

# Oracle Perceptron Protocol Lite Paper

Version 1.2.8

CenterPrime Foundation

Last update date: February 04, 2021

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# 1. Introduction

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## 1.1 Overview

The blockchain ecosystem continues to grow based on the value and technology of irreversibility and transparency, and has led to an expansion of the industry. Based on this, innovative finance that is similar with fintech is being achieved through the birth of defi in each country such as the United States, Russia, China, and Korea.

Existing traditional financial services consist of financial services such as movement, exchange, and storage based on “legal currency” issued by the state in all cases such as reception, loan, settlement, and investment. As such, defi financial services also provide services such as reception, credit, payment, and investment provided by traditional financial services, but defi provides services based on 100% virtual assets, so it is difficult to apply to the real economy.

In addition, the network required to provide defi services is mainly a single-chain network (Ethereum network). The gas price used as a fee for token transfer and exchange is affected by the price of the underlying asset (e.g., Ethereum) in a single-chain network, so if the price rises, general purpose is limited. The DeFi industry is more efficient than the traditional financial system and has a different result than gaining the driving force of the industry's growth by putting the value of low transaction fees to the fore.

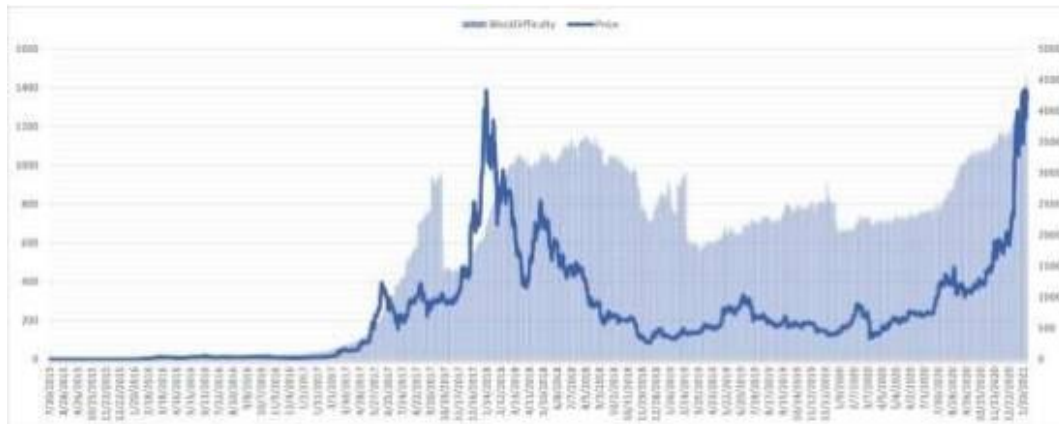
As described above, various countries continue to research, develop, and apply to innovate financial services into defi. In addition, while working to incorporate virtual assets into the regulatory system, the limitations drawn from the current defi service will put a brake on the growth of the industry. For the continuous growth of the defi industry requires a way to solve limitations that is clearly derived.

CenterPrime proposes the oracle perceptron protocol to overcome the current limitations, drive the industry's continuous and explosive growth, and present the De Facto Standard of the defi ecosystem. Oracle perceptron is a structure in which the traditional financial ecosystem and the decentralized finance ecosystem are intertwined like neurons in the nervous system. In order for this structure to be formed, assets of traditional finance must be tokenized. A token must be formed that can pay gas fees by using a traditional financial reserve which is connected to a chain network. In addition, for a token asset based chain network to have general purpose and scalability, tokenization must be done as a combination of defi assets and traditional financial assets. For example, the open banking chain protocol of central finance for custodial assets and DeFi protocol for non-custodial assets allow scalability and diversity to form various protocols for synthetic assets. Starting from this, the multi-cross-chain network contributes to various economic systems with assets such as stocks, bonds, and real estate in decentralized on-chain finance by connecting the existing traditional financial economic model and the defi economic model.

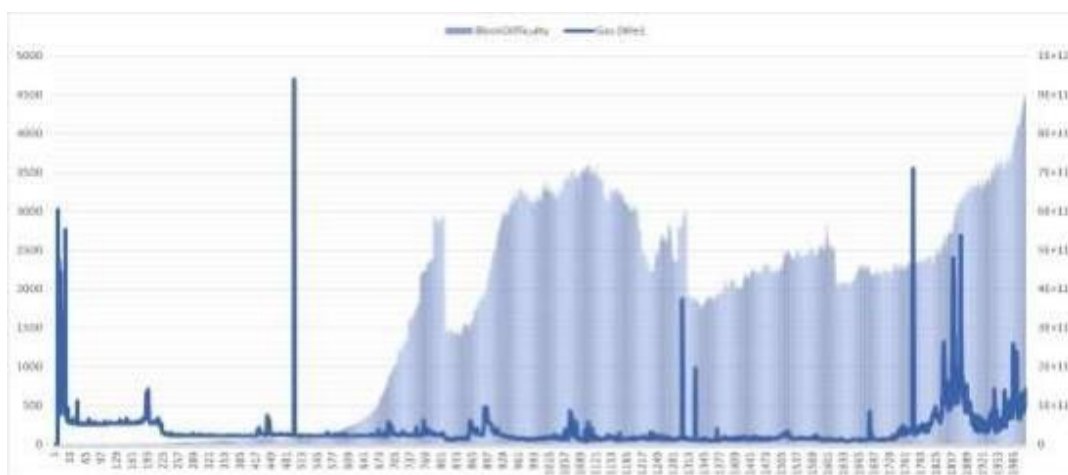
We have designed a synthetic asset token which synthesizes traditional financial assets and Defi assets on a multi cross chain network which also incorporates the traditional financial open banking network. In addition, we provide a fintech chainified payment system that allows you to use synthetic assets as a means of defi, payment and exchange in the real economy ecosystem. Through this, we can build a sound token ecosystem by forming an oracle financial ecosystem that connects traditional finance and decentralized finance. Synthetic assets will spearhead the oracle perceptron ecosystem that will lead to a sound token economy ecosystem.

