto-currency of the dApp's back-end blockchain platform (e.g. GAS for NEO or ETH for Ethereum) can be used for token-specific interactions, while still providing exchange liquidity to the dApp's own virtual token**.** Users also have the option to configure their trading pair preferences (e.g. NEO/GAS for Ethereum dApps).

The nOS Automatic Token Conversion process, for example using GAS as the primary exchange currency and a NEO NEP-5 token as the desired dApp token, is as follows:

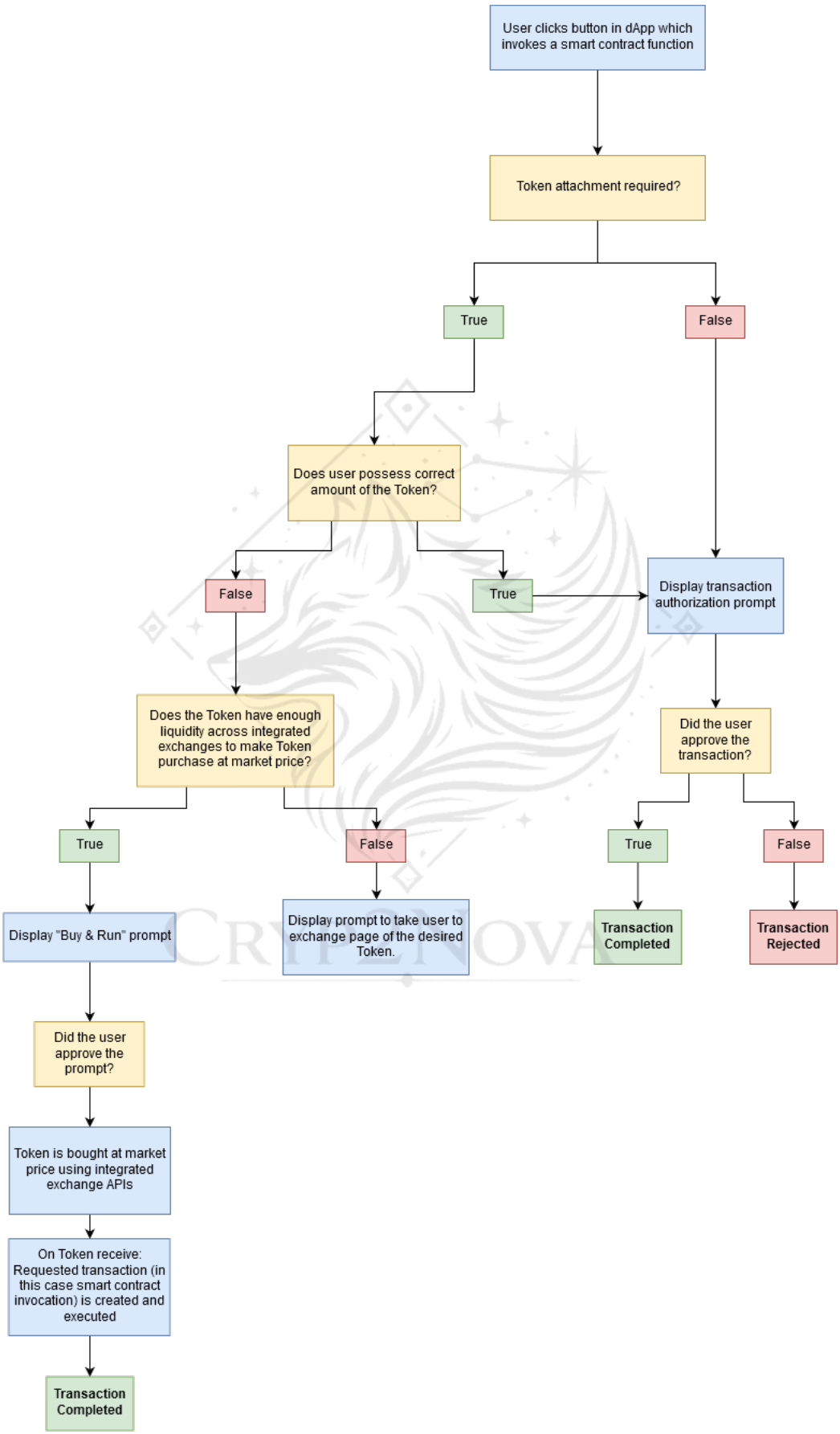
1. dApp makes an invocation request that requires a certain amount of a specific NEP-5 token ("Desired NEP-5 Token").
2. If the "*GAS* to *Desired NEP-5 Token*" trading pair has enough liquidity across integrated exchanges to safely make a purchase at market price, the user will receive a ***"Buy & Run"*** prompt to instantly exchange GAS for the required number of Desired NEP-5 Tokens.
3. If the user **approves** the ***"Buy & Run"*** prompt, nOS will utilize integrated exchange APIs to exchange the user's GAS for the Desired NEP-5 Tokens.
4. When the desired tokens are purchased and settled in the users' wallet, nOS will execute the requested smart contract invocation.
5. The user has successfully made the invocation with the required amount of the Desired NEP-5 Tokens.



GAS to NEP-5 Token Conversion Modal

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2.4.2. Automatic Token Conversion Flowchart



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3. nOS Client and Developer Solutions

3.1. Client Menu

The ***nOS Client MVP for Developers*** is live [9] and can be used to build nOS Decentralized Applications. Technical specifications of nOS Client can be found in the nOS Client Documentation [11].

Users can log in to the client using their ***Encrypted Private Key*** or their Ledger device. Upon authorization, users are presented a ***User Interface***.

nOS Client's User Interface includes:

- **Open Internet Browser**

  Web browser that supports both *HTTP* and the nOS Protocol (*nos://*). Unlike *HTTP*, files served via the nOS Protocol are first obtained from nOS Filesystem, then stored to a local sandboxed environment on the end-user's hard drive, finally to be served to the end-user from the client-side. This grants users complete control and insight over their interactions with nOS decentralized applications.

- **dApp Gateway**

  Decentralized application discovery gateway, similar to *app stores* found in popular (mobile and desktop) operating systems (such as the *Google Play Store* [10]). The primary difference between the dApp Gateway and traditional app stores is that the rankings of applications on the dApp Gateway are controlled in an open, decentralized, and democratic manner, by employing ***Decentralized Authority*** [***Decentralized Authority***].

- **Crypto-currency & Token Wallet**

  Wallet application for managing crypto-currency tokens and digital assets.

- **Exchange**

  Crypto-currency exchange application, powered by existing high volume exchange platforms. The exchange application supports both simple and advanced trading of crypto-currencies.

- **Account Settings**

  Allows for management of different blockchain platform accounts, wallets, and digital identities.

- **Client Settings**

  Allows for management of blockchain network settings, client theme management, developer tools, and user preferences.

