



SILICON

A Payment Gateway for Cryptocurrencies

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ABSTRACT

Since 2008, cryptocurrencies have soared in popularity reaching around 1,000 cryptocurrencies in existence with an aggregate value greater than the market capitalization of IBM. Cryptocurrencies have been able to succeed despite not enabling non-technical users to make transactions. We are skeptical that cryptocurrencies can continue to grow at this rate unless a mechanism to streamline payment transactions for the non-technical user is adopted.

Virtually every ICO includes an option to transfer tokens within their proposed eco-system. These transfers manifest themselves in higher-level use cases such as payments, rewards or donations. However, all of these currencies face the same issues with regards to shifting country regulations, whitelisting, and token transactions.

Introducing Silicon, a platform that enables current and future cryptocurrencies and ICOs (compliant with ECR20 or NEP-5 standards) to streamline the process of whitelisting and transacting with cryptocurrencies.

Today, Stripe and PayPal provide payment gateway services, API integrations and regulations for fiat currencies. Silicon will provide these same services for tokens enabling the ICO platforms to focus on their strengths while leveraging the Silicon platform for their token transactions and payment needs.

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Introduction

The world of currency and finance is transforming before our eyes. Digitalized assets and innovative financial channels, instruments and systems are creating new paradigms for financial transactions and forging alternative conduits of capital. Right in the middle of these changes, we have decentralized currencies, which governments have not figured out how to correctly regulate.

Despite the strong regulations placed by governments [1], cryptocurrencies continue to gain traction. Bitcoin alone is moving more than \$2 billion worth of USD dollars a day [2], but these transactions are still taking place on platforms that only very advanced users or financial users understand. These platforms include currency exchanges, crypto-wallets and smart contracts.

Problem

At Silicon, we have been actively involved in this new paradigm transition. In the process of investigating several different ICO proposals, we have uncovered a number of common threads running through these cryptocurrencies, which ICO companies are ill equipped to tackle because they are outside the scope of their core business solutions. For each of these ICOs, distributing and transferring the tokens for payments, rewards, or donations is a core problem that needs to be solved.

According to the Token distribution framework [3], there are 5 major classification categories of tokens:

- Technical layer tokens – These tokens specify where in the architecture the token is implemented. The token can be directly implemented on the blockchain or in a layer on top of the blockchain.

Purpose tokens – These tokens are intended to specifically behave as tokens and do not give the user a claim to an underlying asset.
- Underlying value tokens – Tokens that allow you to claim an underlying asset. These aren't compatible with purpose tokens.
- Utility tokens – Tokens that provide access to a digital service or let you contribute to a system.
- Legal status tokens – Tokens which are classified within one of the framework's sub-categories which are volatile and subject to changes in regulations.

Regardless of the type of token, Silicon has found that all of them must possess a mechanism to identify the customers (whitelisting or KYC procedures) and facilitate the transfer of tokens to satisfy a higher-level use case: transactions, rewards, benefits, payments, or donations. This problem has been solved for fiat currency financial platforms. However, a solid payment gateway platform does not exist for crypto, specifically NEP-5 or ERC20 tokens.

The crypto ecosystem is constantly evolving with governments changing rules, adding prohibitions, whitelisting requirements, legal requirements, etc. [1] Each ICO must adapt to the latest regulations, which stops these businesses from really focusing on their own platform.

Solution

The Silicon platform will solve the distribution and transaction processing issues with the tokens generated by the ICOs by creating a payment gateway that is secure and easy to integrate with.

By giving token issuers the ability to process payments (one time and recurring), donations, rewards or monthly subscriptions in their DApps, Silicon is looking to push forward the real-life value of these tokens by increasing their usability in real-life scenarios, effectively facilitating the “Utility” token.

Silicon will initially provide support for NEP-5 assets with plans for future support for ERC20.

Silicon Platform

The Silicon platform has a broad vision. A multitude of different modules and components will be needed for the ecosystem to run. This ecosystem will involve transactions, history, reporting, transfers, integrations, security, high scalability, and availability. We have a clear vision of the products we will need to build to achieve these goals.

NEO Smart Economy

NEO’s goal of creating an ecosystem where blockchains make it easier and more transparent for regulatory entities to track resources, as well as, making it easier to perform transactions aligns with our vision.