## 1.2 Background

Currently, DeFi has limited assets within the ecosystem of underlying assets (Bitcoin and Ethereum) of a single-chain network. Based on October 29, 2020, the size of the total virtual asset market was about \$400 billion, of which Bitcoin and Ethereum accounted for 61% and 11%, respectively. For reference, the total value locked (TVL) of assets deposited in DeFi protocols during the same period was approximately \$11.3 billion, which is only 2.8% of the total virtual asset market. As such, the DeFi ecosystem only handles ethereum-based virtual assets, which is evaluated as lacking in general purpose. The main reason for this evaluation is that mining difficulties increase due to the price value of underlying assets such as ethereum, resulting in higher gas prices and higher fees incurred.



Mining difficulty curve due to ethereum price increase



Gas fees rise curve due to ethereum mining difficulty increase

Therefore, the virtual assets handled in the current DeFi ecosystem are being evaluated skeptically about whether the DeFi financial service model is a form that can lead to sustainable growth. In order for DeFi to grow into a competitive and sustainable financial service in the long term, sustainability, an internal factor of the financial model, must be secured. Furthermore, to expand the DeFi ecosystem, a new type of asset that can include the assets of central finance is required. Also, a new asset type that can solve this problem is synthetic assets (neuron assets). Synthetic assets are tokens that express the price of assets that you want to handle in the DeFi ecosystem. For example, the cryptocurrency services currently provided by PayPal provide services that allow users to purchase, hold and sell Bitcoin, Ethereum, Bitcoin Cash, and Litecoin directly from digital wallets.

This realizes expressing the price of assets and tokens, and shows the beginning of the possibility that they can be used in the real economy.

CenterPrime proposes an oracle cross-chain protocol (perceptron) that creates and operates synthetic assets that can drive the expansion and sustainable growth of the DeFi ecosystem. Oracle cross-chain protocol becomes a platform for building a DeFi economy that operates synthetic assets that combine the non-custodial assets of the open banking network, which is a custodial asset network of central finance, and the chain networks, which are non-custodial asset networks. By connecting assets of the DeFi economy which have not been used in the real economy because they do not had the basis of assets up until now, we will build the ner economic ecosystem that utilizes the advantages of practicality, open banking network, and chain network.

## **1.3 Proposal**

### **1.3.1 Oracle Multi-Cross-Chain Network Token Assets Dencentralization**

Each single-chain network issues decentralized token assets. Decentralized token assets can be used not only in the DeFi of a single-chain network, but also in various fintech chain networks in central finance. As it becomes available in a real multi-cross-chain networks, it is possible to select and use a chain network with reasonable gas fees among various chain networks, rather than paying a high gas price without the option of the existing chain network. In addition, the reserve fund of the fintech chain network will be realized as a token oracle payment service. Oracle perceptron protocol proposes a synthesized neuron asset with token assets decentralized across the DeFi chain network and fintech chain network.

### **1.3.2 Synthetic Liquidity Pool by the Token Assets Type**

The types of token assets are divided into custodial assets and non-custodial assets according to the type of value and use, and the custodial assets consist of reserve fund and assets used in the real economy. Non-custodial assets are decentralized virtual assets such as Bitcoin, Ethereum, or new token assets, and are subdivided and classified according to the combination form of custodial and non-custodial assets and the use of the synthesized token. The oracle perceptron protocol proposes a neuron asset liquidity pool according to the form in which the synthesized neuron assets of the custodial and non-custodial assets are used in the real economy.

### **1.3.3 FinTech Chain Network Payment Pool**

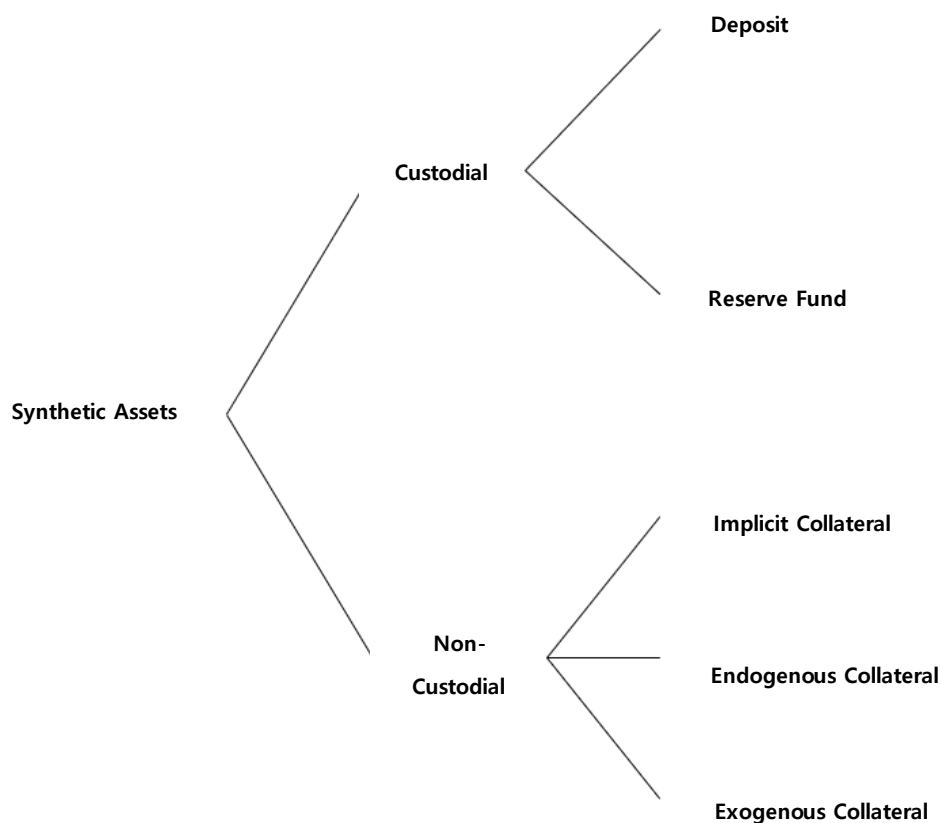
The token assets synthesized with the custodial assets in the form of reserve fund of the central finance can be easily paid through the fintech chain at affiliated stores that are paid in national fiat currency. This is a protocol that automatically exchanges virtual assets into legal currency through the fintech chain to process smart payments, and realizes the oracle payment ecosystem in the real economy. Oracle percentron protocol proposes an oracle payment pool that enables smart payment of neuron assets at affiliated stores and contents that is paid in national fiat currency.