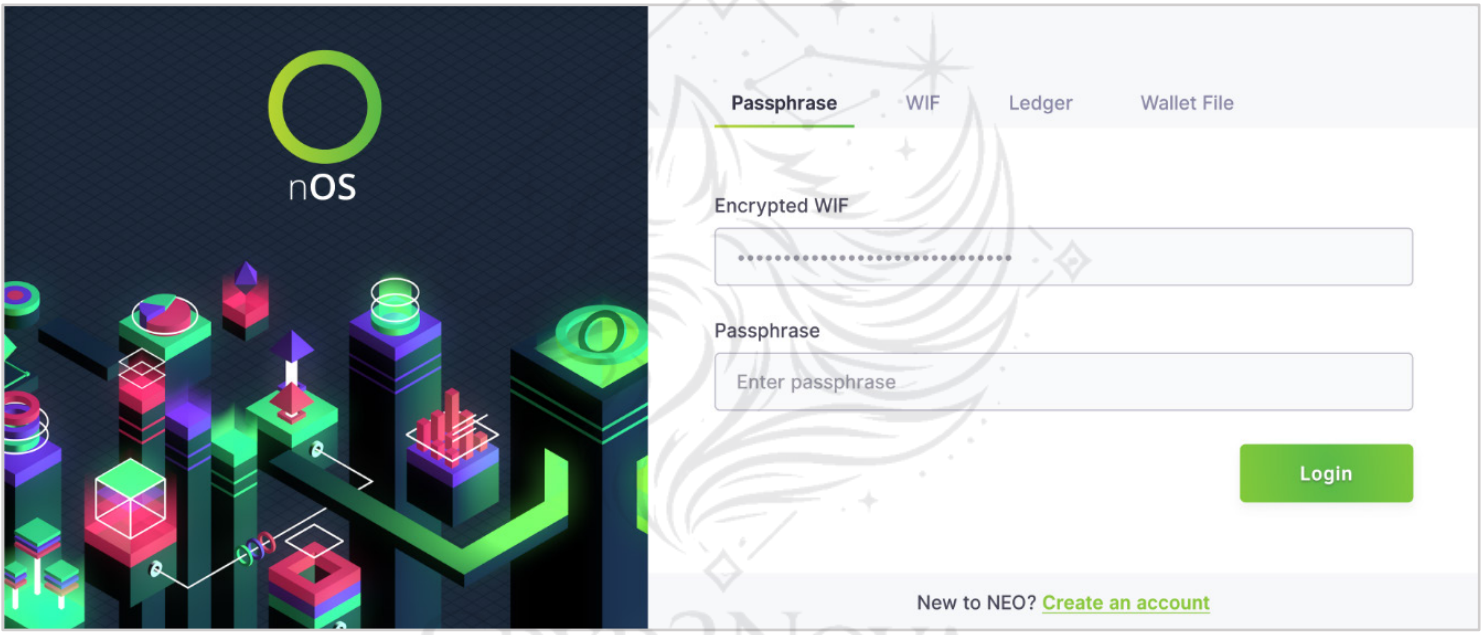
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3.2. Client Screenshots

Screenshots of the nOS Client MVP:

Login Screen

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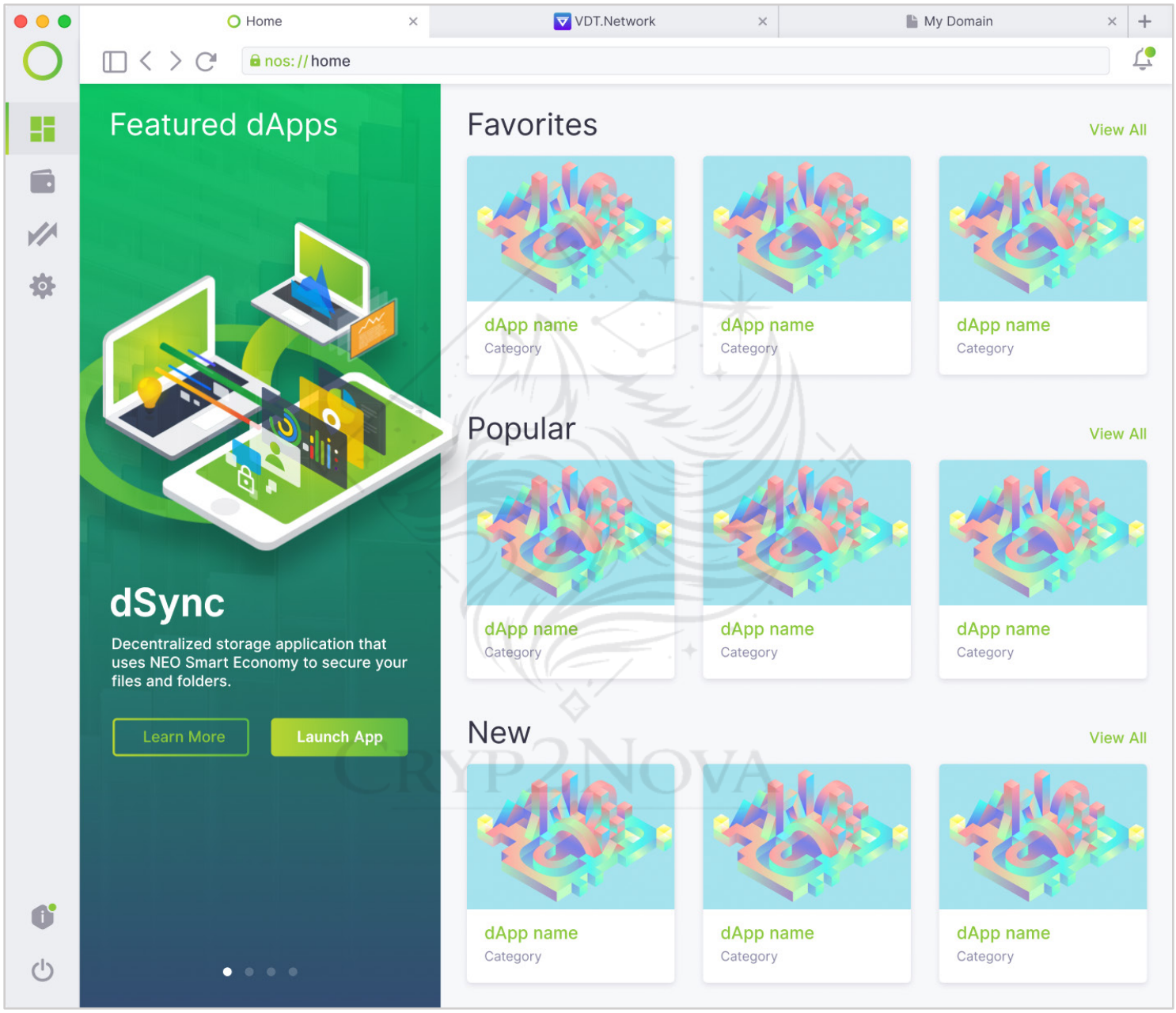