Integrating with the NEO Smart Economy blockchain and deploying Silicon’s own Smart Contracts on it will provide the following advantages:

- Digital assets and digital identity: Neo was built with transparency of digital identities in mind. This will make it easier for Silicon to maintain compliance with future regulations.
- Quantum proof: The NEO blockchain was designed to be quantum computer proof, which will be increasingly helpful as quantum computers become available.
- Support for multiple languages: The NEO blockchain currently supports development in C#, python, java, go, and nodeJS. The community is actively working on providing support for more languages. This will greatly reduce development time and costs.
- Speed: The NEO blockchain allows up to 10.000 transactions per second and are working towards increasing the transaction speed to 100.000.
- Immutability: The NEO blockchain is immutable, no forks. This is a big advantage for Silicon in that we will be keeping a history of transactions on the blockchain.

Middleware

We define middleware as the modules that enable the bridging of information between the blockchain and our cloud. Our middleware will consist of two modules.

The first module will be called the “NEO mirror” module. We have already successfully modified the Neon-Wallet-DB to create a mirror of the blockchain data on a server instance and store the data in a NoSql database. It has been modified to enable multithreading and to run on a smaller and less expensive stack. Most of our read operations will be performed on this module resulting in faster read times and to avoid slowing down blockchain transactions.

The second module will be used for grouping transactions and transferring NEP-5 compliance tokens. To implement this technology, we will leverage the Neo-python project which runs as a node on the blockchain and build upon it.

Cloud

The Cloud Application will serve as the backend for all integrations. It will expose an API for client-side applications (mobile, web, sdks, integrations). Communication from clients to the cloud will be encrypted using SSL as well as a custom evolving API token for permissions that enables the running of stateless clients.

The cloud will also use sub-services which will enable it to operate and scale horizontally. The following sub-services will be required:

- Load Balancer: Allows the system to horizontally scale by redirecting requests to the cloud to different deployed machines.
- Cache database: Speeds up queries to the server by caching the most popular ones on a Redis or similar instance.
- Relational and Non-relational database: The platform will need both a relational and a non-relational database. The relational database can be implemented on PostgreSQL or MySQL and the non-relational database will be implemented using Cassandra, which is a distributed database system.

In addition, other small sub-modules for email campaigns, background tasks and jobs and reporting may be required.

Web Clients

The web client will act as a portal for companies to manage their tokens and wallets. Users will be able to login to view transaction histories, configure their wallets to receive rewards, set up account details and much more. In addition, this will be the vehicle through which users can use SIL tokens to pay for usage of the platform.

The web client will be built using a combination of front end technologies: Angular, Bootstrap, Redux, SCSS.

Mobile Clients

A mobile version of the web client will be developed for both Android and iOS devices. The mobile Apps will be native for each platform in order to provide the best possible user experience.

Integrations

Each integration will be reliant on the specific needs of individual clients. Below is a summary of the most common integration types.

- Mobile integrations (android and iOS) will be done through SDK (or a gradle library) and cocoapods. It will allow users to create apps and use the Silicon platform to process payments using tokens.
- HTML integrations will use a combination of HTML and JS components to create different levels of integration and user experiences. Sites will be able to handle their own payment workflows by instantiating Silicon's JS library to securely process final transactions. Alternately, sites can opt to utilize a Pay button which would enable the Silicon platform to handle the entire transaction payment workflow.
- API integrations will also be possible by allowing clients and integrator systems to call our API directly with their transaction information.