## 2. Synthetic Assets

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### 2.1 Synthetic Assets Token Type

Existing token assets are used only for transfer and exchange in a single-chain network, so the form of transaction is very limited. However, in the coming future, the real and digital economy will be combined, which means that the oracle economy will become a reality. Therefore, it is necessary to issue decentralized tokens in the form of synthetic assets combined with synthetic assets of central finance so that the value of tokens in the digital economy can be recognized and used in the real economy as assets with transparency and basis of token value. As tokens in the form of well-founded synthetic asset will be used for exchange and settlement in the real economy as well as in the digital economy, increasing practicality and general-purpose, and will overcome the infinite possibilities and limitations of DeFi for new innovative financial services. It will also have the growth power of the global blockchain fintech industry by having convenience, portability and accessibility such as Apple Pay, Samsung Pay, and PayPal, which are already in use. This is because synthetic asset tokens are difficult to use in the real economy if the value (deposit) is determined by existence of value(deposit) cannot be trusted. In addition, in order for synthetic asset tokens to be incorporated and used in the real economy, various assets must be classified according to the tokenized type. Synthetic asset token types are largely divided into custodial assets and non-custodial assets. Custodial assets are divided into deposit and reserve fund, and non-custodial assets are classified into endogenous, exogenous, and implicit collateral.



### 2.1.1 Custodial

Custodial tokens are tokens based on assets such as gold and dollar deposits, which are assets of the real economy, and are used as tokens after digitized as deposit and reserves fund.

Therefore, when tokenizing custodial assets, tokenization is progressed based on the exact basis according to the asset value or size. However, since tokenization of custodial assets is a form entrusted to the traditional finance, tokens cannot be issued randomly, and tokens are issued only when a document or environment that can prove the evidence of the custodial asset is established. However, since there is a strong basis for anyone to trust, such as deposit and reserve fund, the value of custodial tokens can be expanded into assets such as stocks, bonds, and real estate in traditional capital markets.

### 2.1.2 Non-Custodial

Non-custodial tokens are divided based on endogenous/exogenous/implicit collateral types. The first is a token based of endogenous collateral, which is a collateral created for the purpose of the collateral itself. Exogenous collateral is not collateral created for the purpose of collateral, but refers to collateral when the synthetic asset token is formed. The last is implicit collateral, which currently applies to the design of non-custodial assets. To have a basis in the current digital economy ecosystem consisting of only non-custodial assets, there must be endogenous or exogenous collateral, not implicit collateral, and it must have a basis like the real economy, and act as an actual economic ecosystem. Therefore, as described above, assets such as gold and dollars in the custodial assets forming synthetic assets as the endogenous or exogenous basis for non-custodial assets.

### 2.1.3 Hybrid

A hybrid token is a token asset that combines the custodial assets and non-custodial assets. For example, if the proportion of assets is 100%, it is a type that can issue tokens by adjusting the proportion of assets as desired, such as 34.3% of custodial assets and 65.7% of non-custodial assets. In addition, in the existing assets, custodial assets can be exchanged for non-custodial assets, and non-custodial assets can be exchanged for existing assets, and it can be refer to be a type that takes advantage of the advantages of custodial assets and non-custodial assets. In addition, it is a token type suitable for oracle payment ecosystem because affiliated stores and content payments, which have been made only with custodial assets, can be paid with non-custodial asset tokens and hybrid tokens as much as the proportion of custodial assets.

## 2.2 Synthetic Assets Decentralization and Utilization

### 2.2.1 Token Assets Decentralization

To utilize synthetic assets, token assets decentralization must be precede. Token assets decentralization is a key technology of synthetic assets that allows the selection of chain networks through AI (autonomous judgment) for the gas fees efficiency of decentralized issuance, transfer and exchange of token assets in a multi-cross-chain network.

Through this, the value of token assets of the blockchain network is realized and secure practicality, scalability, and efficiency that can be used in the real economy. In addition, when the integrated token based on synthetic assets is decentralized from a multi-cross-chain network to each chain network, the price formation will be decentralized and formed according to the same demand and supply laws as the current economic principles. Through variables such as the transaction processing speed of each chain network and the relationship with enterprises or governments in industry and technology sectors, the natural price will be formed depending on which chain network consumers choose.

*\* This formula represents the total number of network tokens in the synthetic asset network and the value of the total assets existing in the open banking network.*

$$T_A = \left\{ X_i W_i + X_{i+1} W_{i+1} + X_{i+2} W_{i+2} + \dots + X_N W_N \right\} = \sum_{i=k}^N X_i W_i$$

$$OT_i = \sum_N^i OB_N OA_N$$

$T_A$  = Total number of all network tokens in the synthetic asset network,

$X_i$  = Means network and type is separated with i,

$W_i$  = Number of tokens in a single – chain network,

$OB_i$  = Open banking network of traditional financial custodial assets,

$OA_i$  = The amount of assets deposited in the open banking network of traditional financial custodial assets,

$OT_i$  = Total assets of the open banking network,

$k$  = Positive integer

*\* A formula representing the total assets of the oracle economic ecosystem, which is the sum of custodial and non-custodial assets..*

$$OTA_T = T_A + OT_i$$

$OTA_T$  = Total oracle token assets,

$T_A$  = Total number of all network tokens in a synthetic asset network,

$OT_i$  = The size of custodial assets deposited in the open banking network

## 2.2.2 Exchange and Transaction

Currently, each token used in single-chain networks is not crossing each other. The DeFi economic ecosystem based on synthetic assets, by using integrated synthetic asset tokens of a cross-chain network to make the issuance, transaction, and exchange of tokens fair while preventing asset monopoly in a single-chain network. For example, the total number of AAA tokens, an integrated token that can cross three networks (Ethereum, Binance Smart Chain, Tron) is 1 billion. Out of 1 billion, 500 million are decentralized over the Ethereum network, 300 million are the Binance network, and 200 million are the Tron network. At this point, if everyone uses each network similarly, the network with the highest probability of AAA token depletion is Tron.