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dApp Gateway

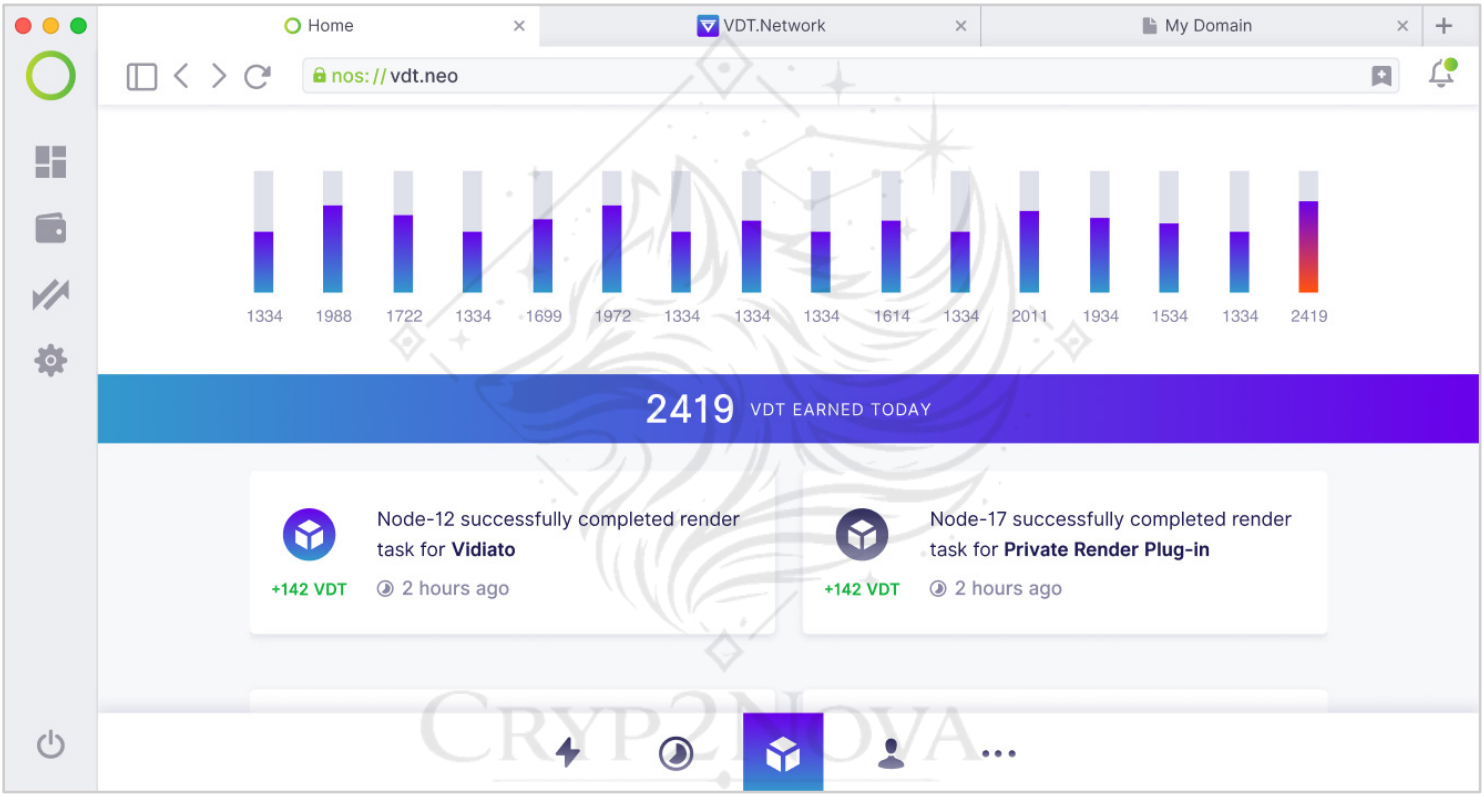
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dApp View (VDT.Network) and Open Internet Browser

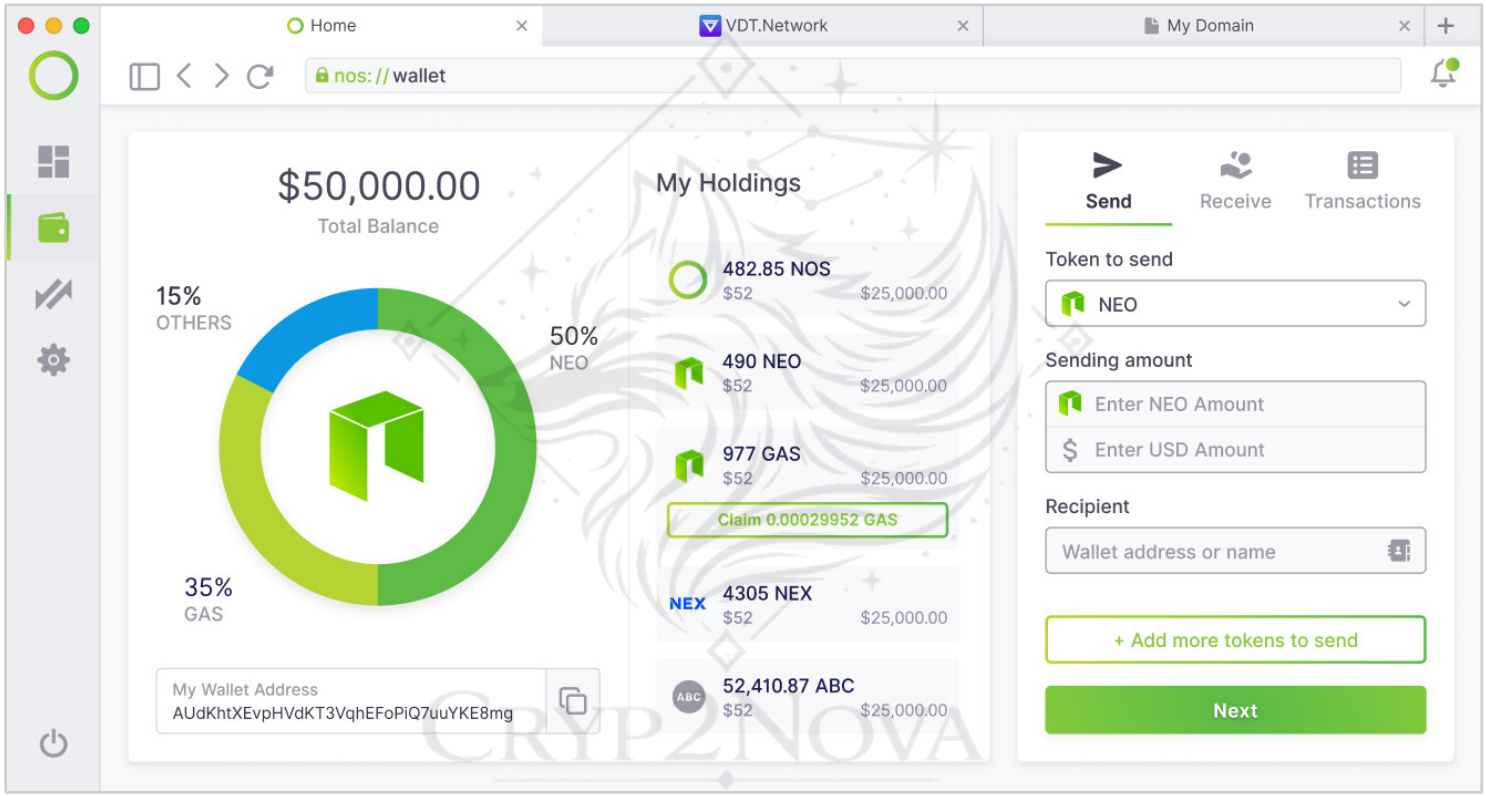
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Wallet