Silicon (SIL) Token Sale

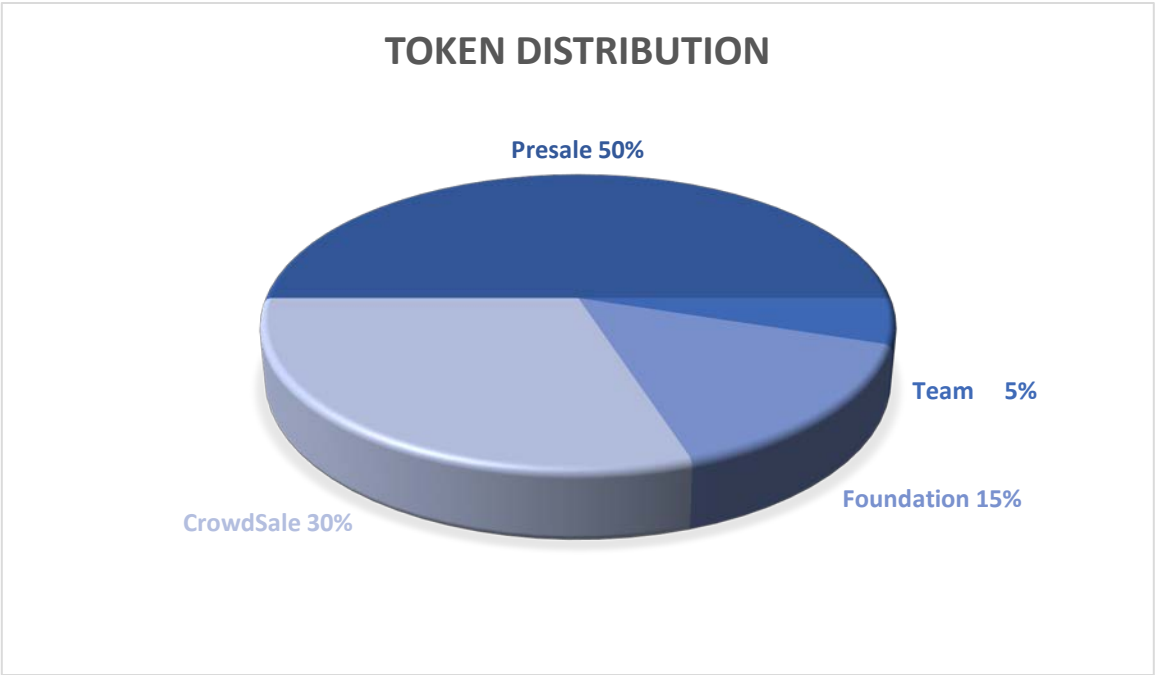
To fund the development of the platform, the Silicon Token will be released in the ICO. An NEP-5 compliant Smart Contract will be deployed on the NEO Blockchain. The Silicon token will then be to fuel the Silicon platform once the system is in production.

Soft cap: \$20,000,000 worth of NEO tokens

Hard cap: \$30,000,000 worth of NEO tokens

In the event the hard cap is not reached any remaining tokens will be burnt.

Foundation and team tokens will remain frozen after the ICO has ended and will stay frozen for about a year.



Roadmap

Stage	Quarter
Product Conception	Q4 2017
Market Research	Q4 2017
Prototype Development	Q4 2017
Website Development	Q1 2018
White Paper	Q1 2018
Establishing Marketing Channels	Q1 2018
Obtain Private Funding	Q1 2018
KYC and Whitelisting	Q1 2018
Public Token Sale (SIL)	Q2 2018
Smart Contract Development	Q2 2018
Branded Wallet Development	Q2 2018
Cloud Development – SDK/API	Q3 2018
Offchain Synchronization Module	Q3 2018

Team

[Joel García, \(Software Engineer\)](#)

Founder and CEO of AllCode

CTO of Med-Vantage (IMS Health)

Implemented a number of successful ICOS

[Andres Jaramillo \(Software Engineer\)](#)

Senior Software Developer and Blockchain Developer (+12 years)

Implemented NEP-5 support on neon-wallet for Aphelion.

Implemented multiple Smart Contracts and ICOs on NEO.

Implemented multiple native Android and iOS applications currently on the google and apple store, which together have over 60.000 businesses on it and 1M million users.

Implemented a user centric BPM engine and BPM designer.

[Mike Alvarez \(Software Engineer\)](#)

Senior Software Developer and Blockchain Developer (+15 years)

Reworked the neo-gui wallet to implement a different NoSql database locally that could be deployed to an offchain synchronization engine.

Reworked the neon-wallet-db to reduce the system requirements, increase speed and scalability.

Implemented a user centric BPM engine and BPM designer.

[Hans Ospina \(Software Engineer\)](#)

Senior Software Developer (+15 years)

Implemented a user centric BPM engine and BPM designer

[Nikhil Mohan \(Sales/Product Management\)](#)

Senior PM at Self Health Network

VP of Sales - Allcode

[Sabine Henderson \(Product Management/QA\)](#)

Director of Web Development at Embarcadero Technologies

QA Director AllCode

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Silicon Token Participation – Restricted Areas

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Hong Kong Special Administrative Region of the People's Republic of China (Hong Kong, Hong Kong SAR, or HK) citizen or resident participants

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