However, AAA token, the integrated token, can be used by transferring tokens that can be used on the Tron network on Ethereum or Binance networks. These integrated tokens that can move or exchange tokens on different networks can consume or purchase a variety of products and services in the digital economy, such as the real economy, based on synthetic assets that can be trusted through custodial assets. In addition, after the cross-chain network formation, by using the synthetic assets that connects custodial assets and non-custodial assets and using the network required on demand, preventing the price increase of underlying assets and gas fees that are actually available to users.



*\* A formula represents the exchange and transaction of synthetic assets in the case of a single-chain network.*

$$ETH \neq BSC$$

$$AAA_{ETH} = ETH * W_{ETH} : BBB_{ETH} = ETH * W_{ETH}$$

$$AAA_{BSC} = BSC * W_{BSC} : CCC_{BSC} = BSC * W_{BSC}$$

$$POOL_{SWAP}(AAA_{ETH} : BBB_{ETH}) \neq POOL_{SWAP}(AAA_{BSC} : CCC_{BSC})$$

$ETH$ = Ethereum network,  $BSC$ = Binance Smart Chain Network,

$AAA_{ETH}$  = Total number of tokens multiplied by the number of AAA tokens and the network in the Ethereum network,

$BBB_{ETH}$  = Total number of tokens multiplied by the number of BBB tokens and the network in the Ethereum network,

$AAA_{BSC}$  = Total number of tokens multiplied by the number of AAA tokens and the network on the Binance Smart Chain network,

$CCC_{BSC}$  = Total number of tokens multiplied by the number of CCC tokens and the network on the Binance Smart Chain network,

$W_{BSC}$  = Random number of tokens on Binance Smart Chain Network,

$W_{ETH}$  = Random number of tokens on the Ethereum network,

$POOL_{SWAP}$ : Pool swaps that enable the exchange and transaction of tokens within a single-chain network.

*\* A formula represents the exchange and transaction of synthetic assets in the case of a cross-chain network.*

$$AAA_{ETH+BSC} = ETH * W_{ETH} + BSC * W_{BSC}$$

$$POOL_{SWAP}(AAA_{ETH+BSC} : BBB_{ETH}) = POOL_{SWAP}(AAA_{ETH+BSC} : CCC_{BSC})$$

$AAA_{ETH+BSC}$  =

Total number of tokens multiplied by the number of W tokens and the network on the Ethereum network and the Binance Smart Chain network,

### 2.2.3 Staking and Farming

Banks of traditional finance can earn interest through deposits of assets, and can also earn investment returns through various investment products. DeFi also has an investment product called staking, which is the same as its own deposit, and a DeFi investment product that can earn token assets as a profit through staking is called farming.

As such, the investment of traditional finance and DeFi is the same, but the asset types of profits earned are different. However, it is a synthetic type of investment that allows you to obtain the return of token assets in the investment form in central finance through synthetic assets, and you can also get assets in traditional finance through staking of DeFi. If the staking service is progressed through synthetic assets, it will look like as following.

When chain networks such as Bitcoin, Ethereum, Binance Smart Chain, Tron, etc., and open banking fintech chain networks of traditional finance such as KRW, yen, and dollar intersect in the DeFi economy to issue AAA synthetic asset tokens, staking investors can stake in BTC, ETH, BNB, and TRX. In addition, you can stake in fiat currencies of KRW, JPY, and USD. These staking rewards are rewarded with synthetic asset tokens AAA tokens.

This is a new investment product that combines the investment of traditional finance and investment of DeFi into one by realizing oracle investment, and it guarantees a higher return than that of existing DeFi staking.

*\* A formula represents the profit of transaction fees through farming through staking and reserve fund for payment of custodial assets.*

$$Rev_T = SI_K \frac{G_K}{\sum_N^{\gamma} I_K} + \sum_N^{\gamma} TF_N + OT_i$$

$Rev_T$  = Profit from transaction fees through farming through staking and reserves for payment of entrusted assets,

$TF_N$  = Profit token through transaction fees,

$OT_i$  = The size of the consigned assets deposited in the open banking network

$N, \gamma, I$  = Positive integer

## 2.2.4 Reserve Fund Tokenization Payment

To realize the contents what has been described so far, the most important thing is the connection between custodial assets and non-custodial assets, and for this, a reserve fund is required. Current payment process of traditional finance essentially includes the reserve fund deposited in Korea Development Bank by a company that creates and operates a platform for users to purchase services or products and trade. If user makes a purchase, Korea Development Bank proactively pays and proves the cost processing to the affiliated store through the deposited reserve fund. After that, the company settles the cost. As such, the reserve fund becomes a link of trust that connects users and affiliated stores. Danal and Inisis are representative examples of fintech retail payment companies using Korea's reserve fund.

Decentralized token assets that non-custodial assets and custodial assets are synthesized can be automatically paid directly to token assets through the custodial assets of the reserve fund. If a consumer pays for products and contents with tokens in the token ecosystem where without the deposit such as reserve fund, the affiliated stores will not be able to sell to consumers because they cannot trust it, and consumers will not be able to trust the value of the token asset what they will pay for. If consumers make payments through tokens to purchase products and contents of affiliated stores, the tokens synthesized with non-custodial assets and custodial assets are entrusted with reserve fund, which are part of the token assets, so consumer sends tokens to the payment pool, and through the fintech chain network connected to the payment pool, it deals with automatic payments for product and content costs in fiat currency as a reserve fund, which is a custodial asset of tokens.