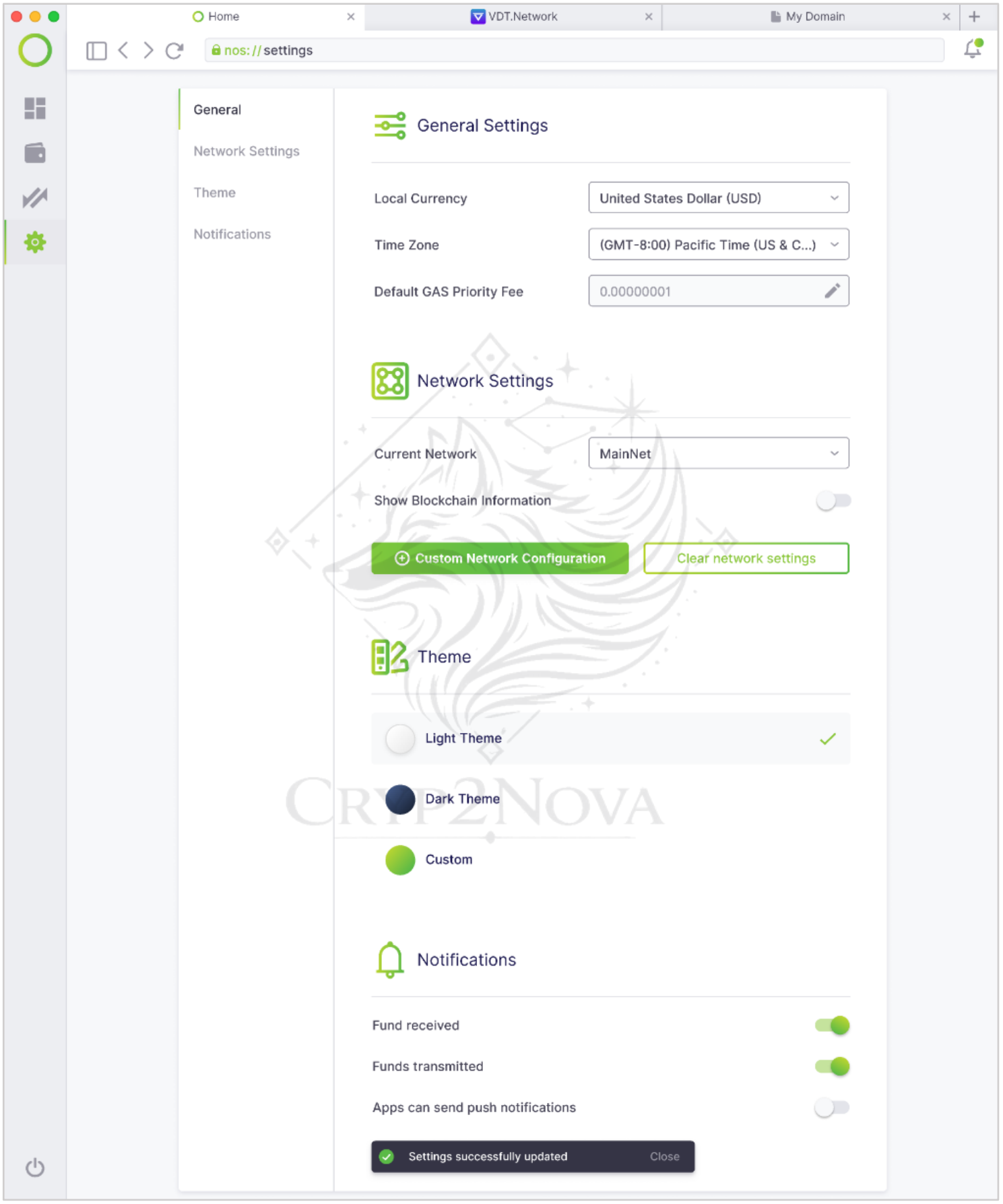
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Settings

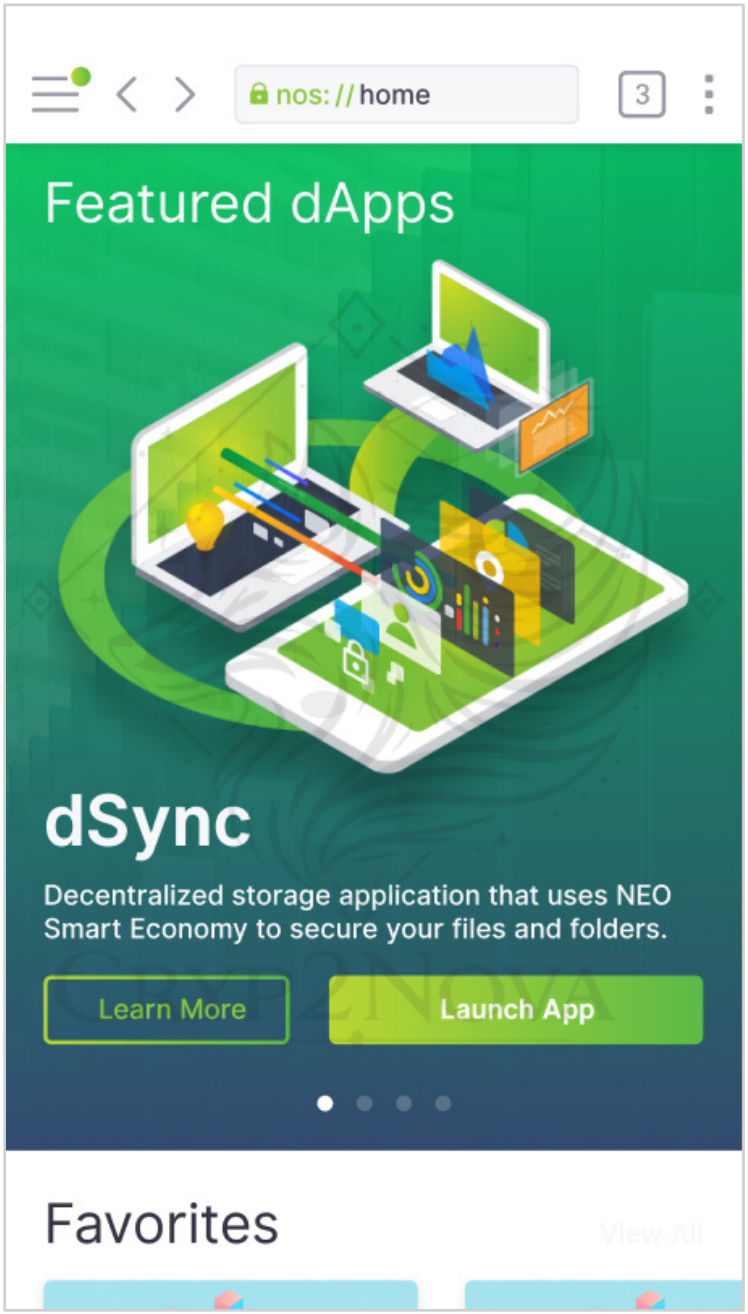
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Mobile dApp Gateway