*\* A formula represents a function that derives the commission income  $TF_N$  when payment is made in a transaction of  $TR_N$*

$$POOL_{Paymnet}(TR_N, TF_N, OB_N)$$

$TR_N$  = Payment in the case of N,

$TF_N$  = Profit token through transaction fee in case N,

$N$  = Positive integer

$OB_N$  = Open banking network of traditional financial custodial assets in the case of N

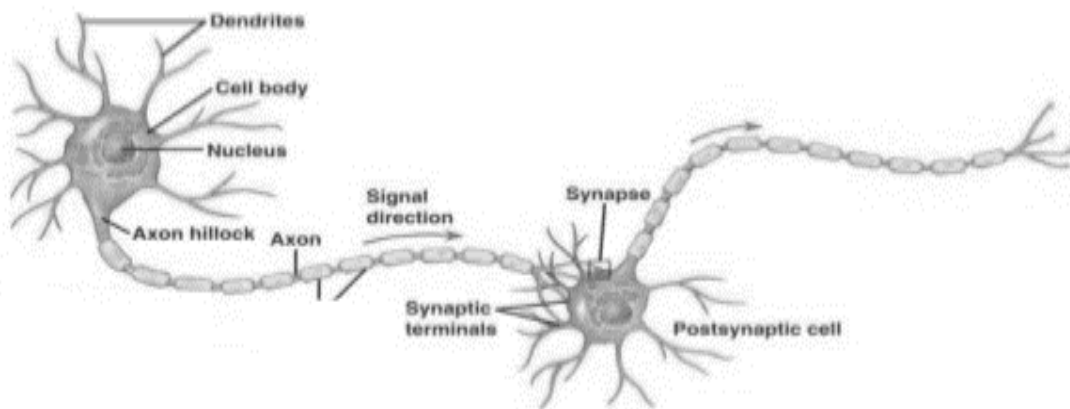
$POOL_{Paymnet}$ : Processing payment costs at commercial banks (open banking networks) in the event of a transaction, and the benefit function of the token.

### 3. Oracle Perceptron Protocol

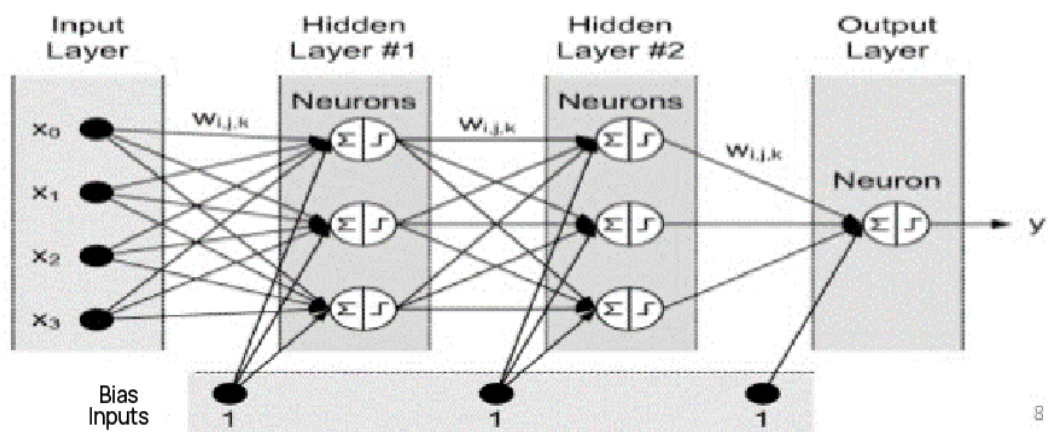
Oracle refers to the action and connection of bringing data outside the blockchain into the on-chain. For example, when using smart contracts, there is a case that bring the data required from outside the chain. At this point, the world of data outside the blockchain is called off-chain, and the world of data inside the blockchain is called on-chain.

Oracle Perceptron Protocol is a protocol that issues synthetic assets to connect custodial assets of the real economy and non-custodial assets of the digital economy, and provides reliability through irreversibility. The key point is that the oracle innovation finance protocol, which broke from the monopoly vicious cycle of the chain network due to the automatic payment of tokens in the real economy and the inefficiency of gas fees due to token use through open banking fintech chain network of traditional finance and the multi-cross chain network of the DeFi.

#### 3.1 Neuron Assets



An asset that synthesizes a bundle of custodial and non-custodial assets into one through a combination of each functional layer is represented as a neuron asset (synthetic asset). Neuron assets allow the value of an asset to be maximized or predicted more than a single custodial or non-custodial asset. For most non-custodial assets, there is a risk to investing in the asset because it is difficult to predict the value clearly. However, in the case of neuron assets, it is possible to predict transparent returns based on the real economy. The predictable asset value of neuron assets is represented by dividing the net asset value and profit value.



### 3.1.1 Asset Value Layer

#### Net Asset Value

The net asset value of a neuron asset assess using the combined (pair) ratio between the net assets.

*\* A formula represents the total value of net assets*

$$PA_T = AAA_T * PA_M$$

$PA_T$  = Total net asset value,

$AAA_T$  = Total value of synthetic asset tokens held by the owner according to the number of networks,

$PA_M$  = The size of each net asset value

#### Profit Value

The profit value of a neuron asset refers to the value at the point of profit, and the profit value varies depending on the transferring speed of the asset and the agency and affiliated stores contents connected to each functional layer. The net asset value also changes accordingly.

*\* A formula represents the total value of synthetic asset tokens held by the owner according to the number of networks*

$$AAA_T = a + \sum_N^i \gamma (P_N + Y_N Y_N) - X_N = \sum_N^i Y_N + aY$$

$AAA_T$  = Total value of synthetic asset tokens held by the owner according to the number of networks,

$X_N$  = Content price paid by consumers,

$Y_N$  = Fees incurred when paying for content (gas),

$P_N$  = Content payment price,

$\gamma$  = Total value function of cost incurred when paying for content,

$a$  = Non – custodial assets,

$N$  = Set of positive integers

*\* A formula represents the sum of the profits value of content generated by each network.*

$$R_T = \sum_N^i \gamma (P_N + Y_N, Y_N) - X_N$$

$R_T$  = Total revenue value of each network content,

$\gamma_N$  = Fees incurred when purchasing content (gas),

$P_N$  = Content payment price,

$Y$  = Content payment function

\* A formula representing the value of synthetic asset tokens held by the owner according to the number of networks.

$$AAA_T = a + R_T$$

$AAA_T$  = Total value of synthetic asset tokens held by the owner according to the number of networks,

$a$  = Non – custodial assets,

$R_T$  = Total revenue value of each network content

\* A formula representing the value of custodial assets and non-custodial assets according to the payment method.

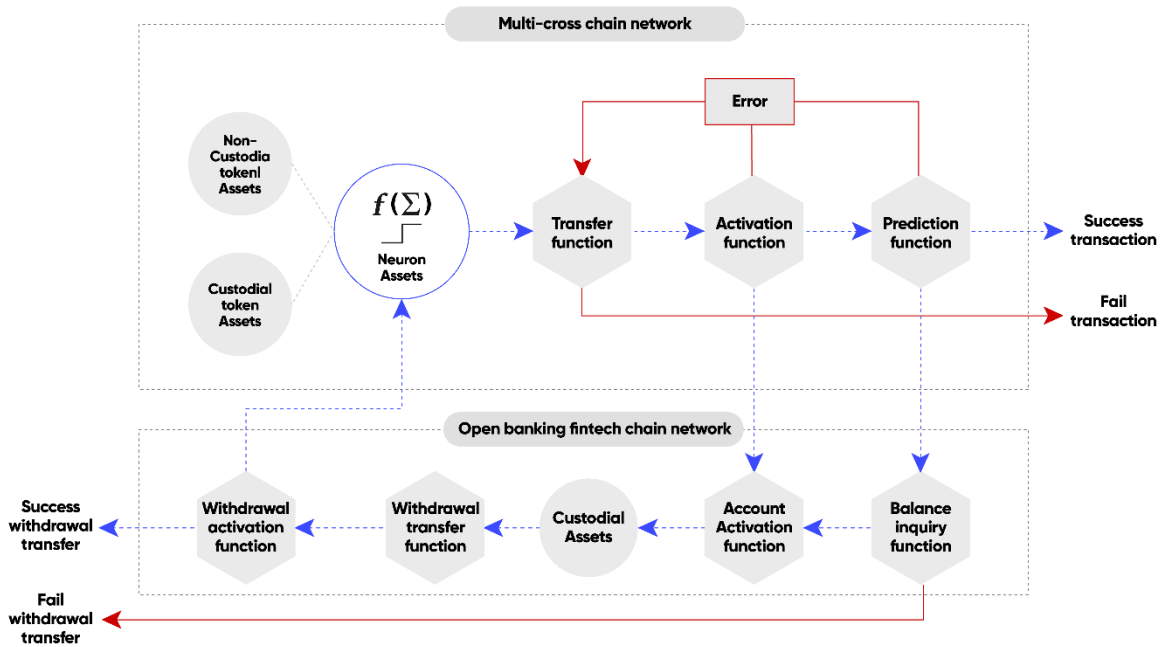
$$TR_N(OB_N \cdot AAA_N)$$

$TR_N$  = Payment in case of N ,

$OB_N$  = Value of central financial trust assets (payable only in open banking network),

$AAA_N$  = Synthetic token value of non – custodial assets

### 3.1.2 Function Layer



- Transfer function

It is a function to transfer custodial and non-custodial synthetic token assets, and to verify the success of token transfer through token transfer events.

- Active function

It serve as an entrance for the transfer of custodial and non-custodial synthetic token assets, and disables the transfer if the proportion does not match after checking the proportion of the custodial assets before the transfer of the token. It is a function to lock-on the withdrawal of the central bank account during the transfer function processing and to lock-off when the transfer function is completed.

- Prediction function

The function of predicting and delivering proportions during transfer of custodial and non-custodial tokens to neuron assets in other perceptrons to prevent risk from changes in the proportion of custodial and non-custodial assets.

### 3.1.3 Governance Layer

Governance processors are formed by bundles of assets that are matched to synthetic assets. The priority decision of governance at first point is the asset with the highest net asset value among the matched asset bundles. After market formation, the assets with the highest profit value among the matched asset bundles will have priority, and the content connections of the agencies and merchants using the synthetic assets of that governance will also affect. Through this, it is possible to create another profits value through continuous content flow into governance, and fair governance priorities can be masked through the governance process.

*\* A formula represents governance according to the percentage of participation.*

$$G_k = \frac{k}{G_T}$$

$G_k$  = Governance when the percentage of participation is k%,

$G_T$  = Total governance,

$K$  = Positive integer

### 3.1.4 Incentive Layer

In order for the platform to grow the suitable reward for contributions to the platform is required. Affiliated stores and agencies that use and consume synthetic assets and governance contributors connected to them are given appropriate incentives accordingly.

*\* A formula represents incentives according to the percentage of profits and investments made by random affiliated stores.*

$$I_k^{Fk} = \frac{G_k}{(i - k)I_T}$$

$I_k^{Fk}$  = Incentive at the  $k^{th}$  affiliated stores and k% of the investment proportion,

$G_k$  = Governance when the percentage of participation is k%,

$I_T$  = Total incentives of investors,

$I$  = incentive,

$K$  = Positive integer

### 3.1.5 Staking Layer

The governance of synthetic assets allows you to decide whether to staking, tokens and rewards. Synthetic assets' direct staking is impossible, but staking is possible through matched asset bundles and follows the hybrid proof-of-stake mechanism of synthetic assets. Staking assets are used in the contents of agencies and affiliated stores and are compensated according to the large and small fees.

*\* A formula represents the interest income generated through staking.*

$$AAA_k = \frac{G_k}{\sum_k^i I_k}$$

$AAA_k$  = K% staking interest,

$G_k$  = Governance when the percentage of participation is k%,

$I_k$  = Incentive when the percentage invested is k%

$k, i$  = Positive integer

*\* A formula represents the total interest income generated through staking.*

$$AAA_T = \sum_k^i \left( \frac{G_k}{\sum_k^i I_k} \right)$$

$AAA_T$  = Total staking interest,

$G_k$  = Governance when the percentage of participation is k%,

$I_k$  = Incentive when the percentage invested is k%

$k, i$  = Positive integer

### 3.1.6 Assets Savings and Interest Layer

When creating a synthetic asset, if the paired asset includes a central finance custodial assets, it can be saved using the synthetic asset(This includes cases of non-custodial assets.). The interest on savings from synthetic assets is equal to the rate of interest generated by the application of traditional financing interest rates. Rewards of custodial and non-cutodial assets is compensated in the following form. The custodial asset forms the interest rate of traditional finance and the non-custodial asset forms the interest rate of BTC, ETH and BNB.