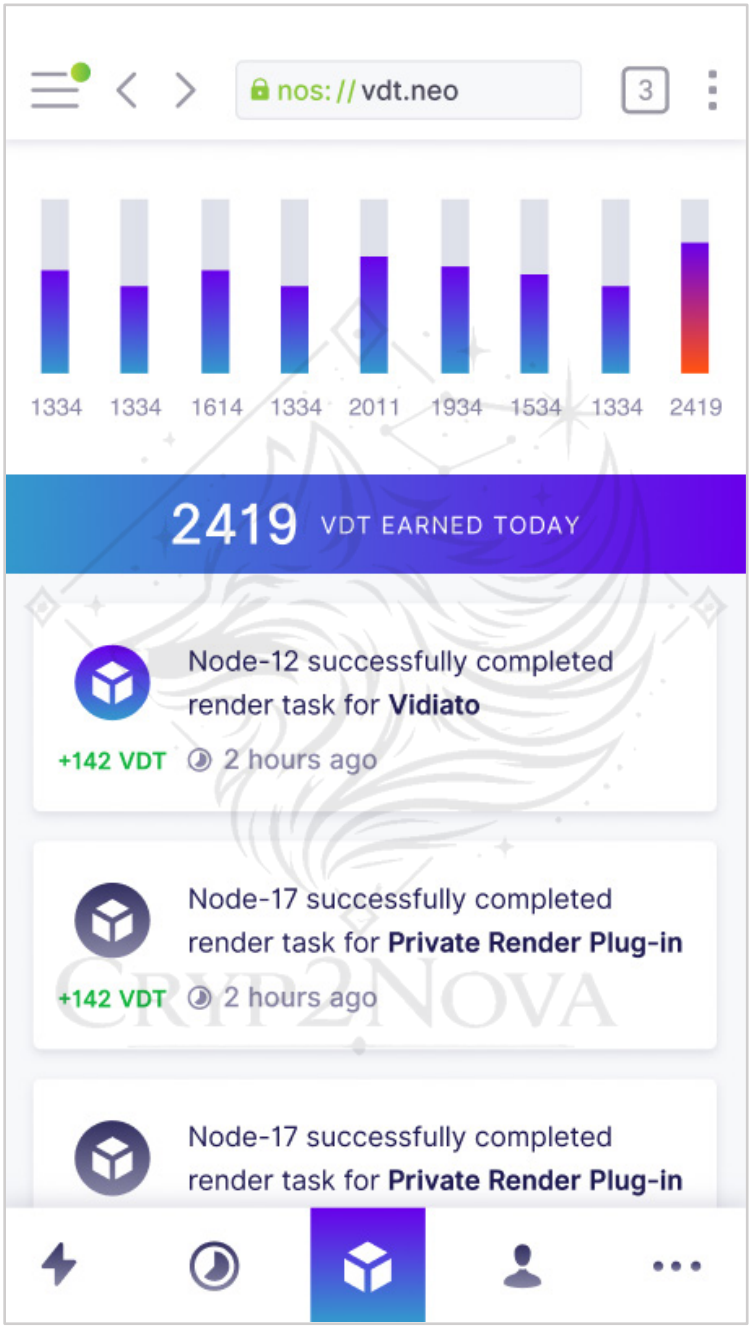
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Mobile dApp View (VDT.Network)

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3.3. nos-local

nOS introduces ***nos-local*** [13], a NEO-based development stack which serves as a one-click solution for:

- Installing the latest development version of the nOS Developer Client.
- Setting up a NEO private network.
- Establishing a bridge for easy interaction between nOS Client and the NEO private network.

3.4. create-nos-dapp

create-nos-dapp [14] is a command-line interface (CLI) tool that allows for easy bootstrapping of nOS dApps, using popular JavaScript frameworks (React, Vue, Angular) as starting points for dApp development.

3.5. nOSNet

nOSNet [15] is a live and public NEO Testnet powered by nOS, that allows for developers to publish dApps to a public testing environment. Anyone is able to interact with these published nOSNet applications using nOS Client.

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nOS Utility Token

Individual topics below are each to be detailed in their respective documentation.

The ***nOS Utility Token***, also titled *nOS token*, *nOS, or NOS*, forms the backbone of key platform functionalities. Its utilities include native integration with ***nOS Filesystem*** [***Decentralized Filesystem***], ***nOS Name Service*** [***Name Service***], ***dApp Gateway***, and ***Decentralized Authority*** [***Decentralized Authority***]. All described utilities of the nOS token are powered by ***staking mechanisms*** and ***Selective Supply Increase***.

1. Incentive Model: Selective Supply Increase (SSI)

1.1. Introduction

A common incentive model for network services (such as file hosting) is to directly transact value (e.g. currency) from consumer (application) to supplier (host). An example of this is *cloud-based web hosting*, where project owners pay web hosting providers periodically for online storage and computing power. This can be defined as a ***transactional (business) model***.

dApps, which due to their decentralized nature are often open-source, MIT licensed, and not for-profit, may not always implement business models that rely on a direct relationship between consumer (user) and supplier (application). Therefore, a *transactional model* for dApp hosting is inefficient as periodic hosting costs are directly correlated to application popularity.

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Instead of adopting a transactional model, nOS implements a model that is beneficial to all quality participants of the ecosystem; including contributors, application owners, and end-users. This model is ***Selective Supply Increase.***

Selective Supply Increase (or ***SSI***) introduces a periodic increase in the circulating supply[2] of the nOS Utility Token. Tokens that are added to the circulating supply are only distributed to contributors to the ecosystem (applications, voters, and network/hosting nodes) as a means to incentivize qualitative participation in the network.

1.2. SSI Reward Factors

The number of tokens received by any contributor is collectively decided by four factors:

- **Contributions to the network**
  Practicing decentralized authority, participating as a filesystem/network node, and maintaining a good reputation are all factors that influence projected rewards via Selective Supply Increase.
- **Amount of nOS tokens staked**
  Network participants must ***stake***[3] nOS tokens in order to maintain eligibility for receiving tokens via Selective Supply Increase. The greater the number of staked tokens, the higher potential for SSI rewards.
- **Staking duration**
  Predefining a longer period to stake nOS tokens will increase the projected number of tokens received via Selective Supply Increase.
- **Reputation**
  Acquiring a high reputation by measured performance and ***Decentralized Authority*** [***Decentralized Authority***] will increase the potential for rewards by Selective Supply Increase.

While entities that have made valuable contributions and attained good reputations are rewarded with Selective Supply Increase, entities that established a bad reputation may receive no tokens from the supply increase. Therefore, the means of incentives are no longer based on an exchange of goods for services (e.g. currency for hosting), but rather on active and valuable participation in the ecosystem.

All mechanics that would label an entity as a contributor to the network (thus eligible to receive tokens by Selective Supply Increase) require the staking of tokens.

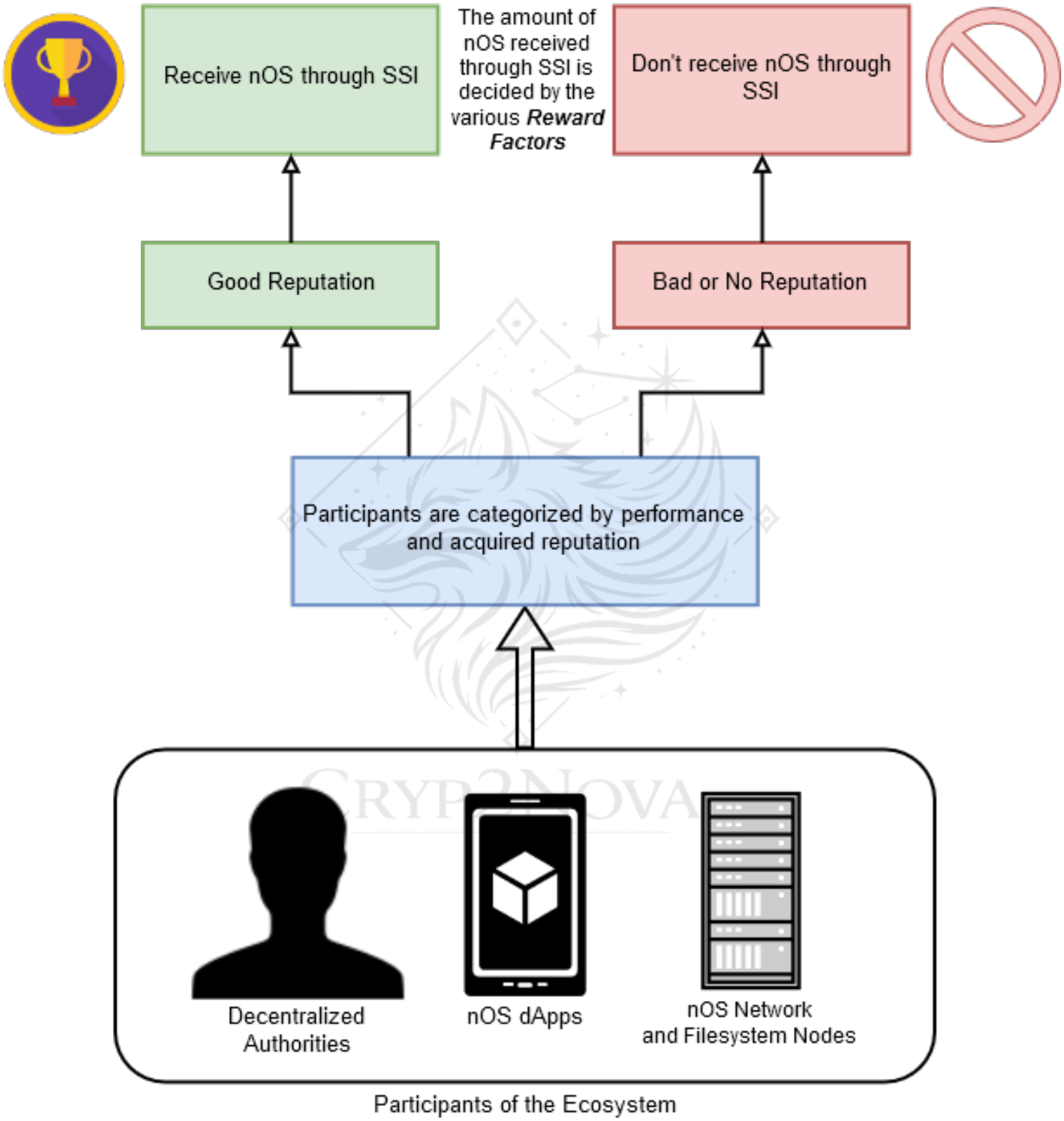
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[2] Periodic token supply increase amounts and timeframe remain to be decided. The increase in circulating supply via SSI can never exceed *5% per year.*