*\* A formula represents an incentive based on the investment percentage.*

$$I_k = \frac{G_k}{\sum_k^i I_k}$$

$I_k$  = Incentive when the percentage invested is k%,

$G_k$  = Governance when the percentage of participation is k%

$k, i$  = Positive integer

## 3.2 Wallet Aggregator

The commonly used meaning of a wallet is a system that serves as a basket for holding non-custodial assets, and is managed through the public key used for encryption and the private key used for decryption. However, in the case of the wallet currently being used, if the private key is lost or missing, the public key cannot be used.

To solve this problem, the integration of public and private keys is essential, and oracle perceptron wallet solves this through digital certificates of public key infrastructure (PKI) that combines public and private keys. The oracle perceptron wallet is provided in two categories: an enterprise wallet and a personal wallet.

*\* A formula represents the function of the private key used in the oracle perceptron wallet.*

$$PKI_{pri} = \sum_k^i enc(Net_k \cdot username \cdot PW)$$
$$find_{pri} = dec(PKI \cdot Net_{name} \cdot PW)$$

$PKI_{pri}$  = PKI private key,  $Net_k$  =  $k^{th}$  network,  $find_{pri}$  = Function to find the wallet private key for a specific network,  
 $enc$  = Cryptographic functions for generating PKI private keys,  $dec$  = PKI private key decryption function,  
 $username$  = Specific network wallet username,  $PW$  = Specific network wallet password,  $Net_{name}$  = The name of a specific network  
 $k, i$  = Positive integer

### 3.2.1 Enterprise Wallet

It is a wallet designed separately to have a wallet infrastructure for the enterprise in which the IT infrastructure is formed. Therefore, it is targeted at enterprises with IT infrastructure, not at all enterprises. With enterprise IT infrastructures with fast network processing speed and high server capacity, enterprise wallets will be suitable for operating on those networks, and will help to build a digital economy by increased transactions in cross-chain networks and attracting many users.

An enterprise wallet can hold a variety of products and services provided by the enterprise. An owner wallet of an NFT token that can issue an NFT token that tokenize assets such as products and services provided by enterprises. It also provides the function that archive or trade issued NFT tokens. In addition, NFT tokens can be sent to Personal Wallets to form a chain infrastructure. Enterprises will provide users with an improved user experience by trading and exchanging tokens between wallets and providing services through NFT tokens, and will lay the foundation for providing reliability and security as the platform expands.

### 3.2.2 Personal Wallet

It is a synthetic asset-based asset that connects various underlying assets and token assets, making it easy for individuals to store and trade, and the private keys of various basic assets can be managed through digital certificates (PKI). Unlike the enterprise wallet, private keys in personal wallets are relatively vulnerable to the possibility of loss or hacking because individuals manage them, so a digital certificate (PKI) in the form of an integrated key pair is required.



### **3.3 Operator Aggregator**

Oracle Perceptron nodes can only be operated by financial institutions, chain foundations, app service providers, and content providers.

While the original node focuses on maintaining and managing the network, oracle perceptron nodes focus on corporate network operations and aim to build a digital economy, so no individual can run the node, only enterprises and institutions can.

Operators can run services provided by enterprises through a chain network composed of hyperledger, and enterprises can operate separate private chains. Hyperledger, a private blockchain platform, provides a suitable environment for enterprise business implementation, and presents a technology standard that can be introduced in general-purpose into various industries. The operator in the chain network composed of hyperledger supports fintech linkages between enterprises and open banking chains in the central financial sector.

The operator provides fintech services (synthetic asset services) for linking traditional financial assets and DeFi assets, and also provides the use of functional tokens by matching chain code function names with NFT token smart contracts and unique numbers. For example, when the NFT token's unique number 215 is sent to users' wallet, the app connected to users' wallet can perform a specific function, and it plans accurate information delivery and portability by using the irreversible and irreplaceable nature of the NFT token.

### **3.4 Payment Gateway Aggregator**

In the traditional financial economy, we purchase and pay for goods in online and offline stores. Actual offline stores have the collateral effect of the store itself, but online stores do not have physical stores, so the value of the collateral effect decreased, making online payment contracts with card companies difficult. Since it is often difficult for credit card companies to make a direct contract because they do not trust unsubstantial stores, online store contracts can only be made indirectly. Since payment fees are the main profit structure for payment gateway (PG), it is natural that the more online stores, the more profit.

In this situation, a new online store structure, called on-chain stores, is emerging. However, there is no clear on-chain payment gateway (PG) system that enables payments in on-chain stores. Oracle payment gateway, a new on-chain payment gateway system that can meet these demands, is a system that provides online payment and payment services in the form of De-Fi along with payments and settlements in the central financial economy through smart contracts. The Oracle payment gateway system provides a platform that enables the payment and settlement forms of different central finance and De-Fi economy to cross each other.

### **3.5 Explorer Aggregator**

Currently, blockchain explorers are divided into network ID such as smart contract, wallet, coin, and transaction contract (Tx), and are recorded on the network in the form of hash values that cannot be tampered. Many people are performing the function to search and check their records after using the network. However, it is very difficult to find the owner who actually created the block and hash because it is searched at the time of block and hash creation, and it is impossible to communicate with the owner. The reason why it is important to explore and communicate with owners is because hacking combined with cryptojackers and ransomware has been increasing rapidly since 2018. In addition, the current explorer must check and explore the block and hash values of all the networks when a cross-chain network environment is established. It's virtually impossible and doesn't consider user convenience at all.

Oracle perceptron explorer solves these problems. The oracle perceptron neuron network checks the end user's browser and OS in the chain network first to records the block and hash values that has been searched. Blocks and hash values from client consoles (web browsers and apps) to client OS and device information are recorded together with the owner information that created them to minimize the risk of hacking and build higher security. In addition, since it records both the block and hash values of the cross-chain network, it provides convenience for users who want to track the networks belonging to the cross chain. Furthermore, it provides an integrated management function that records all information generated in the real economy and the digital economy such as neuron asset creation, exchange, wallet creation, payment, settlement, etc. as blocks and hash values.