[3] *Staking* is the action of making an amount of tokens non-transferrable. Staked tokens are to be released back to the owner when certain predefined conditions are met (such as the passing of an amount of time).

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1.3. SSI Diagram



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2. Decentralized Authority

2.1. Introduction

End-users can stake nOS tokens to be granted ***Decentralized Authority***.

Decentralized Authority allows for users to rate applications based on quality and other relevant factors. The established ratings are then used for ranking applications on the ***dApp Gateway***.

Users are incentivized to vote responsibly by distribution of nOS tokens via Selective Supply Increase (SSI); those who vote more truthfully (in accordance to the eventual outcome) receive relatively more nOS tokens via SSI than those who don't. Truthful voters also gain ***voting power***, a factor that defines the user's voting weight.

Additionally, applications themselves are also rewarded via SSI for establishing a positive reputation.

2.2. Benefits

Decentralized Authority allows for a number of benefits, including:

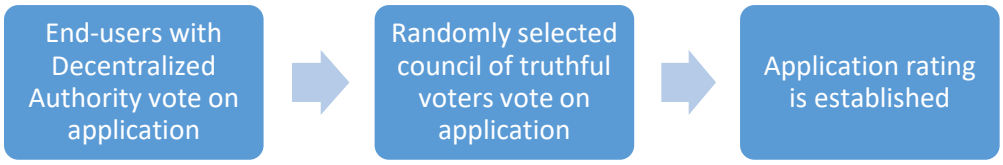
- **Application revenue**
  Applications can generate tokens as a form of revenue, simply by virtue of quality and by establishing and maintaining a positive reputation.
- **Application exposure**
  Applications with a positive reputation will gain increased discoverability on the dApp Gateway.
- **Protection from bad reputation applications**
  Applications that earn a bad reputation are made less discoverable on the dApp Gateway, and users may receive a warning before accessing such applications. This increases user protection from potentially dangerous applications.

2.3. Tiered Voting System

nOS implements a ***tiered voting system*** which assures truthful and realistic establishment of dApp reputations.

After a dApp receives a certain number of votes and committed voting power, it is rated by a randomly selected ***council*** consisting of an uneven number of *truthful voters* (voters who established high voting power).

The application's eventual reputation is then decided by reaching a specific majority outcome amongst these voters, combined with the processed ratings of both the public vote and council vote.



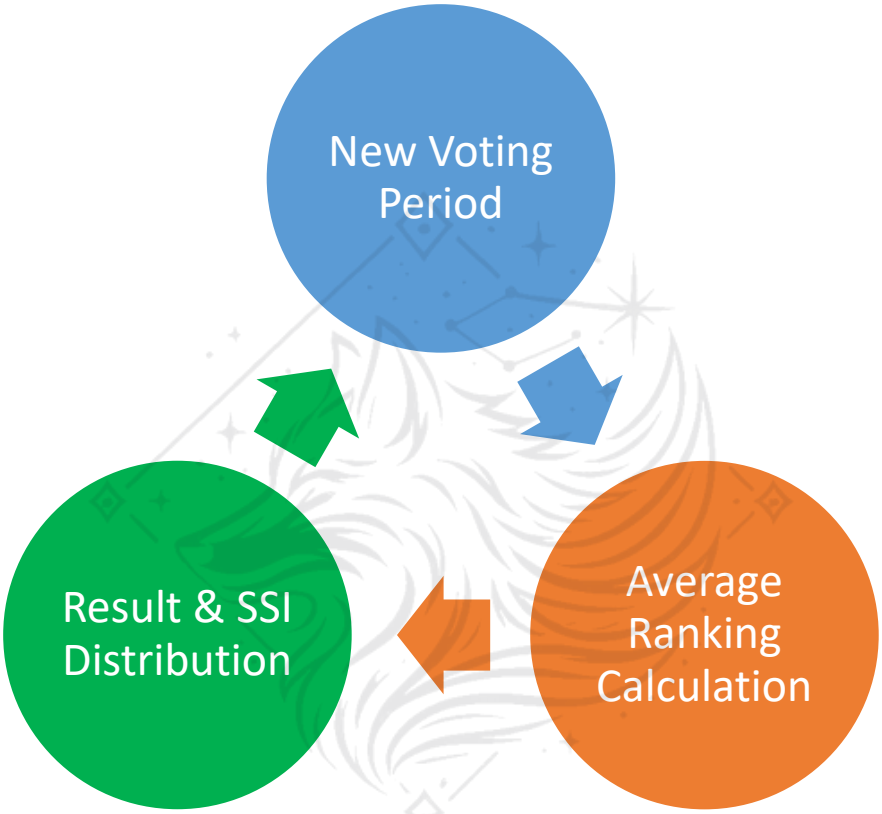
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2.4. Ranking Cycle

The ***tiered voting system*** is the first step in the application **ranking cycle.**

Applications are rated and ranked using factors such as relative reputation and popularity. nOS employs a cyclical voting system to continuously re-evaluate applications based on current ecosystem sentiment.

The cycle is as follows:



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1. **New Voting Period**
   A new period for voting on applications is initialized. Decentralized Authorities are able to rate applications using nOS Client's Open Internet Browser. Previously established ratings are taken into account to prevent drastic changes in application rankings.
2. **Average Ranking Calculation**
   After the voting period, a number of nOS Nodes calculate the final rankings off-chain. Upon consensus, the final calculations are stored on the blockchain.
3. **Result and S.S.I. Distribution**
   The final application rankings that resulted from the calculation are applied to the dApp Gateway for end-user discovery purposes, and for distributing tokens to network contributors via Selective Supply Increase (SSI).

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3. Decentralized Filesystem

Applications built on nOS can serve frontend materials (such as data, web pages, media, JavaScript, other static files) in a decentralized manner with ***nOS Filesystem***. With that, client-side applications that utilize smart contracts for their back-end infrastructure are ***completely decentralized***.

To deploy files on nOS Filesystem, dApp owners must stake nOS tokens. The amount of filesystem resources available to the dApp is determined by:

- The quantity of nOS tokens staked by the dApp owner compared against the collective amount of *all* nOS tokens staked in exchange for use of nOS Filesystem resources.
- The amount of nOS Filesystem resources utilized collectively.

Tokens staked in exchange for use of resources are **not consumed** and may be returned to the application owner at any point in time. This model allows for applications to easily scale their resource requirements, and forms the essence of an economic model that is beneficial to all valuable participants in the network.

It is key that nOS Filesystem maintains a level of performance that is equal to (or exceeds) traditional cloud-based hosting solutions. As *IPFS* [16] and other distributed file sharing protocols are in their early stages of development, research and development into these technologies will be performed as indicated on the roadmap [***Development Roadmap***].

Filesystem nodes that contribute to nOS Filesystem are rewarded via Selective Supply Increase (SSI). Good reputation applications are also rewarded via SSI. The earned nOS tokens can assist with scaling applications as they gain popularity.

With this, both consumer (application) and supplier (host) are rewarded, instead of solely the supplier (which is the case with traditional cloud hosting services).

4. Name Service

4.1. Introduction

In order for dApps to utilize the nOS Protocol, the dApp owner must first obtain a nOS Protocol ***domain name*** (*domain* for short) for their dApp. Application owners can reserve domains where the TLD (Top Level Domain) indicates their dApp's utilized back-end blockchain platform (e.g. *.neo* for NEO and *.eth* for Ethereum).

*Example: nos://my-dapp**.neo** uses the NEO blockchain for its smart contract backend.*

nOS Name Service [17] employs a decentralized auction system for domain name acquirement. Additionally, instead of *consuming* nOS tokens (*transactional model)*, domain ownership is granted by *staking* nOS tokens.

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4.2. Vickrey Auction

nOS Name Service (inspired by Ethereum's EIP-162 [18]) adopts the sealed-bid ***Vickrey Auction System*** and is built as a smart contract on the NEO blockchain.

"A Vickrey auction is a type of sealed-bid auction. Bidders submit written bids without knowing the bid of the other people in the auction. The highest bidder wins but the price paid is the second-highest bid. This type of auction is strategically similar to an English auction and gives bidders an incentive to bid their true value."
– Wikipedia.org: Vickrey Auction [19]

4.3. Domain Ownership Cycle

Upon conclusion of a nOS domain auction, ownership of the domain is awarded to the highest bidder (the *winner*). The winner stakes nOS tokens, equal to the 2nd highest bid made during the domain's auction, for a pre-determined period[4] into a staking smart contract. This is defined as one ***ownership cycle***. The winner becomes the domain's *owner* for the duration of the ownership cycle.

By the end of an ownership cycle, the domain owner can choose to:

- Retain the domain by keeping nOS tokens staked for another ownership cycle.
- Release the domain and take back all staked nOS tokens.
- ***Propose a partial release*** of staked nOS tokens while maintaining ownership of the domain.

4.4. Partial Token Release

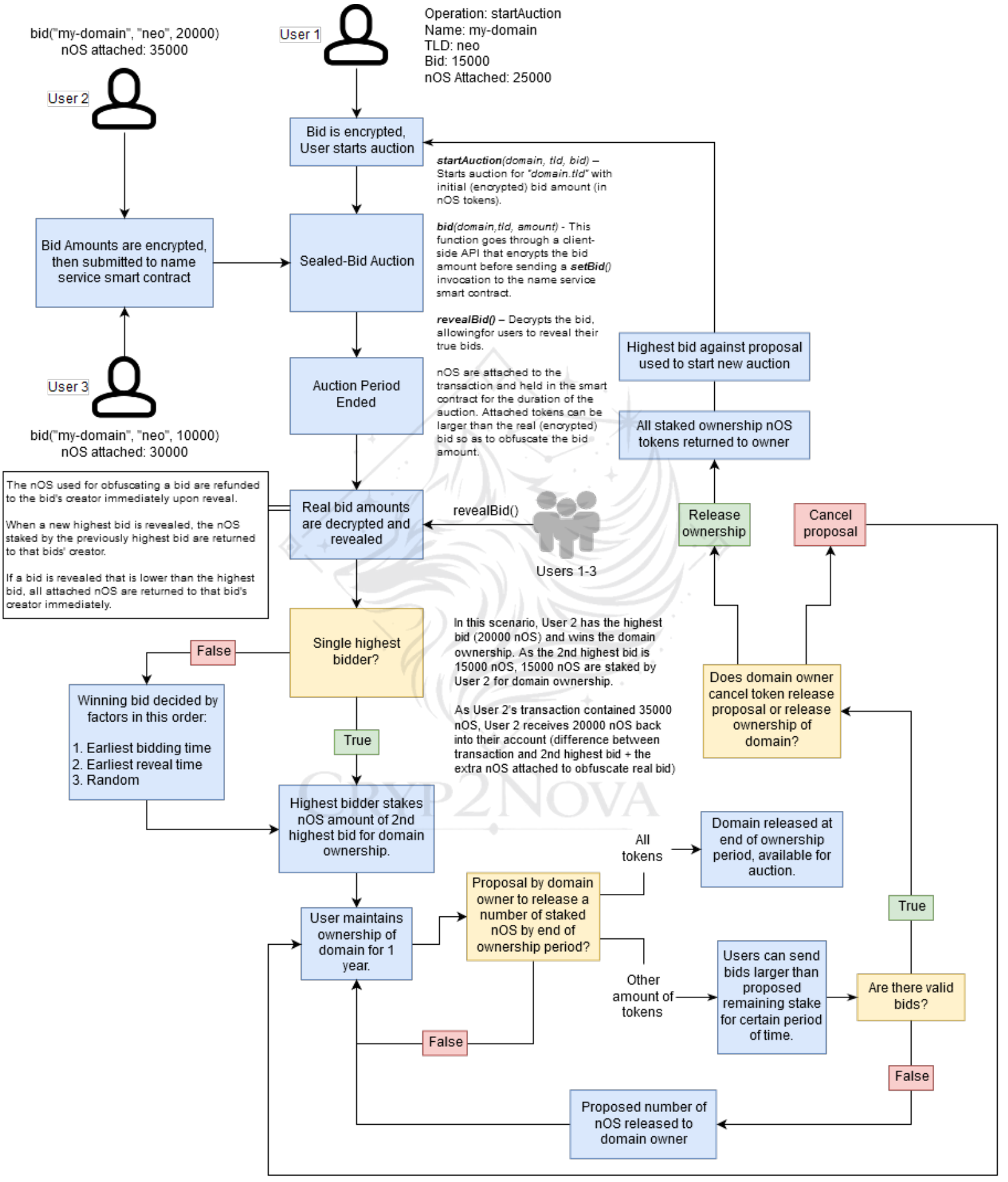
If a ***partial token release*** is proposed, a period will begin where other parties may counter the proposal by making a ***contesting bid*** on the domain. The contesting bid must be larger than the number of nOS tokens that would remain staked after the partial token release.