*\* A formula represents the function to track user information in oracle perceptron explorer.*

$$tra(TX_{op}) = tra(Client_{IP} \cdot Server_{IP} \cdot \sum_N^i TX_{Network}^N)$$

$TX_{op}$  = Oracle Perceptron Tracer,

$Client_{IP}$  = Client IP address (Android, IOS, Web browser),

$Server_{IP}$  = Server ID (Linux, Window, MacOS),

$TX_{Network}^N$  = Network to be tracked (BTC, ETH, BNB, ETC networks),

$tra$  = Tracking function

## 4. CPX Token Economics

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### 4.1 CPX Token Overview

CPX Token is a medium that connects the custodial assets and non-custodial assets which are various assets of the traditional finance and Defi. Currently, in the Defi market, attention is focused on a digital currency called CBDC. Various countries and financial institutions are continuously researching and introducing digital currency, and at the same time, they are entrusting Bitcoin and Ethereum to become assets. As these various currencies enter the economy and begin to become assets, the technologies the market needs become clear. CPX token assets technology is a technology that can connect various assets, such as digital assets, peg assets, virtual assets, and physical assets.

### 4.2 CPX Token Use

If the CPX token is used for exchange and payment in the user's wallet, economic life is possible only with the CPX token without using the gas fees of the underlying assets, and the gas fees of the underlying assets will come from the owner's designated gas expenditure wallet.

#### 4.2.1 Neuron Assets (synthetic assets) Issuance

In the case of issuing synthetic assets, the above various types of assets will be connected together in a structure similar to a neural network (a tangled web shape) to create various derivative assets, which are called neuronal assets. The CPX token is required when creating neuron assets as shown below.

|   |       |
|---|-------|
| 3 cross chain network synthetic assets                                      | 4     |
| 10 cross chain network synthetic assets                                     | 11    |
| 1 traditional finance account and 10 cross chain network synthetic assets   | 2000  |
| 3 traditional finance accounts and 10 cross chain network synthetic assets  | 5500  |
| 10 traditional finance accounts and 10 cross chain network synthetic assets | 16500 |

#### 4.2.2 Synthetic Assets Exchange and Settlement Pool Creation

In order for assets to connect each other, the pool that can store the various assets is required. For this purpose, the financial sector continues to conduct research focusing on digital assets, and several financial institutions are on the verge of actual introduction. In this flow, a pool where we can exchange and pay for various assets is required.

CPX tokens are required when exchanging custodial assets and non-custodial assets of traditional finance and creating payment pools.

|   |      |
|---|------|
| Cross chain network connection synthetic assets exchange and settlement pool  | 10   |
| Traditional finance open banking chain network and cross chain network connection synthetic assets exchange and settlement pool | 5000 |

### 4.2.3 Oracle Wallet Creation

Many countries have digital assets and a various assets that are planned to be implemented after establishing a cross-chain Defi ecosystem. In order for businesses and businesses, businesses and individuals, individuals and individuals to trade in P2P, wallets are required to hold assets. CenterPrime provides wallets for smooth asset transactions for each company and individual.

|   |      |
|---|------|
| Personal wallet   | free |
| Enterprise wallet (support operator) creation   | 10   |
| Traditional finance open banking connection enterprise wallet (support operator) creation | 3000 |

### 4.2.4 Oracle Perceptron Node Registration and Operation

The nodes of oracle perceptron are consist of financial institutions, chain foundations, app service providers, and content providers, and support transactions between various assets and provide an operator platform. General individuals cannot operate nodes, but only enterprises and institutions can operate nodes.

The CPX token is required to operate and register nodes as shown below.

|                                    |      |
|------------------------------------|------|
| Content provider node registration | 5    |
| App service node registration      | 10   |
| Public chain node registration     | free |
| Private chain node registration    | 10   |
| Banking service node registration  | 5000 |

### 4.2.5 Transaction Fee

The ecosystem platform provided by oracle perceptron requires CPX tokens as transaction fees incurred for exchange, transaction, payment, settlement, and investment between assets. Whenever a P2P transaction occurs, CPX tokens are required for a transaction fee of 0.02% of transaction amount.

## 5. Future Work

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CenterPrime has already made virtual assets available to various traditional financial providers through GitHub, and has released various technologies that can build an ecosystem through cooperation with various virtual asset providers. In addition, we are collaborating with our partners to create a liquidity pool that can be connected to various financial products such as investments and loans provided by central financial companies, virtual assets definition, and ecosystem expansion, etc.

According to the blockchain-based innovation finance ecosystem research report published on January 29, 2021 by the Ministry of Science and ICT(MSIT), the major challenges that must be solved for the growth of the DeFi ecosystem can be divided into four categories. First, network (mainnet) structure, second, code integrity, third, user-friendly UI/UX, fourth, sustainable financial ecosystem.

CenterPrime has described above to present the problems of the current network structure and suggested a structure that can improve it. Network delays and excessive fees arising from centralized network use and volatility of underlying assets will be addressed through synthetic asset tokens that can integrate various networks. In addition, continuous audits and evaluations are underway to meet the integrity of the code. It is a project that has been positively evaluated by Certik, a blockchain company that evaluates code, but will be cross-validated by institutions, businesses, and users through continuous updates and transparent code reviews.

One of the issues raised through reports from various organizations, the main issue of UI/UX is to lowering entry barriers. The factor that increases the barriers to entry for users is difficult private key management. There are many users who do not understand the concepts and characteristics of public and private keys, and the difficulty of managing private keys also plays a part. As we are a project that serve as a bridge between traditional finance and decentralized finance, we will build a PKI system (public and private keys managed at once), an integrated certificate with the general-purpose that allows users to conveniently use all networks. This will provide a wallet that facilitates transaction and use of synthetic assets, providing user-friendly UI/UX such as Samsung Pay and Apple Pay. In addition, we will lead the expansion of the resal DeFi ecosystem through synthetic assets, which are the first penguins of sustainable financial logic to lead the inflow of real users.

CenterPrime will develop into the De Facto Standard of the ecosystem, presenting the technology, service model, financial logic and methodology that will drive explosive growth of the DeFi.

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