- **If there is no contesting bid:**
  The domain owner receives the number of nOS tokens that were proposed for release back into their account, while maintaining ownership of the domain for another ownership cycle.
- **If there is a contesting bid**, the domain owner can choose to:
  - **Cancel the partial token release proposal** and maintain ownership of the domain for another ownership cycle. No nOS tokens are released from the staking contract.
  - **Release ownership of the domain name.** All nOS tokens are released from the staking contract, and the highest contesting bid serves as the opening bid in a new auction.

[4] Final pre-determined ownership cycle period remains to be decided.

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4.5. Domain Auction/Ownership Flowchart



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5. Token Generation Event (TGE)

Details below are subject to change.

The nOS token is based on the NEO NEP-5 Standard [3] and is to be deployed to the NEO Blockchain. The tokens can be held on a NEO address, using any wallet software that supports the NEO blockchain protocol and NEP-5 tokens, including nOS Client [***nOS Client***].

Note: Due to future technical requirements of nOS token utilities (Selective Supply Increase), nOS may hold a "token swap" event in the future. Users may be required to undertake specific steps in the future to acquire new tokens during the "token swap" event.

Token Supply & Valuations

Initial Circulating Supply	132,500,000
Initial Price Per Token ($USD)	$0.10
USD Value of Initial Circulating Supply	$13,250,000

Token Allocations

Token Allocation	Tokens	Availability
Public Sale	100,000,000	Directly Available
Instant Company Token Reserve	10,000,000	Directly Available
NEO Council & NGC	22,500,000	Vested - 9 months
Private Sale	67,500,000	Vested - 9 months
Ecosystem Adoption Reserve	50,000,000	Vested - 1 Year
Vested Company Reserve	25,000,000	Vested - 1 Year
Locked Token Incentive & Reserve	100,000,000	Vested - 2 years
Total	**375,000,000**	

Note: Due to Selective Supply Increase (SSI), the total token supply may increase periodically in the future. The SSI amounts and period may be adapted over time; however, it can never exceed 5% per year.

9-Month Vesting Schedule

Time after TGE Initialization	% Distribution
Instant	25
+3 months	25
+6 months	25
+9 months	25

1-Year Vesting Schedule

Time after TGE Initialization	% Distribution
+3 Months	25
+6 Months	25
+9 Months	25
+1 Year	25

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2-Year Vesting Schedule

Time after TGE Initialization	% Distribution
+1 Year	25
1 Year + 120 Days	25
1 Year + 240 Days	25
+2 Years	25

The TGE has no soft cap. The public sale hard cap is $10,000,000 USD.

NEO and ETH are accepted during all stages of the TGE.

Further details regarding the public sale (such as start date, accepted crypto-currencies, and KYC procedure) will be announced on the official website (https://nos.io) and the official channels listed on the website.

Users can only participate in the Token Generation Event via nOS Client, which can be downloaded at https://github.com/nos/client/releases. After successfully minting nOS tokens, the tokens will be transferred to the public NEO address that the user logged in to nOS Client with.

All participants of the public sale and presale must complete a KYC procedure on https://my.nos.app. Users who signed up to https://my.nos.app and have agreed to receive the email newsletter will receive an email with more information before the KYC procedure begins. This information will also be published on the other official channels listed on the official website (https://nos.io).

During the TGE, individual participants of the public sale and the presale can mint up to approximately 90,000 nOS tokens in total.

Presale: Before the public sale, an exclusive presale will be held for selected members of the community. Eligible participants include:

- Users who have built qualified proof-of-concept nOS dApps.
- Users who have made qualified contributions to the nOS platform and its codebase.
- Winners and qualified participants of the nOS User Interface Design Competition.
- Users who subscribed to the VDT.Network Newsletter before April 14th 2018.

Based on contribution quality, users selected for the presale are assigned an ***allocation tier,*** representing the number of tokens one can mint during the presale phase.

The presale allocation tiers are as follows:

- **Tier 1:** 90,000 nOS
- **Tier 2:** 45,000 nOS
- **Tier 3:** 25,000 nOS

Due to NEO indivisibility, the number of tokens allocated to individuals in the public sale and presale is approximate and is to be adjusted so that they can be acquired with a round amount of NEO.

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The tokens distributed during the presale are deducted from the number of tokens available to the public sale. For example, if 25,000,000 nOS are distributed in the presale, then the number of tokens remaining for the public sale is 100,000,000 – 25,000,000 = 75,000,000 nOS.

Public sale: The public sale will be held after the presale and will consist of multiple contribution phases. All participants of the presale will also have access to the public sale. Other participants for the public sale will be selected by means such as valid KYC data after the KYC submission period. Additional details are to be announced on official channels.

After the Token Generation Event, any unsold tokens that remain will be added to the **Company Token Reserve**.

Discounts/bonuses: No bonuses or discounts are applied to any stages of the nOS Token Generation Event with the exception of the angel allocation (*NEO Global Capital*). The angel allocation entails a 20% discount on tokens purchased and a 20% vested bonus on the amount paid pre-discount. The angel allocation is vested following the *Private Sale Distribution Model*, and the bonus for the angel allocation is vested following the *Locked Token Incentive & Reserve Distribution Model*.

Progress and Roadmap

Below you will find the current state of nOS development:

1. Development Progress

- ***nOS Client*** is available for download and dApp development [9]. Developers can compile the source code, launch the client, and build compatible applications using the integrated nOS JavaScript libraries [11]. Consumers can download a pre-compiled solution for using applications on the nOSNet and ***my.nos.app***.
- ***my.nos.app*** is available and under active development. my.nos.app is a web application exclusively available on nOS Client that allows for the management of dApps and Codebase Contributions for development rewards, as well as KYC/TGE Management for participants of the nOS Token Generation Event.
- ***nOS Name Service*** smart contract and API server (***registrar-middleware***) are under active development. Its current specifications are made to fit the requirements of the nOSNet release.
- ***nos-local*** [12] is live and undergoing active development. Developers can use the solution to easily deploy a NEO Private net and launch the latest version of nOS Client.
- ***create-nos-dapp*** is live and can be used to easily set up a new bootstrap nOS dApp and kickstart dApp development [13].
- ***nOSNet*** is live and can be used to easily deploy and use applications in a live Testnet environment.
- Over 70 dApps have been deployed to nOSNet by the nOS developer community.

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2. Development Roadmap

Q3/Q4 2018:

- Release of nOS Client v0.3
- nOS Token Generation Event (TGE).
- Establishing of initial technical and strategic partnerships with both blockchain-based and traditional projects and companies.
- Cooperative application development with project partners and third parties.

Q4 2018:

- nOS Ecosystem Adoption Fund: nOS will launch its Ecosystem Adoption Fund, a fund aimed towards improving adoption and development of Decentralized Applications on the nOS Platform.
- Decentralized Filesystem Research: nOS will initiate Research & Development on Peer-to-Peer Data File Sharing Initiatives, with the goal of building a completely decentralized Open Internet.
- Initial Development of nOS Mobile Client.
- Initial Research & Development for supporting Ethereum dApps and other platforms based on their respective popularity and adoptability.

2019:

- nOS 1.0: nOS plans to release its 1.0 Client, officially launching the nOS Open Internet 1.0.

Disclaimer

The author of this Whitepaper is Daan Jan van Dugteren, founder and CEO of nOS Limited (Malta Company Registration No. C87299).

The Token Sale Terms of Service are to be located at https://my.nos.app/terms and are subject to change before the launch of the Token Generation Event's presale phase. Any participants in the nOS TGE understand and agree that the TGE terms may be changed and adjusted, and is to pay attention to the terms at their own discretion and responsibility.

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